WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

Concise Explanatory Statement

Agricultural Burning
Grass Seed Field Amendments

Prepared by:

Washington State Department of Ecology
Air Quality Program

January 1997
Publication Number: 96-218

Printed on Recycled Paper

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This is the publication version of the Concise Explanatory Statement. This version contains format edits and sentence structure edits to the Concise Explanatory Statement dated January 7, 1997. Both are available for public review.

The comments and responses were edited without changing the responses. The overview sections were also edited to make the document more clear.

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** The appendices A - D do not have page numbers in sequence, but follow the Comments and Responses section of this document.*

*** Appendix E totals several hundred pages and, in order to conserve resources, has not been included in this publication. The testimony is available for public review as part of the rule making file. The original of the rule-making file is located at the Department of Ecology Headquarters Office in Olympia. A duplicate copy is available at the Eastern Regional Office in Spokane.*

Purpose of the Concise Explanatory Statement

Administrative Procedures Act Requirements
The Administrative Procedures Act requires the Department of Ecology (Ecology) to complete three documents prior to adopting or filing an agency rule. The three documents are:

- The Concise Explanatory Statement
- Economic Analyses
- Implementation Plan

In addition, Ecology must make determinations as required under RCW 34.05.328, the Administrative Procedures Act. Ecology has made the necessary determinations. The determinations are documented in a staff memorandum, which can be found in Appendix C.

Contents of the Concise Explanatory Statement:
The Concise Explanatory Statement serves as the primary tool for Ecology to respond to the comments received during hearings, as required by the Administrative Procedures Act. Responses to these comments are contained in this document.

Ecology also uses the Concise Explanatory Statement to provide a synopsis of the rule-making process, explaining what approaches were used and the result. The next several pages contain a brief description of:

1) Economic Analyses - the type performed and the results, 2) State Environmental Policy Act - review of actions taken, 3) Certification Process - progress in the process to review and certify, where appropriate, alternatives to burning, 4) Timeline - a timeline for rule adoption, 5) Rule language changes - changes to the rule language from the proposed version.

What is *NOT* Included:
The Concise Explanatory Statement does NOT include the implementation plan or the economic analyses. To include them would make this very large document even more cumbersome.

If you are interested in all the documentation, there is one source that includes everything - the official rule-making file. The official rule-making file is located at Ecology's headquarters office in Olympia and is available to the public for review.

Background

Introduction

Commercially valuable grasses are grown in various parts of Washington, primarily in Spokane County, for seed production. Grass seed is generally harvested in July and August. After harvest, grass fields have traditionally been burned. Burning clears the field of straw. This kind of open burning produces large amounts of smoke which contains high levels of small particulate matter and gases that are harmful to human health. The burning season is short, generally lasting only three weeks to a month in late August and September, and in most cases, efforts are made to direct smoke from field burning away from local population centers. Smoke management however, does not reduce emissions. Instead it seeks to minimize impacts by burning during favorable meteorological conditions. Despite these efforts, the impacts of smoke from field burning have been a continual problem, particularly in the area around Spokane. An intense debate regarding the health impacts and economic benefits of field burning has been going on for several years.

Until this year, there has been no consensus regarding the health effects of field burning. Proponents have argued that field burning is a relatively minor source of particulate matter, and, therefore, is not the cause of significant health effects. Opponents of field burning argue just the opposite. They contend that even with the short burning season, the smoke from field burning is a very significant cause of respiratory problems, increased suffering by asthma and other respiratory disease sufferers, and even, in some cases, mortality. The medical community, primarily in Spokane and surrounding areas, issued several statements that concluded that field burning smoke, and the associated fine particulate matter, affect their patients. These statements make clear that field burning associated with grass seed production is currently causing significant negative health effects, especially in Spokane and its vicinity.

Various Approaches

Several approaches were used in dealing with this issue over the last twenty years. Unfortunately, none of these approaches reduced emissions. The examples below represent only the most recent efforts.

The *Inland Northwest Field Burning Summit* was formed in 1990 to try to resolve the "smoke" problem. This organization started out working on all aspects of this issue. In 1995 the group changed focus and took on more of an education and information sharing role. This occurred after various members either withdrew, or threatened to withdraw, participation.

Another non-regulatory approach came in the form of Best Management Practices. Best Management Practices were developed by growers (through the Agricultural Burning Practices and Research Task Force) and implemented in 1995. While these BMP's were a step toward emission reductions, no actual emission reductions were achieved.

Plan to Reduce Emissions

In March of 1996, Ecology determined emissions from grass seed field burning are not adequately controlled and announced plans to reduce emissions from this source. The plan consists of two phases: 1) acreage burn limits by one third in 1996, and an additional one third in 1997 and subsequent years; and 2) replace burning with alternatives. To put this plan into effect the Department of Ecology either has undertaken or is about to undertake the steps outlined below.

<u>Emergency Rule</u>
Ecology filed an emergency rule to reduce the number of acres of grass seed field burning by one third in 1996. This emergency rule has been adopted for three consecutive 120 day periods, covering the majority of 1996. There will be no gap between the expiration of the third emergency rule and the effective date of the proposed permanent rule (in late January).

Prior to 1996, grass seed field burning was regulated through smoke management, which directs smoke away from heavily populated areas, rather than through emissions reductions. Although emission reductions for other sources of air pollution have been available as a tool for many years, it has not been used before to control emissions from grass seed field burning. However, it is important to point out that the limitations being imposed treat grass seed field burning in a manner consistent with limitations previously imposed on other sources of air pollution, including other types of outdoor burning. Other significant sources of air pollution have been required to make permanent decreases in their level of emissions. The emergency rule describes in detail several examples.

<u>Permanent Rule</u>
Ecology developed the rule with the help of an advisory committee consisting of members representing all sides of the issue. This committee met in May and June of 1996. The advisory committee did not reach consensus on any of the issues. However, Ecology used helpful suggestions that were made. For example, the emergency rule did not specify a start date, so by default, it was the date the first emergency rule was filed. This meant growers had to

use March 29, 1996 as the date to calculate their acreage in production. Unfortunately, spring of 1996 was very wet and many growers did not plant fields until April. Upon learning this, Ecology, in subsequent emergency rules, changed the date to May 1, 1996 as the cut off date for calculating acreage in production. This change allowed growers to count what they had planted in 1996 in their calculation of "total acreage in production."

Alternatives Review and Certification Process

In addition to the acreage reductions, Ecology has committed to a review and evaluation of alternatives to current field burning practices. Upon completion of the review, evaluation and public comment, Ecology will certify any practical, economical, and reasonably available alternative. This will be accomplished through an administrative order.

Summary of the Rule

Proposed Permanent Rule

The Department of Ecology filed the pre-proposal statement of inquiry on June 5, 1996, and the proposed permanent rule on July 25, 1996. The proposed permanent rule requires a one-third reduction in 1996 and an additional one-third reduction in 1997 and subsequent years. The proposal also provides for: 1) a five percent exemption for unusual or extraordinary circumstances; 2) a permit trading program; 3) evaluation of alternate methods for measuring emissions; 4) evaluation and certification of alternatives to current open burning practices; and 5) evaluation and certification, as appropriate, of alternatives.

Changes to Proposed Rule

There are some minor changes, other than editing, to the proposed version. The table below identifies these changes. A Deletion from the text is shown as a strikethrough while additions are italicized in bold.

Section	Text	Reason for Change
040(4)(e)	A farmer may request an exemption for ~~unusual or~~ extraordinary circumstances, ***such as property where a portion(s) of the field is oddly shaped or where the slope is extremely steep***.	Clarify the type of circumstances and add examples.
040(4)(e)(i)	The exemption ***request*** must be certified by an agronomic professional;...	Clarify the intent.
040(4)(f)	If ecology or the local air authority finds that ***emissions resulting from*** trading ~~is~~ ***are*** creating a health impact, as defined by ecology or the local air authority, the trading system, once created may be dissolved.	Clarify the intent.
040(4)(f)(vi)	The authorities are encouraged to work together to use the same system and to allow trading between authority jurisdiction so as to allow grass seed growers to adjust to the ~~sixty-seven percent~~ ***two thirds*** reduction	Clarify the intent.
040(4)(h)	If ecology finds that a practice involves some burning and still substantially reduces emissions below open field burning, ecology may certify the ~~alternative~~ ***alternate*** burning practice(s) by administrative order.	Consistency throughout the sentence.

[Note - Section (f) changes were inadvertently excluded from the version in the file on January 7. We have corrected this oversight for the published version.]

Scheduled Adoption Date

The scheduled adoption date is January 7, 1996. Once the adopted rule is filed with the Washington State Office of the Code Revisor, it becomes effective 31 days from the filing date.

Summary of Public Involvement

Symposium

Ecology sponsored a Symposium on Grass Seed Field Burning on March 25, 26, and 27, 1996 at the International Agricultural Trade Center in Spokane. Speakers were chosen, with the assistance of the Intermountain Grass Growers' Association and Save Our Summers, to present information on the grass seed field burning issues under three categories; economics, alternatives, and health.

Advisory Committee

Ecology sought advice from an advisory committee composed of members representing all sides of the grass seed field burning issue. This advisory committee met throughout May and June, but did not reach consensus on any of the issues. Further discussion of the advisory committee activities is found on page 2 under the Permanent Rule category.

Public Hearings

The proposed rule was filed on July 25, 1996 and then published in the *Washington State Register*, WSR 96-16-014. Legal notices of public hearings were also published in the Washington State Register. Paid notices were published in nine eastern Washington newspapers and the *Skagit Valley Herald.* In addition, the public hearing notice was mailed to approximately 900 interested people. Opportunities to testify were offered through attendance at a public hearing, written comment, and over the telephone through a 1-800 line. Comments were accepted through September 20, 1996. Ecology received over 1,600 comments.

Ecology conducted six public hearings in the following locations:

September 10
Franklin County PUD
1411 W. Clark
Pasco

September 11
Freeman Jr. High School Gym
Hwy. 27 and Jackson Road
Freeman/Rockford

September 12
Spokane Health Department
W. 1101 College Ave, Rm.140
Spokane

September 17
Pomeroy High Sch. Cafetorium
S.209 - 10th Street
Pomeroy

September 18
Public Service Building
N. 310 Main
Colfax

September 19
American Legion Hall
Division and Broadway
Ritzville

State Environmental Policy Act

Determination of Nonsignificance

Ecology completed an environmental checklist and decided a Determination of Nonsignificance (DNS) was appropriate for this proposal. A DNS was issued on July 24, 1996. The comment period for the DNS ended September 20, 1996.

Review of Action Taken Under SEPA

Ecology reviewed and evaluated comments made on the DNS and determined that the new information did not warrant withdrawing the DNS. Ecology's responses to comments on the DNS and SEPA can be found in this document. Ecology also filed an addendum under the State Environmental Policy Act.

The following is an excerpt from an agency staff memorandum addressing environmental and SEPA concerns:

PART THREE -- CONCLUSIONS

I. SUMMARY OF POTENTIAL ENVIRONMENTAL CONSEQUENCES

The potential adverse environmental impacts resulting from the proposal are related to changes in farming practices in the region where grass seed is now grown. The principal changes are expected to be a shift or switch from grass seed production to other crops which are common to the region and farming grass seed fields without burning. Different crop types call for different farm operations and different environmental consequences. In general, the increase in effect (relative to current or pre-proposal conditions) is closely related to, and on the same order as, the increase in production of the "replacement" non-grass crop types. The estimate of acreage shifting (indirectly due to the proposal) represents:

**An increase of less than one percent in the acreage of the typical non-grass, "replacement" crops currently in the region where grass seed is grown.*

**Less than five percent of the typical annual fluctuation in wheat production (one of the principle "replacement" crops).*

**Less than three percent of the greatest two-year fluctuation in wheat acreage (over the last ten years).*

More specifically, slight increases in dust may come from changes in farming practices indirectly due to the proposal. These increases are well within the variation one sees in farming practices from year to year. Significant reductions in smoke will result from the proposal.

Slight increases in soil erosion may come from changes in farming practices indirectly due to the proposal. Slight decreases in water quality may come from the increases in soil erosion. Again, both conditions are well within the variations expected from year to year.

II. MITIGATION

Most of the potential adverse environmental consequences indirectly related to the proposal are currently commonplace. As such, mitigating practices are also in common usage. Because systems are already in place to identify, encourage and/or require the use of appropriate conservation and best management practices: Additional requirements for mitigation are not needed as part of this proposal.

III. RECOMMENDATION

Following careful consideration of all comments and additional information which provide new information of interest...

Following thorough reconsideration of the DNS in light of the comments and additional information...

Following a reevaluation of the environmental analysis, based on comments and new information, determining that there will be no probable significant adverse environmental impacts from the proposal...

Following careful review of comments and evaluations and finding no reason to withdraw the DNS pursuant to WAC 197-11-340(3)(a)...

Following responding to comments through the Concise Explanatory Statement prepared for the proposal as deemed appropriate by Ecology:

With respect to the potential adverse environmental consequences likely to result from adoption of the proposed regulation changes limiting grass seed field burning, I recommend that the Department of Ecology:

Maintain the Determination of Nonsignificance (DNS); and, adopt/issue an ADDENDUM which includes the Concise Explanatory Statement and the Economic Analysis prepared for the proposal.

*The SEPA documentation can be found in Appendix D of this document.

Economic Analyses

Small Business Economic Impact Analysis

Ecology contracted with Huckell Weinman and Associates to complete the required Small Business Economic Impact Analysis (SBEIS). The SBEIS was completed and available July 25, 1996. The SBEIS showed no disproportionate impact between large and small businesses.

There were some comments on the SBEIS, which are addressed in the Comments and Responses section of this document. Ecology reviewed the comments and determined that based on the comments additional analysis of the SBEIS document is not warranted.

Cost/Benefit Analysis

A cost analysis and a benefit analysis was conducted by Washington State University for this rule. Several methods were used to calculate probable costs and probable benefits. The results show that the probable benefits of this rule outweigh the probable costs. The best estimate of probable costs is 5.6 million. The best estimate of probable benefits is 8.4 million. The estimated total benefits range from 6.6 million to 10.2 million and total probable costs between 3.9 million and 7.9 million.

The economic analyses and associated studies are available for review in the rule-making file.

Implementation Plan

To fulfill requirements of the Administrative Procedures Act, an implementation plan was prepared and is available for review in the rule-making file.

Comments and Responses

Comments from the Environmental Protection Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION 10

Mary Riveland, Director
Washington Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Ms. Riveland:

I am writing to express the Environmental Protection Agency's (EPA's) support of the Department of Ecology's proposed amendment to Ecology's Agricultural Burning rule (WAC 173-430) to address grass seed field burning. EPA has received many phone calls from citizens concerned about potential adverse health effects from the burning of grass fields after harvesting. The approach Ecology has adopted should significantly reduce the emissions of particulate matter from these practices and greatly ameliorate those concerns

We appreciate the strong leadership role which Ecology has provided to the communities affected by grass seed field burning. If approved, Ecology's amendment will result in real reductions of particulate matter released to the atmosphere. This approach should also result in the development of acceptable alternatives to historic grass seed field burning practices which will meet the concerns of citizens impacted by such practices and the needs of the growers.

If the EPA can be of any assistance, please let me know.

Sincerely,
Anita J. Frankel, Director
Office of Air Quality

Response:
Thank you for support on this issue.

Comments from Legislators

WASHINGTON STATE LEGISLATURE

September 18, 1996

Melissa McEachron
Department of Ecology Eastern Regional Office
4601 North Monroe, Suite 202
Spokane, WA 99205 1295

Dear Ms. McEachron:

We are writing in reference to the Department of Ecology's proposed adoption of amendments to Chapter 173-430 WAC which radically restrict or virtually eliminate field burning in the commercial production of grass seed. We strongly oppose the amendments for several reasons.

- **These proposed rule changes unfairly target the grass seed growing industry**. These changes coupled with the alternatives to field burning proposed by the department, will create crippling financial burdens that can destroy the industry. It is important to note that grass burning emissions is only 7/10 of 1% of the emissions problem. Other industries that produce emissions and particulates have not been so dramatically impacted. We certainly don't ask drivers of automobiles, wood stove users, or large manufacturing plants to abruptly contain their activities. In many instances, programs of setting goals for emission controls have been suggested to allow a gradual transition for an industry to achieve optimum emission levels, rather than imposing unrealistic expectations that can destroy the trade. In addition to [letter was taken verbatim - information missing on original]

- Under the proposed rules, farmers who have grown grass previously but are out currently for crop rotation or other reasons, lose any ability to burn any future planting. Landlords as well, cannot lease land to produce grass with burning if their tenants were not growing grass in 1996 but the land historically had grass grown there.

- **The Department of Ecology is considering changing a rule that impacts the entire state of Washington based on criteria supplied by special interests from the Spokane area**. The loud rhetoric from Spokane physicians hardly substantiates the need for implementing broad brush revisions that impact businesses on both sides of the mountains. Please note, that under the current method, Spokane has never been in violation on a burning day.

- **Drastically altering the means of grass burning can create new hazards among the employees of the grass burning industry**. The new mechanical thatching equipment alternatives would increase safety hazards, especially on ground that slopes more than ten degrees.

- **Implementation of the proposed rules could adversely impact the environment**. Water quality and soil erosion problems can develop. It does not seem practical to replace 1500 toms of air emissions with soil loss of 15,000 tons into our streams and ditches which would negatively impact water quality. Let's be mindful that soil can be replaced only at a rate of 1 inch per century.

These are but a few of the considerations that need to be addressed before the department takes such drastic action as implementing the state wide rule changes. We would have preferred to address these issues at the administrative hearings, but unfortunately we are committed to our responsibilities at this month's Legislative Committee Assembly scheduled by the Legislature.

We would ask that Grant Pfeifer of DOE present future comments on the industry that are consistent and unbiased. Telling growers in Franklin County that Spokane Counties burning is a **major** source of pollution when in reality it is only 7/10 of 1% is not acceptable or consistent in presenting the departments message in administering programs.

Nonetheless, we hope that attention will be given to our comments. The Department of Ecology should not adopt these proposed amendments to Chapter 173-4230 WAC. Additionally, it should immediately rescind the emergency rules it has adopted to initiate the policies contained in these proposed amendments to the permanent rules.

Sincerely,

Mark G. Schoesler
State Representative
9th Legislative District

Eugene A. Prince
State Senator
9th Legislative District

Response:

Thank you for your comments on this proposed rule. The Department of Ecology has noted that you oppose this rule for several reasons.

One of your comments states that Ecology is unfairly targeting the grass seed field industry. Ecology believes it is correctly following the applicable sections of the Washington State Clean Air Act, specifically RCW 70.94.656. Ecology has worked with the grass seed field industry for twenty years attempting to effectively control emissions from this source. Unfortunately, smoke management alone has not worked to effectively control emissions nor alleviate the impact of burning.

Another comment questions the need for a statewide rule. Ecology has the responsibility to protect all citizens of the state. In the case of grass seed field burning, the crop is grown statewide. While Spokane County has the largest number of permitted acres burned, thousands of acres are burned outside of Spokane County. There are also other considerations that tip the scale toward a statewide regulation. Examples of such are the nature of fine particulate matter with its capability to travel far, and the burning itself which, absent an incinerator, does not completely combust, and is performed in basically the same manner statewide. For emissions to be effectively controlled, Ecology believes a statewide pro-rata reduction is warranted.

Next, you comment that implementing the proposed rule can create new hazards among the employees in the grass burning industry. Ecology is not mandating dethatching or any other residue removal method in this proposed rule. It is each growers obligation to determine what his / her response will be to the rule. It should also be noted that the burning process is not free of hazards.

Your comments also point out that implementing the proposed rules could adversely impact the environment. As you are probably aware, Ecology must make a determination on the environmental impacts a rule is likely to have. On this particular rule, Ecology's best estimate is that the impacts will not result in significant adverse impacts to the environment. Ecology used information collected in the hearings to re-evaluate this decision. The new information did not warrant a change of the threshold determination.

Finally, you make a comment indicating that the amount of pollution generated by grass field burning is small. The actual amount of pollution created by grass seed field burning can only be estimated because of the variables involved in calculating emissions. The nature of grass field burning produces concentrations of smoke during the burning "season" that are not completely characterized by statewide, annual emission comparisons. Past burning and the pollution it has created have led to the health concerns raised by citizens and the medical community.

Pasco Hearing: Dave Mastin
13½ E. Main #211
Walla Walla, WA 99362
(State Representative District #16)

For the record, my name is Dave Mastin. I'm the state representative from the 16th district which includes Franklin County, Walla Walla County, Columbia County, Garfield County, and most of Asotin County. Just so you folks know that the hearing you are in right now is similar to a legislative hearing, and we do have time limits. We have a three-minute time limit which the reason you have that limit is that if you have a whole bunch of people testifying. Fortunately tonight we only have about nine or ten people testifying, so I'm going to ask your indulgence if I go a little bit over the three-minute limit.

I have worked on this issue for several years. I'm on the Ag and Ecology Committee in the House. My address for the record, my legislative office, is 13½ East Main, Number 211, that's in Walla Walla. The zip code is 99362; that's my address; number 527-4111.

I'd like to testify today, and I have a few things that I want to ask, and I think hopefully this might clarify for at least some of the people here why their feeling some frustration with what's happening here.

To begin with, the first thing that I would like to address is the fact that what we are talking about is an air quality standard. The government has to go by standards. They can't go by anecdotal evidence; they can't go by hospital emissions. They have to go by standards. And so, what is the standard that the Washington State uses for air quality? Gary Chandler, who is the chairman of the committee, and I and Mark Schoesler sent a letter to Mary Riveland, the Director of the Department of Ecology, and she told us what the standard was, and I'm going to read it here. She returned a letter with May 16, 1996, and this is a quote, I'm quoting, "The federal government has set breathing air standards for six pollutants. Grass seed field burning creates four of these pollutants -- $PM_{10,}$ carbon monoxide, nitrogen dioxide, and ozone." So this is the air quality standard we've had some comments about, that we want to deal with the air quality standard and that is the air quality standard in the state of Washington.

Why has the Department moved forward in this action? The question that I would have, and this is again from Mary Riveland, is that she has said that there has been recent developments, and that is why we are dealing with the reduction in acreage for grass burning. She said there has been some recent developments. Well, recent development means in my understanding of the state following the federal standard, is that there has been violations of the set standard for our state. And so, we asked the question, here's the response. "In 1994," (Speaker: This is on page three of Mary Riveland's response to Gary Chandler, Mark Schoesler, and Dave Mastin), "In 1994 and in 1995…(Speaker: "Skip some stuff.") there was few exceedants of the federal ambient air quality standard in Washington State. (Speaker: "There were few.") Within the grass burning, within the five grass burning counties where ambient monitoring there was one exceedance of the PM_{10} standard, and that was measured in 1994. There were four exceedances of the carbon monoxide standard, and that was measured in '95. (Speaker: "Where was the PM_{10} standard exceedance occurred? It occurred in Wallula, and I mentioned that early on.") It occurred in Wallula, and in 1995 the carbon monoxide exceedance occurred in Spokane during the months of January and December. (Speaker: "Now again, I want to remind you, I'm reading the Director of Department of Ecology's letter to me. So she's telling me this; I don't know if this is true or not; this is what she is saying is factual. So here we are during the months of January and December. I'm not, I don't even have to ask anybody whether they burned during the months of January and December because the Director of your department then goes on to say...") to the best of our knowledge, no grass field burning took place on these days."

Ma'am, whether we're going to reduce the standard, there was no, this is from the Department, "to the best of our knowledge, no grass field burning took place on these days." What is the recent developments I would ask the Department to answer. What are the recent developments? We've had talk that there's been some doctors, several doctors in the Spokane area, talking about air quality. That's true; they did send a letter. They were talking about air quality, and one of the things they mentioned was grass, grass burning. That was one of the things they were mentioning in that letter. The Department agrees with the doctors. I think the Department agrees with this lady here as well that the air quality standard is too high. In fact, Mary Riveland again, page three, about the fifth paragraph down, says, "Studies show clear and consistent evidence that fine particulate particles in the air beginning at levels only one-fourth the current federal standard (Speaker: "So we got PM_{10} .") so levels that are one-fourth of that cause extra deaths, lung disease, and worsen existing respiratory and cardiopulmonary disease." What the Department is saying is our standard is too high; that's what the Department is saying.

Why is there frustration in the grass burning industry? It's because the Department is saying our standard is too high, and the way government should respond when the standard is too high is reduce the standard. It's not to go after one industry, by far the smallest industry in this issue; it's to reduce the standard. If the Department of the Ecology, whether I agree with that, or whether these people agree with it, if the Department of Ecology decides that the air quality standards in Franklin County and Benton County and Walla Walla County across the state are not being met because the standard is too high, then they should reduce the standard. Why have they not done that? I don't know. I don't know what the answer is to that. What I would ask the Department is if you did reduce the standard as you have said in the letter from your Director,

what would happen is the roads in Spokane would have to be paved; the people who live out on Rifle Club Road in Spokane would have to walk to work ten miles into Spokane because as you reduce the standard, the things that are causing the biggest problem is not field burning. It's commuters; it's the dust from the country roads, and it's also the gravel that the Spokane County is putting on those roads. And so what the difference is, the reason why I think, maybe not asking a question of the Department at this point, the reason that I think that the choice was to go after a small industry is because you're small. It's tough to take on big industry, and it is tough to take on the second biggest city in the state in Washington State. And so I think if the Department wants to lower the standard of air quality, then do it across the board, and look at the people who are causing the violations at this point, and do something about that. I think this is a bully pulpit is what's happened here, and it's very frustrating for me as a legislator knowing that last year we dealt with this issue in the legislature. We had bipartisan support across the board, House and Senate, trying to deal with the Spokane difficulties as some gentlemen have mentioned.

And that pretty much wraps up my testimony. I just, again, the standard is what you should be dealing with in my opinion, and if that's the case, we know that there are a lot of other causes out there, and I would hope that the Department would take this testimony and the others seriously, and I look forward to a response. Thank you.

Pomeroy Hearing:

Good evening. For the record, my name is Dave Mastin. I'm the state representative from the sixteenth district which includes Franklin County, Walla Walla County, Garfield, Columbia, and most of Asotin County. Here in Garfield, I'm better known as the wild cow grower.

I have been in contact with your director and have received a letter dated May 16, 1996, as a member of the Agricultural and Ecology committee. As well, she also contacted Gary Chandler, the chairman of that committee, and Mark Schoesler, a wheat grower from Ritzville.

The first question I have is that we all know that when we're talking about air quality that it's determined by the concentration of pollutants. We know everyone here probably drove a car or a truck here. There is pollutants out of every car and truck, but what we're really talking about in air quality is the concentration. So we asked your director what the standard was for the state of Washington, and your director responded that the federal government has set the breathing air standards for six pollutants. Grass seed field burning creates four of these pollutants, PM_{10}, carbon monoxide, and a few others, but PM_{10} and carbon monoxide.

The next question that I had was if that's the standard that we use in the state of Washington to determine air quality, how many violations have we had in the last two years, in '94 and '95, and her response was simply that we have had in '94 and '95, we have had five violations of the standard.

One violation was for PM_{10}, and four were for exceeding the carbon monoxide standard. The one violation for PM_{10} was in the Wallula Junction which is in Walla Walla County. All the carbon monoxide violations were in Spokane. I did ask the question was field burning part of the problem, is that what caused the violation of the standard? Now this is from the Department of Ecology, the director Mary Riveland, and her answer is that "to the best of our knowledge, no grass field burning took place on any of these days."

If we had had no field burning in 1992, if the Department had gone forward with regulations that said no field burning whatsoever in 1992, would we have had air quality violations in '94 and '95? Yes, we would have because we had violations when there was no field burning going on. So even if this regulation were in place, we still would have had the air quality problems that we had in '94 and '95. So why are we here? Why are we here to talk about reducing the acreage and the amount that we can burn?

From your department it said the study showed clear and consistent evidence that fine particles in the air beginning at levels only one-fourth of the current federal standard caused extra death, lung disease, and

worsened existing respiratory and cardiopulmonary disease. That means that the current federal standard in the estimate of the Department is not satisfactory. Is the Department suggesting stricter standards at this point? No, the Department is not. If it were to suggest stricter standards, what they would have to be going after is some of the larger air quality polluters which includes the commuters of Spokane, includes the dirt roads of Spokane, and includes the gravel that is placed on the roads during icy season, and that during the thaw, during the spring thaw, we see the PM_{10} particles above the air because of that. If we have stricter standards, those would be the priorities, I would think, in the Department, and why have we not gone with the stricter standard, and I think what the gentleman said makes sense because majority rules in this state. If majority, with the second biggest city in the state being Spokane, the citizens would have to walk to work, and that would not be acceptable, and what has happened here, in my opinion, is we have gone after the least polluter of the air and a very small industry that is not a major polluter because it's the easy one to go after, because they don't have the political power in Spokane County, the city of Spokane, or the accumulative power of the citizens of Spokane.

The people here want to know if you're using science. They want to know have you checked air quality in Garfield County; have you looked seriously at alternatives; have you tried to reach consensus in a meaningful way? The answer I don't think is ever going to come out because this isn't about science. It's not about air quality in Garfield County in my opinion. What this is about is rather than going after air quality problems in Spokane, we're doing this statewide, and we're going to put an industry out that this county is very dependent on, this industry. This is a very unfair regulation. I'd ask you and urge you to reconsider what the Department is trying to do. Thank you.

Response:

Thank you for your comments on this proposed rule. The Department of Ecology has noted that you raise several questions in your opposition to this rule.

The federal government has established health based criteria or standards for six common types of air pollution. These National Ambient Air Quality Standards are the ones which are occasionally exceeded or violated in Washington. The limited monitoring of these air pollutants is focused near sources of the particular kind of pollution. We aren't able to fully characterize the air pollution in Washington because our limited monitoring is concentrated around urban traffic congestion and industrial complexes. The national standard for particulate matter (PM) is in the process of being revised. The proposed new standard would include a measure for even finer particulate ($PM_{2.5}$) alongside the current measure for PM_{10}. Concern that the current PM_{10} standard is not protective of public health is the reason behind a proposed new standard for $PM_{2.5}$. Once a $PM_{2.5}$ standard is adopted (expected this summer), Washington along with other states will begin a monitoring effort to identify how we measure up to the new standard. If we exceed the standard (air is dirtier than acceptable) then we (agencies and the public) will begin a planning process which would be followed by implementation of programs as necessary. This sequence of steps will likely take several years.

For decades, and especially over the last seven years, Ecology has worked seriously and in a cooperative manner to minimize the adverse effects of grass burning smoke. Over that same period, Ecology has worked to minimize adverse effects from other sources as well. Ecology is committed to continued support for research into and identification of practical alternatives to burning and to minimizing the effects of burning on citizens.

Concerning the reason for the proposed rule, the burning of grass seed fields produces carbon monoxide emissions, volatile organic compounds, and particulate matter (PM) emissions. Under the Washington Clean Air Act (RCW 70.94.656(4)), Ecology may reduce the amount of grass seed field burning to effectively control emissions which come from the burning. In March, Ecology made a determination that the emissions from grass seed field burning were not effectively controlled. That determination was made based on the health effects of fine particulate matter as reported in the scientific literature and by reports from the medical community citing adverse health consequences from grass seed field burning emissions. Following the determination that emissions were not effectively controlled, Ecology is proceeding to reduce the amount of grass seed field burning, relative to 1995 burning levels, by one third in 1996 and by two thirds in 1997. Ecology adopted changes to the agricultural

burning regulation using the emergency rule process in order to carry out the emission reductions in 1996 and is in the process of revising the agricultural burning regulation again to extend the 1996 emission reductions and to establish emission reductions for 1997 and beyond.

Additionally, Ecology is in the midst of a related process concerning grass seed field burning. That process is the certification of practical alternatives to grass seed field burning. Ecology has been gathering information about grass burning but has not yet conducted the public hearing which is a required step in the certification process. As mentioned above, Ecology intends to continue the certification process with the target of having reasonably available, certified alternatives in use during 1998. While the process of certifying alternatives to grass seed field burning is closely related to reducing the amount of burning; the reduction in burning allowed under RCW 70.94.656(4) is not dependent on the process of certifying alternatives.

During the 1995 session of the Washington Legislature, a bill was passed which prohibited agencies from limiting grass seed field burning to specific burning seasons. Prior to enactment of this part of the Clean Air Act, there was a limited burning season in Spokane County. That limit of 16 allowable burn days during August and September was eliminated by the law change which took effect in time for 1995 grass burning. The change does not limit the amount of burning but may promote a more even, less concentrated spreading of the smoke over the summer. Under this change the decision of when to burn is up to the farmer (provided the forecast is for good dispersion of the smoke). Considerable work by both farmers and agencies has gone into attempts to manage the smoke produced by burning. This has been true for many years. Managing the dilution of the smoke, which this change may support, does not reduce the amount of burning nor does it effectively control emissions from burning. The need to effectively control emissions from grass burning is the reason Ecology is taking steps to reduce the amount of burning.

Pasco Hearing: Bill Grant
527 Boyer Avenue
Walla Walla, Washington 99362
(Washington State Legislature)

Bill Grant, legislator from the 16th district. As Representative Mastin spoke earlier, it includes Walla Walla, Columbia, Garfield, Asotin, and Franklin County. I'm really here speaking on behalf of myself, not the state legislature or anyone else. I would like to remind you, or remind the people in the room at least, that the legislature passed a bill just a year ago; I believe 1995, dealing with field burning in the Spokane area. What it did, it allowed the farmers in the Spokane area to extend the time period when they could burn so they didn't have to burn on bad burn days. It was a very simple bill, and I wished the Department would lay aside this rule and allow that bill that the legislature passed a chance to work. It has not had a chance to work. The farmers in the Spokane area supported that bill; they're willing to work with the Department, willing to work with the people of Spokane to try to reduce smoke, and I think, I would just beg the Department, to hold off on this rule; wait for that law to work and allow those farmers to try and work with the people in Spokane. To me, and I guess maybe I like to speak a little different than some, I get kind of blunt some times, but to me this like when you have a fly in the kitchen--killing it with a cruise missile. You get the fly, but you get an awful lot of people in the room that are innocent bystanders. And if there is indeed a problem in Spokane, the grass field growers, or grass growers, in southeastern Washington certainly cannot be considered a part of the problem in Spokane. While there are very few acres here, I've lived here almost 60 years now, and I don't think the smoke is probably as bad now as it used to be when I was younger. Fires burned out of control because there wasn't the equipment to put them out. I remember when my great- grandfather's log cabin burned because they were beating the fire with gunny sacks. Now we have modern equipment to put fires out, and so on, and I don't believe the smoke is near the problem that it was 40 or 50 years ago, and I would implore the Department to go back to the drawing board, deal with the problem that they have, not with outlying areas that really do not affect those areas where the scientific information, according to some, seems to indicate that there is a problem. My understanding of the information is there is no scientific information any place that backs up Secretary Riveland's findings that this is going to cut down on the huge amount of air

pollution in Spokane. With that conclusion, thank you for letting me speak.

Pomeroy Hearing:

Thank you. For the record my name is Bill Grant. I'm a farmer from Walla Walla County, and I'm also a state representative. I guess I can only say to you what Representative Mastin has just said to you. For the record, I would like to add to that a little, however.
This appears to me to be a political decision that the director has come up with to help some group in Spokane. I don't know who that group is. But it is certainly not based upon science because if it were based upon science, we wouldn't have this rule in front of us because there's nothing that ties grass burning to air pollution in this state. There are several doctors, I understand, that signed a statement saying that the smoke in the air can be a hazard to your health, and it said such as grass burning. It didn't say that it was grass burning, and there was no science proving that.

I think that the least that we can expect as citizens of this state is for the director or other people who make laws to expect to have laws based upon science when we're dealing with science. To base them upon political decision is the wrong decision. I think the people in this room would agree with me that they would agree to a rule if it was based on some kind of science, any kind of science. We have no science to back up any of this rule.

If indeed those same doctors were asked to sign a sheet of paper saying that cars or car emissions could cause pollution, I'm sure they would have signed that as well, but I don't think the Department would come out with a rule outlawing these cars in Spokane County, although clearly they're a much, much worse cause of pollution than certainly is field burning or the grass burning.

It seems to me that this rule is one based on a small industry as Representative Mastin said, one that is very important to our state and particularly to our region. The next one would it seems like be the alfalfa growers and other small groups who have to burn. Eventually, they're probably after the wheat growers because they're a little bit larger, and wheat is a grass.

So it would seem that divide and conquer seems to be the decision of the director when she put this rule, at least if she puts this rule into effect, without considering those of us in rural areas.

I wish that the Department, and I'm sure that senator Loveland will speak to that later, would allow the current law to work. It was one that was proposed in the legislature. I think it passed with a huge majority; I don't know exactly how much. It did pass the legislature and was approved and signed by the governor, as a matter of fact.

This rule would cause severe financial hardships on this community, this county, and indeed this whole area of the state, and we wish that you would set this rule aside, allow the current law to work, allow the grass growers of Spokane to work with those people in Spokane to see if indeed they can't burn when science says they should, when it is meteorologically right to burn. We have other groups that do that; we in Walla Walla County, and I'm sure the people here do that. We predict our own burn days, not on days that is just prescribed by law as the people in Spokane were forced to in the past. So I wished that they would allow the 1995 law work. It will be able to reduce the concentration, and after all, that's what we're really after is not total smoke or total value, it's the concentration when people seemed to feel that they are affected by this smoke. So with that I'll close and say I just wished that you would set this aside and let the current law work.

Response:

Thank you for your comments on this proposed rule. The Department of Ecology has noted that you oppose this rule for several reasons.

During the 1995 session of the Washington Legislature, a bill was passed which prohibited agencies from limiting grass seed field burning to specific burning seasons. Prior to enactment of this part of the Clean Air Act, there was a limited burning season in Spokane County. That limit of 16 allowable burn days during August and September was eliminated by the law change which took effect in time for 1995 grass burning. The change does not limit the amount of burning but may promote a more even, less concentrated spreading of the smoke over the summer. Under this change the decision of when to burn is up to the farmer (provided the forecast is for good dispersion of the smoke). Considerable work by both farmers and agencies has gone into attempts to manage the smoke produced by burning. This has been true for many years. Managing the dilution of the smoke, which this change may support, does not reduce the amount of burning nor does it effectively control emissions from burning. The need to effectively control emissions from grass burning is the reason Ecology is taking steps to reduce the amount of burning.

Concerning Southeast Washington and the need for a statewide rule. Ecology has the responsibility to protect all citizens of the state. In the case of grass seed field burning, the crop is grown statewide. While Spokane County has the largest number of permitted acres burned, thousands of acres are burned outside of Spokane County. There are also other considerations that tip the scale toward a statewide regulation such as the nature of fine particulate matter with its capability to travel far, and the burning itself which, absent an incinerator, does not completely combust, and is performed in basically the same manner statewide. For emissions to be effectively controlled, Ecology believes a statewide pro-rata reduction is warranted.

Concerning scientific information: Ecology made the determination that emissions from grass seed field burning are not effectively controlled based on the health effects of fine particulate matter as reported in the scientific literature and by reports from the medical community citing adverse health consequences from grass seed field burning emissions. Specific information is available for review in Ecology's files.

Concerning financial impacts: A detailed analysis of the costs and benefits of the rule was prepared as part of the evaluation process. That evaluation identified significant costs and benefits to the rule and found benefits to substantially exceed costs. Please refer to the Cost/Benefit Analysis for specific information.

Concerning "targeting" the grass seed field industry: Ecology believes it is correctly following the applicable sections of the Washington State Clean Air Act, specifically RCW 70.94.656. Ecology has worked with the grass seed field industry for twenty years attempting to effectively control emissions from this source. Unfortunately, smoke management alone has not worked to effectively control emissions nor alleviate the impact of burning.

Pomeroy Hearing:

Senator Valoria Loveland
P.O. Box 3036
Pasco, Washington 99302
(State Senate)

Thank you. For the record my name is Valoria Loveland. I live at 100004 W. Court, Pasco, Washington, and I'm senator from the 16th legislative district.

First, I'd like to thank you for coming and let you know I'm not here to kill the messenger, but I am here to send a message back to the messengers.

I did have an opportunity to speak just a few minutes ago in the question and answer so I'm not going to repeat that, but one of the things that I would ask that be made part of the record is a clear understanding of all of the testimony that was given tonight talking about, from the conservation district, from the growers, and from the processors, where we have chosen to grow this crop for environmental reasons--soil erosion, water quality, and air quality. I believe that, if in fact, the Department of Ecology will take into consideration all of the pluses to the environment with the grass growing industry and then we put that in part of that calculation you were talking about a while ago, the complicated way that you measure whether or not we're in violation of air

quality, I think that if we added all of the pluses to the environment for this particular industry, it would far offset any of the particulate for the burn times.

I would further like to state for a clarification I have had the opportunity to tell director Riveland that the bill that passed in 1995 would have improved the air quality in Spokane County. If we would let that bill take effect, you would find that we expanded the window, allowed them to burn in more conducive weather conditions, and we would've improved the amount of particulate that had gone into the air, if in fact, we just let the bill work. In fact there will be a gentleman I think who will testify behind me that will tell you just exactly how well it worked in the one season that we were allowed to use it.

Finally I guess that I do believe that this rule is based not on science, but arbitrary, and I will challenge the rule if it is put in place, and I will certainly go back and make it clear in the 1995 act, with an amendment, that this rule should not stand and burning should be allowed for the grass seed industry.

Response:

Thank you for your comments on this proposed rule. The Department of Ecology has noted that you oppose this rule for several reasons.

Concerning the environmental benefits of grass seed production: As part of the process of developing this rule, Ecology conducted an analysis of the environmental consequences of reducing grass field burning. Soil erosion, water quality, air quality and other likely effects were analyzed. Ecology made a determination that the rule would not have significant adverse environmental consequences. This finding was made at the time of proposing the rule. The agency received a lot of public comments about the benefits of grass seed. Ecology reconsidered its finding on non-significance based on the comments and has maintained its conclusion. The economic consequences of the rule were also evaluated. The Cost/Benefit Analysis identified the costs to the farmers and the benefits to Washington likely to result from the rule. Benefits were found to significantly exceed costs.

Your comments call for making a choice between alternatives. While Ecology strives to implement environmental programs in ways which support all aspects of the environment, the policy or decision in this case is spelled out in the Clean Air Act. The policy statement in the law calls for protecting public health from harmful air pollution (paraphrased). How to meet that policy in implementing grass burning programs is also specified in the law. Ecology believes it is correctly following the applicable sections of the Washington State Clean Air Act, specifically RCW 70.94.656.

During the 1995 session of the Washington Legislature, a bill was passed which prohibited agencies from limiting grass seed field burning to specific burning “windows” or seasons. Prior to enactment of this part of the Clean Air Act, there was a limited burning season in Spokane County. The limit of 16 allowable burn days during August and September was eliminated by the law change which took effect in time for 1995 grass burning. The change does not limit the amount of burning, but may promote a more even, less concentrated spreading of the smoke over the summer. Under this change the decision of when to burn is up to the farmer (provided the forecast is for good dispersion of the smoke). Considerable work by both farmers and agencies has gone toward attempts to manage the smoke produced by burning. This has been true for many years. Managing the dilution of the smoke, which this change may support, does not reduce the amount of burning nor does it effectively control emissions from burning. The need to effectively control emissions from grass burning is the reason Ecology has proposed this rule.

Comments from Petitions, Cards, or Form Letters

Citizen's County Petition

We, the undersigned citizens of Benton and / or Franklin counties are 100 % against any intentional field burning for any agricultural purpose. (#131-135 --Citizens) (5 Citizens)

Response:
Your comments are appreciated and noted.

Citizen's Petition

I am writing to ask that the Grass Seed Field Burning Rule be implemented so that my family's health is protected. I believe that the smoke produced from grass field burning is a serious health threat that cannot be overlooked. I am also concerned about the poor visibility that occurs as a result of grass burning. Please continue to enforce the Grass Seed Field burning Rule to protect my family and my community. (336 Citizens)

Response:
Ecology agrees and notes your support for the proposal.

Citizen Form Letter

As a citizen of the State of Washington, I am very pleased that the Department of Ecology has taken steps to correct a serious air pollution problem in Washington State by regulating grass burning smoke emissions.

Based on the research of over 50 scientific studies, the Washington State Dept. of Health has concluded that particulate air pollution causes a significant increase in illness and death rates.

I fully support your proposed regulation to phase out grass burning in Eastern Washington. Such a regulation will improve air quality for visitors and residents alike, and will demonstrate that the Department of Ecology is fulfilling its mission to protect public health. (11 citizens)

Response:
Thank you. Your comments have been noted.

Citizen's County Petition

We the undersigned citizens of Whitman County are concerned over a new Washington Administrative Code (WAC) 173-430 issued on March 29th, 1996 which affects Grass Burning in the State of Washington. This burning ban of a cash crop in OUR agriculturally dependent MAY affect local farmers, jobs, and businesses. We ask that the implementation of this WAC be delayed until an impact of this WAC is reconsidered and that citizens of Whitman County be part of that Impact Statement. (#1078- #1249 --Whitman County citizen's petition) (172 Citizens)

We the undersigned citizens of Garfield County are concerned over a new Washington Administrative Code (WAC) 173-430 issued on March 29th, 1996 which affects Grass Burning in the state of Washington. This burning ban of a cash crop in OUR agriculturally dependent community MAY affect local farmers, jobs, and businesses. We ask that the implementation of this WAC be delayed until an impact of this WAC is

reconsidered and citizens of Garfield County be part of that Impact Statement. (Garfield County citizen's petition #401 - #940) (540 Citizens)

Response:

Comments and concerns noted. As part of the rule development process, a study of the costs and benefits of the proposal was conducted by Washington State University. The study looked at effects throughout the region where grass seed is produced. This Cost/Benefit Analysis identified significant costs and benefits likely to result from the rule and found that the benefits are substantially greater than the costs. The analysis also projected that a large portion of the grass production in Washington would remain which might help to dampen the economic effects in agricultural counties.

Employee form letter

...I would like to express my concern over the burning ban that the Department of Ecology has imposed on the State of Washington. I am concerned about my job. Dye Seed Ranch is the largest private employer in Garfield County. There are limited job opportunities and many of us have worked here for over 15 years. We have house payments, vehicle payments, families to support and college funds for children... We wish for (our children) to continue school here (Pomeroy) and not have to relocate due to loss of jobs. Due to the lack of scientific data on the true health problems related to grass field burning we feel that job security is more important. (#941-#955, #978, #979 --Dye Seed Ranch employees form letter) (17 Employees)

Response:

Comments and concerns noted.

Under the Washington Clean Air Act (RCW 70.94.656(4)), Ecology may reduce the amount of grass seed field burning to effectively control emissions which come from the burning. The burning of grass seed fields produces carbon monoxide emissions, volatile organic compounds, and particulate matter (PM) emissions. In March, Ecology made a determination that the emissions from grass seed field burning were not effectively controlled. That determination was made based on the health effects of fine particulate matter as reported in the scientific literature and by reports from the medical community citing adverse health consequences from grass seed field burning emissions. Ecology does not believe there is a lack of information on health effects.

As part of the rule development process, a study of the costs and benefits of the proposal was conducted by Washington State University. This Cost/Benefit Analysis identified significant costs and benefits likely to result from the rule and found that the benefits are substantially greater than the costs.

County Form Letter

...We are concerned about the ban on grass field burning in the State of Washington (which) would severely reduce the harvestable acres of bluegrass seed in Washington. Dye Seed Ranch, Inc., the largest private employer in our county would be forced to reduce their work force by 2/3 in 1998 which is 16 full time positions and a loss of $500,000 (in) operating expenses. Our small county would be devastated by this loss of revenue. This is an agricultural based community. Anything that affects the farmers affects our businesses as well. We are deeply concerned with the affects that this ban will have on the farmers as well as Dye Seed Ranch. As a small community we don’t have the population base to absorb these kind of losses. The affects of this burning ban could be disastrous to Garfield County Businesses. (#956 - #977, Garfield County Business people form letter) (22 Citizens)

Response:

Thank you for your comments. As part of the rule development process, a study of the costs and benefits of the proposal was conducted by Washington State University. This Cost/Benefit Analysis identified significant costs

and benefits likely to result from the rule and found that the benefits are substantially greater than the costs. The analysis also projected that a large portion of the grass production in Washington would remain which might help to dampen the economic effects on seed processors.

The Town of Colton
Resolution number: 545

IT WAS RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF COLTON, STATE OF WASHINGTON, 99113, AS FOLLOWS:

WHEREAS, it is the opinion of the Town Council of the town of Colton, that the department of Ecology Director, Mary Riveland's, imposition of a statewide ban on bluegrass field burning is an act based solely on a problematic health situation in Spokane, County.

WHEREAS, By enacting an emergency rule, the Department of Ecology avoids legislative requirements intended to constrict rule-making abuse. clearly, a statewide burning restriction on many thousands of acres of grass fields which are located away from population centers and which have not been shown to affect public health adversely is the result of over-burdensome rule making by an agency without first conducting the analysis required under RCW 34.05.328.

WHEREAS, Director Riveland stated, "Frankly the recommendations from the Spokane doctors made the case for me that this was a public health issue." Now the whole state has to pay the piper for the problem in Spokane County.

WHEREAS, If the problem exists in an isolated area of the State of Washington, doesn't it make sense to find a remedy for the problem area and not impose a ban on the whole state?

WHEREAS, Governor Mike Lowry's concurrence with the emergency rule indicates that he has not been properly briefed and does not realize how his actions affect the real rural Washington State.

WHEREAS, The Department of Ecology's Small Business Economic Impact Statement contains misinformation about grass seed processors in Washington State, does not take into account the environmental benefits of growing bluegrass, and concluded that "growers may eventually find it more cost effective to permanently reside out of state."

WHEREAS, Bluegrass is grown on steep slopes in Whitman County, eliminating tillage which reduces soil erosion, which helps to keep our aquifers clean, and reduces the cost of maintaining the roadside ditches.

NOW, THEREFORE, BE IT RESOLVED THAT THE TOWN COUNCIL OF THE TOWN OF COLTON, RECOMMEND THE FOLLOWING:

Lift the state-wide banning on bluegrass field burning and take care of the problems in the areas where they exist. Allow burning to continue on steep slopes for soil erosion control, that would otherwise be hazardous for grower to remove residue. Base any decisions made on sound scientific evidence that reduce total emissions, taking into account the environmental benefits of growing bluegrass, not a pro-rated reduction of acres. Allow County Government to self-rule based upon local assessments.

This resolution was unanimously adopted by the Town Council of the Town of Colton on September 9, 1996.
(#1075 --Town Council of the Town of Colton, Mayor Robert S. Heitstusman)

The Town of Uniontown
Resolution number: 303

The Town Council understands that the State Department of Ecology (DOE) has unilaterally issued regulations that phase out all burning of bluegrass fields everywhere in the State over the next three years.

The Town Council has found that it is in the interest of the residents of Uniontown:

to maintain and improve the quality of the air and water in the Palouse area,
to reduce soil erosion, and

to maintain and improve the economic infrastructure in the Palouse.

The Town Council believes that:

the potential hazard created by bluegrass burning varies with the geography, wind conditions, time of day and location of surrounding residents,
local conditions can provide both the ventilation needed to clear smoke from an area and the air circulation needed to take smoke away from populated areas,
bluegrass fields can reduce soil erosion if planted in selected areas,
bluegrass farming is an important economic activity in the Palouse,
it appears that no means are available at this time for effectively operating bluegrass farms without burning, and
the ban on burning issued by DOE is applicable in all areas without regard to the local conditions.

Therefore the Town Council requests the Department of Ecology to work with bluegrass farmers to develop controls of bluegrass burning that:
varies based on the specific conditions in each area, minimizes the potential hazards for residents especially for those with respiratory problems, retains the ability of bluegrass farmers to operate a viable business in areas where the geography and distance to surrounding residents limits potential hazards, at least, where bluegrass farming provides verifiable environmental benefits through limiting soil erosion.

Except where there is a significant, immediate and verifiable threat to the health or safety of residents in the community, the Town Council is opposed to regulations being unilaterally issued by the State that affect local communities, farms and businesses

Approved by the Town Council at its regular meeting on September 9, 1996.
(#1076 --Town Council of the Town of Uniontown, Mayor Peter Holland)

Response:

Comments and concerns noted (please also refer to related county resolutions below).

Concerning the need for a statewide rule: Ecology has the responsibility to protect all citizens of the state. In the case of grass seed field burning, the crop is grown statewide. While Spokane County has the largest number of permitted acres burned, thousands of acres are burned outside of Spokane County. There are also other considerations that tip the scale toward a statewide regulation such as the nature of fine particulate matter with its capability to travel far, and the burning itself, which absent an incinerator does not completely combust, and is performed in basically the same manner statewide. For emissions to be effectively controlled, Ecology believes a statewide pro-rata reduction is warranted.

Concerning information used to make decisions: Under the Washington Clean Air Act (RCW 70.94.656(4)), Ecology may reduce the amount of grass seed field burning to effectively control emissions which come from the burning. The burning of grass seed fields produces carbon monoxide emissions, volatile organic compounds, and particulate matter (PM) emissions. In March, Ecology made a determination that the emissions from grass seed field burning were not effectively controlled. That determination was made based on the health effects of fine particulate matter as reported in the scientific literature and by reports from the medical community citing adverse health consequences from grass seed field burning emissions. Ecology does not believe there is a lack of information on health effects. The pro-rata reduction is the method spelled out in the law for effectively controlling grass burning emissions. The environmental benefits of grass production were taken into account in an analysis of the environmental consequences of the rule conducted as part of the process. That analysis included evaluating soil erosion, water quality, air quality and other likely consequences of the rule.

Concerning local self-rule: The Washington Clean Air Act promotes and encourages local and regional programs. Counties may form local air pollution control authorities under the provisions of this law. However, some portions of the law are implemented on a statewide basis (see discussion above).

Concerning slope: The farmer may choose which acreage to continue burning provided that the reductions are met. In other words, the grower may decide where to burn the one-third allowed by the rule. Two features of

the rule, the five percent exemption and the permit trading provision, may increase implementation flexibility.

Resolution - Garfield County
of Order of Board of County Commissioners

In the matter of the Statewide Ban on Bluegrass Field Burning

IT IS HEREBY RESOLVED BY THIS BOARD THAT:

WHEREAS, it is the opinion of the Garfield County Commissioners that the Department of Ecology director, Mary Riveland's, imposition of a statewide ban on bluegrass field burning is an act based solely on problematic health situation in Spokane County.

WHEREAS, by enacting an emergency rule, the department of Ecology avoids legislative requirements intended to constrict rule-making abuse. Clearly, a statewide burning restriction on the many thousands of acres of grass fields which are located away from population centers and which have not been shown to affect public health adversely is the result of over-burdensome rule making by an agency without first conducting the analysis required under RCW 34.05.328.

WHEREAS, Director Riveland stated, "Frankly, the recommendations from the Spokane doctors made the case for me that this was a public health issue." Now the whole state has to pay the piper for the problem in Spokane County.

WHEREAS, If the problem exists in an isolated area of the State of Washington, doesn't it make sense to find a remedy for the problem area and not impose a ban on the whole state? If a person has a sore on his/her arm, should the whole arm be cut off or should only the sore be tended to?

WHEREAS, Governor Mike Lowry's concurrence with the emergency rule indicates that he has not been properly briefed and does not realize how his actions affect the real rural Washington State.

WHEREAS, many jobs will be lost in rural Washington. For instance, thirty-three jobs, which represents a payroll of $800,000 annually, in Garfield County will probably be lost because of the state-wide ban. Garfield County, where jobs are very scarce, cannot afford to lose any more jobs.

WHEREAS, said ban precludes the use of propane "field sanitizers" that apply heat directly to the ground and eliminate 70 percent of the particulate mater generated by open burning.

NOW, THEREFORE, BE IT RESOLVED that the Board of Garfield county commissioners, unanimously, recommend the following:

1. Lift the state-wide banning on Bluegrass field burning and take care of the problems in the areas where they exist.

2. Allow raking and the use of propane "field sanitizers."

3. Increase the length of the burn time, limit and organize the burning so that the growers don't all burn at the same time. Coordinate burning with the State of Idaho.

4. Allow county government to self-rule based upon local assessments.

The foregoing resolution is hereby made this 6th day of May, 1996
(#1003, #1004, #1005 Garfield County Commissioners) (Attachment)

Response:

Comments and concerns noted (please also refer to related town council resolutions above).

Concerning the need for a statewide rule: Ecology has the responsibility to protect all citizens of the state. In the case of grass seed field burning, the crop is grown statewide. While Spokane County has the largest number of permitted acres burned, thousands of acres are burned outside of Spokane County. There are also other

considerations that tip the scale toward a statewide regulation such as the nature of fine particulate matter with its capability to travel far, and the burning itself which, absent an incinerator, does not completely combust, and is performed in basically the same manner statewide. For emissions to be effectively controlled, Ecology believes a statewide pro-rata reduction is warranted.

Concerning raking and propane “sanitizers:” The rule allows for different ways of burning provided the reduction of emissions is maintained.

Concerning smoke management: Ecology has worked cooperatively with growers and others for many years trying to “organize” the burning in order to minimize the impact of the smoke. These efforts may have helped but do not reduce the amount of emissions nor effectively control emissions. For emissions to be effectively controlled, Ecology believes a statewide pro-rata reduction is warranted.

Concerning local self-rule: The Washington Clean Air Act promotes and encourages local and regional programs. Counties may form local air pollution control authorities under the provisions of this law. However, some portions of the law are implemented on a statewide basis (see discussion above).

Comments on the Pollution Level from Grass Field Burning

Grass burning has a significant impact on air quality in eastern Washington.

- ...I have studies. One of them is from Oregon. The PM_{10} ranges from 16 pounds per ton of particulates to 80 pounds of particulates. That's not all that's in this grass smoke. In addition to that, per ton you have 2,786 pounds of carbon monoxide per ton of residue. You have approximately 147 pounds of carbon monoxide. You have 18 pounds of carbon. Now, that's per ton, consider there's approximately three to six tons per residue on each acre of bluegrass. This does not count the ethylene, and this does not count the oliphens that are in there, and this is toxic, and this causes cancer... That one percent the growers are throwing around. We have a nonattainment area that's drawn around the border of our city, and there are 117 acres of bluegrass in that nonattainment area, and therefore, that is one percent when they burn that so that figure's incorrect. We have 26,405 acres of bluegrass that was burned last year, and that's considerably more than one percent. I'd like to clarify that. (#1570 --Citizen)

- ...Smoke pollution of this magnitude not only pollutes our skies, those particulates end up in our streams, rivers and lakes, in our homes and gardens, it never magically disappears. (#1056 --Citizen) (Attachment)

- No one has said anything about the pesticides that are being burned and then end up in the air we breathe. (#320 --Citizen)

- ...It's time to talk about the health and environmental consequences of grass seed and stubble field burning...” (#1587 --Palouse Preservation League)

- ...I have a letter here written by one of the air quality people, and what you do is if you break this pollution down, and this is all the current counties being regulated by DOE (Department of Ecology), if you do it on a daily basis, the industrial is four tons a day, which is two percent of the total. Wood stove is eight percent. Motor vehicles four to six tons a day, 30 percent. The (?) equipment engines five tons a day, three percent. Grass field burning which is 84 tons a day, at fifty-four percent. And this is based on the EPA 16 pounds per ton. This is one-and-a-half tons. This is actually higher than that of, it's quite a bit more than the 50 percent. (#1592 --Citizen)

- ...I really hadn't intended to say anything about this, but as far as if you look at the total five percent, that's statewide. Automobiles have reduced their emissions by 96 percent. And look at the wood stoves;

let's talk about that. The two weeks that you burn the grass straw contributes to 54 percent of the particulate pollution. It's not five percent--it's 54 percent. The rest of that five percent is averaged over one year, but when this ag burning, especially grass field smoke is concentrated into a two-week period, and that's on the low side. (#1512 --Citizen)

- Field burning should be phased out as quickly as possible. Although it is not the only cause of poor air quality (others are dust, range fires, etc.), it is a contributor to bad pollution in late summer... (#1051 --Citizen)

- Such a regulation will improve air quality for visitors and residents alike (#1053, #1054, and #1055 --Citizen letter)

- ...There is nothing that I know of that a select few, such as 300 or so, individuals can inflict such a mass volume of particulates in the atmosphere that it engulfs an <u>entire</u> <u>region</u>. There is not enough cigarette's smoked in a years time to equal the smoke generated by burning grass and smoking in public is against the law... (#328 --Citizen)

- The argument that on an annual basis grass smoke accounts for only a small fraction of air pollution is fallacious. On the days of major burns, grass smoke can account for over fifty percent of the pollution in the airshed. (#329 --Sandpoint Clean Air Coalition)

- ...The concept of "smoke management" is ludicrous. Hoe does someone "manage" smoke? How many times has their best management practices inundated us with smoke!? Smoke affects us all even when it is "managed" towards less populated areas... (#1290 --Citizen)

- ...It is fundamentally wrong that a small handful of grass growers can poison the airshed of over 300,000 residents. The evidence clearly demonstrates that grass burning creates large volumes of dangerous and potentially deadly air pollution... I am insulted that the grass growers continue to run advertisements which suggest that "less than 1% of Spokane's air pollution is caused by grass smoke" (news article attached) Figures in the September, 1994 Spokane PM_{10} attainment Plan produced by the Department of Ecology, the total quantity of Annual PM_{10} emissions excluding windblown dust (for 1990) for the Non-Attainment Area (NAA) is approximately 7800 tons. This 600 square kilometer area encompasses most of Spokane. This would work out to a daily average of 21 tons/day. This number includes sources such as industrial facilities, residential wood burning, unpaved roads and parking lots, vehicle exhaust, etc. The total number of acres burned per year in Spokane County during the past several years has been in the neighborhood of 25,000 acres. These acres have been burned over 10-15 burn days. Using data from the EPA...we can calculate that 1,200,000 pounds of PM_{10} particulate matter are added to the sky during the burn season. This equates to 600 tons. Distributed over 15 burn days (this equates to) 40 tons/day. For each day where burning actually occurs in Spokane County, grass burning adds twice as much PM_{10} pollution to our skies as do the 200,000+ people who live and work within the entire non-attainment area. This does not count the carbon monoxide and VOC that grass field burning generates. To suggest that grass field burning in Spokane County produces only 1% of the air pollution is misleading and erroneous. During the 1991 burn season, SCAPCA utilized portable PM_{10} monitoring equipment in their "Foothills" area to monitor air quality in the vicinity of permitted burn sites. The 24 hour average PM_{10} results for their "North Spokane Grass Field PM_{10} Study"...clearly demonstrate almost a doubling of the particulate pollutant readings for sites located downwind versus sites located upwind of particular burn sites... The evidence clearly demonstrates that grass burning can and does seriously degrade the air quality of the airshed downwind from the burn sites. (#392 --Citizen) (Attachment)

- As residents of Moscow, Idaho we feel all people in the Northwest are entitled to enjoying unpolluted air as much as possible. There is no comparison of a smoke filled sky to the atmosphere of a clean blue sky. (#1630 --Citizen)

- The next (Spokesman) article of interest quoted "We only burn a few hours a year." Few by definition means not many; amounting to a small number. This statement is clearly untrue, growers are burning more that a few hours each year and the effects are everlasting... (#1056 --Citizen) (Attachment)

Response:
Thank you for your comments. Ecology agrees that the air pollution originating from grass field burning can be considerable. In addition, Ecology believes that the significant amount of pollution emitted is not effectively controlled. The reductions proposed in this amendment reduce the amount of air pollutants emitted from grass seed field burning.

Only a very small percentage of airborne particulates is generated by grass burning.

- ...Smoke from grass fielding burning is not a major source of air pollution. It constitutes at most 2.5% of the total air pollution in affected areas according to DOE personnel statements made at the public hearings held in conjunction with this rule making activity. Other sources estimate the contribution of grass field smoke to air pollution at less than 1%... (#1338 --Attorney)

- Reducing grass field acres burned by between 62% and 67% will not solve the problem of particulate air pollution to any significant degree... (#1338 --Attorney)

- Farm Bureau members believe that implementing a rule which drives a productive segment of agriculture commodity out of business is regulatory overkill. This is especially true when you realize that grass burning field emissions are less than one percent of all the air pollution in Spokane County... (#1576 --Washington State Farm Bureau)

- ...Once a year the bluegrass field must be burned and does cause some air pollution... (#1312 --Grower)

- ...Does the public know that grass burning only contributes one percent of the air-quality problem in the Spokane area? Does the public know that the rest of the pollution is being contributed year round compared to a short season of time spent for bluegrass growers? Unfortunately, agriculture makes up a much smaller population base making it easier for DOE (Department of Ecology) to demand changes and then extol the benefits for the general public. (#1576 --Washington State Farm Bureau)

- But, I do not believe that spending thousands of hours and thousands of dollars of tax payers and private individual dollars for those people who have continuously turned out for meetings, and hearings, and symposiums, etc. To fight the one or two percent of the overall pollution problem is worth the conclusion of (The Department of) Ecology... (#1319 --Citizen)

- ...I do not believe that agriculture has five percent pollution. I think we have less than that, and of the 350,000 acres that's burned in the state, that comes out one-seventh of that for the grass seed industry. So the grass seed industry does not have two-and-one-half percent of the agriculture pollutants in the state. (#1515 --Grower)

- I am appalled as a citizen of the state of Washington that an agency that I fund would choose to approach a problem such as this with political expediency and decry that there is some kind of an emergency because five percent of pollution in the air is caused by agricultural burning... (#1502 --Citizen)

- The dust particulates from unpaved streets and the gravel used in winter are problems that have yet to be solved. (#1527 --Citizen)

- ...I am speaking of the 1500 acre limitation per day and 6000 acre limitation per week. In reviewing recent history of grass field burning evidence shows that it would be near to impossible to burn the total acreage with this proposal in effect. The winds have to right and the atmospheric conditions have to be right before any fields can be burnt. With the limitations as proposed on these particular days only a few fields would be burnt... If you feel you need a limit like this I would suggest a 2800 acre limit per day and a 13,000 acre limit per week... (#1062 --Inland Empire Chapter Soil and Water Conservation Society)

- ...I believe it was in 1993 when they started a clock. They started cutting down the grass farmers to where they couldn't cut or burn over a 45 day period. They cut it down to a 16 day period. It was wet that year, but they went ahead and issued the permits anyway, and it pretty well smoked up Spokane. (#1613 --Citizen)

- I have reviewed air pollution data collected by SCAPCA at various sites in Spokane County and provided Ecology with charts of some of this data. These charts show that 1) The Spokane area has higher particulate pollution levels than most other areas of the state. 2) Even so, in 1994 and 1995 there were no violations of present particulate standards, and from health perspective these levels are considered to be moderate and acceptable under the law. 3) Approximately 99% of the particulate pollution arises from sources other than agricultural burning even in years when intrusions of smoke from grass burning have occurred. 4). There are many times during the year when the intensity of particulates from other sources exceeded that due to an incursion form grass field burning. 5) There is no evidence that grass field burning in South Spokane County or other Washington counties has any appreciable effect on Spokane's particulate pollution. 6) In 1995, the PM_{10} annual arithmetic mean was $32\mu m^3$, the lowest on record… (#1320 --Citizen) (Exhibit)

- ...DOE (Department of Ecology) needs to concentrate on the serious polluters of the country instead of the two percent of the pollutants that are being created by a little grass smoke for a short period of time in September. (#1588 --Grower)

- ...There's many tons of cigarette smoke in Spokane. That is as bad of a pollutant as any grass fire farm field. (#1532 --Former grower)

- ...I raise bluegrass for grass seed. I burn grass fields, yes. It takes me less than one minute on an average per year to burn an acre. That's terrible, isn't it? Three-hundred-and-sixty-four days I'm cleaning the air up for people, but yet, I'm called a murderer and a killer by people... (#1508 --Grower)

- I look at your goals that you've put up on the board. How are you going to achieve your goals? You're going to have to eliminate automobiles. You're going to have to collect everybody's keys here tonight, and we're all going to walk home. You're going to have to go to Spokane, and you're going to have to take everybody's wood stove away from them. You're going to have to go around the country and take everybody's wood stove away. You're going to have to stop lightning that causes forest fires that polluted our air for at least two weeks this summer. Basically, we're not going to be able to live if you want to stop all your goals that you put up on the board. (#1588 --Grower)

- ...I'd like a bureaucrat to explain to me why if 50 percent of the pollution is caused by cars, and five percent by all agricultural burning, and less than two-and-one-half percent by grass seed, why that's an emergency situation... (#1502 --Citizen)

- August 27th, bluegrass farmers were being blamed for grass again. There was wild fires in western Washington. Spokane had low visibility at that point, and there's nothing we can do about it. That's forest fires over there. The same thing on the 31st--another bad air day in Spokane--dust storm, another natural phenomena. If you've been down the Palouse country, you can see where that came from. The whole Palouse country's where it started there... EPA says in July that they're having Spokane put on the

worst-air list. I think it's tolerance. You know, in the winter I put on a coat to go outside; I don't go out without a coat. We'll never have perfect weather, and we'll never have perfect air. We need to live within the 99.8 percent of the people who are healthy. A fellow named Cabot Roberts in his early thirties was told if he stayed in New York he'd only last six more months. He didn't try to change New York City; he moved to Phoenix, Arizona. He was in his seventies when I met him. (#224 --Citizen) (Attachment)

- Dr. Whitehouse, the other night, stated that he had had a big influx of people coming into his office right at the time that the grass fires were starting. At the same time, there's a forest fire, I believe this was the 27th of August, that filled Spokane with a lot of smoke. It filled up everybody's neighborhood. Two days later, we had a massive dust storm which was on a Friday, and then he testified, and to my knowledge, and I live there in the Valley, I have not seen the smoke filtering into the valley, and there he had this big influx of people. Now I'm wondering if it's from the forest fire and the dust or if it's from the grass growers. (#1612 --Citizen)

- Automobiles produce 50 percent of the pollution 365 days a year. I sell automobiles. I think it's a neat industry. I would hate to see us have to take them away. Grass growers burning is two-and-a-half percent of the pollution, and that's probably approximately 35 percent of the 35 hours as they've said before. I live in the Valley. I have not any day this year had smoke coming into the Valley... I've seen the smoke. It goes up to three or four thousand feet. I'm a pilot; I can identify heights. Sometimes a little higher, seems to level out there and filter off…. (#1613 --Citizen)

- Wood-burning stoves. When you're going up I-90 about five any day here in the winter, you can't hardly stand to get through there. Nothing's been said about that. The PM that's here may not even be an item that grass burning reflects... (#1613 --Citizen)

- Grass seed field burning is only a small source of outdoor particulates. Different groups vary on their estimates of what percentage that is. The American Lung Association of Washington has quoted various figures. Their pamphlet, "Facts about...Air Pollution and Your Health in Washington State," states that all outdoor burning...constitutes 12% of air pollution. In their pamphlet, "Facts about...The Health Impacts of Grass Seed Burning," they state that 17% of the particulate air pollution and 8% of the volatile organic compounds in Eastern Washington come from grass burning. The same ALA pamphlet gives the quantity of particulates released by grass field burning as 620 tons. DOE (Department of Ecology) data (Ottersen) estimates the PM_{10} emissions in Eastern Washington not including unpaved roads and agricultural burning to be 10,191,739 tons per year, most of which is agricultural dust. the 620 tons produced by grass burning would be only 0.0000006% of the 10,191,739 ton total, substantially less than the 17% that the ALA had quoted. Koenig et. al. commented that windblown dust was a significant contributor to air quality problems in the Spokane Valley, but did not include it in their calculations. Of the included sources of particulates, they gave unpaved roads as the greatest source...(44%) of agricultural burning is presumably in that 12% and therefore less than that number, but not specifically quantified... These graphs, and the above numbers, make it clear that grass seed field burning is not the major contributor to outdoor particulates, and should therefore not be the primary focus of regulation to decrease these particulates. (#362 --Physician) (Attachment)

- Grass burning produces two percent of the particulate matter in Washington, and I believe that they've gone after the little person because that looked like an attainable goal to them. I really believe that this needs to be looked at more for the whole person, and I think that for the health of the family, the health of the individual, breaking a person monetarily is not going to make a healthy state or a healthy populace. (#1574 --Pomeroy Physician)

- ...In Spokane...diagnoses of only .7 of 1 percent, (of) Spokane airshed problems are from grass seed burning, why then is DOE (Department of Ecology) so interested in just this very, very small number of folks?... (#1556 --Optometric Physician)

- It has been stated that particulate matter causes undue danger to public health. This particulate matter has been shown to come from coal burning, oil burning, diesel burning, gas, and wood burning, as well as grass field burning. I do not argue that, but I do believe we do need to look realistically at the facts. According to the Department of Ecology in 1995, 41,000 acres of grass stubble were burned producing in Washington 492 tons of fine particles. For a comparison, industrial industries produced 1,343 tons; that's 2.7 times the amount produced by grass seed burning. Wood stoves produced 4,366 tons of particulate matter; that's 8.87 times that which was produced from grass field burning. Cars and trucks produced 16,843 tons; that's 34.2 times as much as you get in grass field burning. (#1574 --Pomeroy Physician)

- ...In February 1996, a scientific data conference was held at the Red Lion in Spokane. Doctor Ann Kennedy can now map particles trapped in the air filters used for checking particulates in the air and tell where they came from, their origin. She does this by the microbial activities that takes place within the cells of certain particulates that's trapped. This is a brand new, off-the-presses immediate situation that has just taken place in the last year. Her job was to isolate PM_{10}, but in the process, she isolated other things. And the question that was asked by the Clean Air Act individual in the Spokane County, what are the percentages that are there that are agriculture? And her comment was, do you really want to know, and the man said yes. She says less than five percent of the particulate matter in the air comes from agriculture, okay? (#1607 --Washington State Grange Association)

- Forest fires in our state send far more smoke into the Spokane area than grass field burning. The public probably isn't aware that the US Forest Service plans to burn three-and-a-half million acres of forest across the country as a means to prevent future forest fires. Even closer to home, the Okanogan National Forest proposed using prescribed burning as a way of protecting the Pasayten Wilderness Area. Smoke from the Okanogan is going to end up in the Spokane area. Is DOE (Department of Ecology) going to be able to tell the federal government they can't burn for health reasons? (#1599 --Washington State Farm Bureau)

- By your own sources, open agricultural burning, including grass seed fiend burning, is only 10 percent of the particulate pollution… (#1065 --Grower)

- Emissions from grass burning equals less than three (3) percent of all air pollution is Spokane County and less than one (1) percent in non-attainment areas (urban areas of Spokane). Eighty (80) percent or more of the Spokane County residents live in the urban, non-attainment area where grass smoke contributes less tan one (1) percent of particulates... According to the Washington State Department of Ecology, vehicle emissions make up over fifty-five (55) percent of the air pollution in Washington. Woodburning for heating homes, dust from unpaved and paved roads, and construction are larger contributors to the air pollution problem than the Bluegrass seed industry. (#1071 --Palouse Conservation District)

- ...I believe that grass burning in Garfield County is not the villain that it is made out to be. (#386 --Citizen)

- About three or four days ago...I burned some grass, 60 acres of it, about a mile from our place, and the wind went straight toward us. Since this meeting was coming up, I timed it. It was an hour and 47 minutes that I could smell smoke. (#1582 --Grower)

- ...I burned 632 acres in 5 hours on three different days none of which impacted any populated areas. The smoke went up, moved out of the area and dissipated. (#1328 --Grower / Processor) (Attachment)

- ...The type of pollution from wild-fires is much worse that the field burning. This may be purposely ignored by the Dept. of Ecology because of the increased work requirement. (#3 --Citizen)

- There are many causes of poor air quality in the Spokane area. Some are being totally ignored in terms of legislative action and public involvement. (Listed automobile traffic, unpaved roads, Columbia Basin, construction sites and access roads, dryland farming west and south of Spokane, spring yard waste

burning, slash burning, forest fires, military and commercial over-flights, pollination, grass burning, cigarette smoking...) (# 136 --Citizen)

- ...My personal preliminary analysis, based on the amount of smoke produced by forest and range land sources (grass seed field burning) accounts for less than one percent of the total amount of smoke generated in Eastern Washington this past summer... (#1264 --Citizen)

- One study found that the burning of grass fields is responsible for less than 4% of the overall pollutants in an area such as the region surrounding Spokane. The (periods when) level were not acceptable were not during, or related to, the prescribed time allowance for grass field burning. (From "Wheat Life", April, 1996)... (#988 --Citizen)

- ...We are all concerned about health effects, but you are telling me that stopping bluegrass is going to solve the air pollution problem in the Spokane basin when it accounts for maybe 2.5% pollution... (#1478 –Citizen)

- ...It seems to me as being very unreasonable to single out our industry as the sole cause of particulate air pollution and lung disorders when we are less than 1% of the problem... (#1307 --Grower)

- ...I think it would be fair to say that on an annual basis the adverse impact caused by burning my grass fields has been less than that caused by one burning household in the Spokane Valley... (#1306 --Grower)

- ...Several fires that were west of us...were for weed control or for no-till production. Our percentage of pollution was less than 20%, without counting the invisible contaminates that are produced every day of the year... (#397 --Grower)

- A State Agency recently listed the tonnage of air pollution coming from the following sources: Ag burning - 47,000 tons, Fireplace use 56,500 tons, Yard and slash burning- 309,000 tons, Automobile use - 1,665,500 tons. On a percentage basis, Ag burning contribute(s) less than 3% of total air pollution... I have never heard of a(n) air pollution alert in the rural areas where all this air pollution is alleged to come from. (#399 --Grower)

- ...To suggest that 3% of the air polluters should be subjected to studies, restrictions, regulations, permits and taxes while 97% of the polluter continue with business as usual with total impunity, seems hardly worthy of serious consideration... Any Agency that is serious about finding a solution for air pollution doesn't start by encumbering the industry that pollutes the least and produces the most basic sustenance for life... A good place to start is bringing the air pollution level of cities down where rural Ag is now. (#399 --Grower)

- In light of several new developments, DOE (Department of Ecology) may welcome a chance to back off gracefully from its already-obsolete and actually environmentally-hurtful proposed grass-field burning ban... With new developments making bluegrass-burning's 1% pollution manageable, we must refuse to countenance DOE's (Department of Ecology's) burning-ban proposal, advising (them) that the proposal is out-dated and actually harmful to the environmental cause. (#1019 --Grower)

- ...Air pollution from grass field burning is very limited in time and quantity... (#1021 --Vice President, Washington State Association of Wheat Growers)

- ...When I go to Spokane I see a lot of haze in the air and this is not from the burning of grass. People that live in Spokane cause over 90% of their own air pollution... (#1024 --Growers)

- ...Why is the Department of Ecology wanting to close down our largest private industry in our county? Which they claim only two-and-one-half percent of the emissions are from grass which I really really question that even being that much... (#1569 --Farm Machinery Business)

- ...I am truly sympathetic to air pollution. I think everybody here is sympathetic to air pollution, but everyone here failed to see the reasoning behind targeting the grass growers and field burners for the problem that is generally caused by urban sprawl and an obvious increase in automobiles... The true number of acres burned in the state--it would be real interesting to see in this corner of the state the true increase in acres in the last 25 years of burning versus wood stoves and automobiles. (#1572 --Grower & Chairperson, Columbia Conservation District)

- ...Spokane is labeled as one of the highest polluted cities in the nation, primarily during the winter when grass fields are covered by snow. (#1539 --Citizen)

- ...We've heard percentages high and low, and probably not low enough, quoting the amounts of emissions created by grass seed field burning. It is amazing that a percentage can be singled out for grass seed field burning when numerous wild fires and burning in adjoining states is taking place at the same time. The concrete facts are not there. We burn in southern Spokane and feel the smoke from our field burning has no bearing on Spokane... (#1542 --Grower)

- This is a Washington hearing. We know we have regional problems other places. The date of interment for the lady that died in Sandpoint, there was no grass burning that day. Just so that's on the record. And we do the best we can in Spokane County. We've had a program of smoke management for years. The whole thrust of that management program is not to impact the citizens involved here. Just for clarification, there was no grass burning in Spokane County all week. We've only burned three days in south Spokane County since August 1st. We've burned four days north of Spokane since August 1st, so some of the smoke you're talking about is not coming from Washington. (#1547 --Intermountain Grass Growers)

- ...The one negative aspect is the emission of smoke and particulates which, for a very brief period of time, reduces air quality. Compared to other sources of air pollution... (these) emissions are somewhat insignificant. Grass burning occurs a few days a year while most other pollution sources happen on a daily basis. (#1001 --Grower)

- It is clear that the objective data gathered by SCAPCA (Spokane County Air Pollution Control Authority) indicates that less than five percent of the PM_{10} particulate loading in the Spokane area is the result of agricultural burning of which bluegrass is simply one component. (#1528 --EWU Professor; Certified Meteorologist)

- ...We took off (in an airplane) to Spokane. We got about five miles from Spokane. All of a sudden we noticed that the visibility got poor... We got about two miles from where we thought the airport was, and we couldn't see Felts Field. We had to have the airport turn on their lights to locate the field; this was in the month of May. Beautiful day in Whitman County totally blacked in by smoke and fire from Spokane. (#1588 --Grower)

- The problem with grass smoke is it's visible; it's very visible... From Medical Lake over the hill into the Valley, you can always tell when you enter Spokane. It's smogged in. They've got a problem. They've got a pollution problem. It's not a grass seed problem in the month of November. It's not a grass seed problem in the month of April. It's not a grass seed problem in the Month of May. The problem is the smoke is so visible when they're burning. They're doing it in a short period of time. It accounts for two percent of the total pollutants. (#1588 --Grower)

- Grass burning is not and has never been a problem in Whitman County. Never a complaint in the Garfield or Oakesdale area. Grass burning only contributes two percent to the Spokane's pollution problems, but what does it contribute in Whitman County? The Department has no numbers for Whitman County, and how much pollution is from wheat stubble, forest fires, dust pollution, and emissions. They really don't know; they have no numbers for Whitman County... (#1591 --Grower)

- ...The smoke from the grass burning is an easy target for critics; however, the smoke is only a very small part of the air pollution problem in the Spokane area. For example, the dust storms that hit Spokane and the smoke from forest fires occurred more often than the few times the smoke from controlled burns have come into the area. I can't remember a time that the smoke has come into north Spokane. I've lived here for 18 years, and it hasn't been there--maybe I have a bad memory. (#1527 --Citizen)

- ...I think it only fair that the Department of Ecology research this situation thoroughly, starting with air quality records that should show 1/3 less emissions in September of 1996. I suspect that it will be found that grass smoke has very little to do with air quality problems... (#1077 --Grower)

- If all grass burning was stopped today the air quality on most days would be no different. Don't destroy the grass seed industry by unnecessarily restricting burning. (#992 --Citizen)

- Regulatory actions of the Department of Ecology concerning the ban of grass field burning will likely have very little affect on the yearly particulate matter found in the atmosphere. (#1010 --Citizen)

- I also feel that DOE (Department of Ecology) is in denial of the true air pollution problems of Eastern Washington. The end of grass field burning will not cure problems. Production and jobs will leave the area and the air will have the same basic problems. (#298 --Citizen/Grower)

- ...Bluegrass burning in Spokane County is very tightly controlled... In the last ten years, the Spokane County bluegrass growers have caused very little of the pollution in Spokane and the Spokane Valley area. Almost, without exception, bluegrass smoke in the city of Spokane and the Spokane Valley area came from field burning in Idaho. A total ban on bluegrass burning in Washington would have little or no effect on the smoke pollution for the majority of the people of Washington... (#1312 --Grower)

- ...Grass smoke accounts for less tha(n) one percent of the particulate in the air in the Spokane area in a given year. (#1028 --Grower)

- ...(At) the field burning hearing held in Spokane, a few Idaho residents testified giving days and dates of when they were bothered by bluegrass field burning smoke. No Washington growers burned fields on the days they specified in their testimony... In all fairness (their testimony) should be thrown out... Forcing an environmentally friendly industry out of business will not stop the Idaho smoke from going to the Spokane Valley. Those of us burning fields in southern Spokane County, and other counties should be allowed to continue to do so... (#1309 --Grower) (Attachment)

Response:

The Department of Ecology acknowledges that there are many other sources of air pollution. Sources such as industry, woodstoves, and automobiles are regulated at both the product level and the user level. For example, woodstove and car manufacturers now produce stoves and cars that pollute less. In addition, many people who use woodstoves may burn only during certain times, especially during the winter months. Cars in many areas of Washington State, as well as the rest of the country, are tested for exhaust emissions. There are emission restrictions, particularly in nonattainment areas, for burning of any kind.

The inventory of estimated emissions, maintained by Ecology, suggests that the percentage of pollution attributed to agricultural burning ranges from approximately five percent on an annual, statewide basis to 17 percent for Eastern Washington (annual). Because all grass field burning occurs over a relatively short period of time, the air pollution emissions attributable to this source during that period is much greater. For example, on a high burning day over 7,000 acres of grass seed fields can be burned. The burning of 7,000 acres would release 84 tons of PM_{10}.

It is often stated that grass burning represents only one percent of the air pollution in Spokane County. This figure comes from the Spokane County nonattainment plan. Not all acreage burned for grass seed production is located

in the nonattainment area and therefore, not included in that number. Ecology made its determination from the amount of pollutants emitted, not on an annual average. The amount of pollutants emitted is based on approximately 41,000 acres permitted through Ecology or a local air authority. There is a discrepancy, however, between Washington State University acreage in production estimates and this number. The acreage estimates used by WSU are substantially higher.

Grass burning has never violated a clean air standard.

- ...To date there has been no single day in the state, county, and cities in the state of Washington where grass field burning has violated the Environmental Protection Agency standards. (#1555 --Jacklin Seed Company)

- Agricultural burning has not been a source of particulate pollution or carbon monoxide violations in Spokane County from 1985-present. According to SCAPCA, the particulate violations were caused by woodstoves and wind blown dust. Grass field burning, on average, occurs less than thirty-five (35) hours a year in Spokane County, yet it is being condemned and all its environmental good is being overlooked... (#1071 --Palouse Conservation District)

- ...KBG (Kentucky Blue Grass) burning has never violated any federal or state monitoring system works and even on days where the wind has shifted and smoke has intruded into Spokane, there has still never been any violation of the standards. How can we be legislated against when we have never violated any legislation? There simply is no emergency. If the standards need to be changed then so be it. (#217 --Grower)

- To date, there has been no single day in the state, counties or cities in the State of Washington where grass seed field burning has violated the Environmental Protection Agency particulate standards. (#221 --Processor/Wholesaler)
- ...Emissions from grass burning did not even contribute to any recorded violations of any air quality standards during the past two year in this state. It appears DOE (Department of Ecology) is reacting to public perception rather than scientific reality. (#1020 --Washington State Farm Bureau)

- ...Kentucky bluegrass field burning has never violated any air quality standard... (#1494 --Grower / Processor).

- ...The determination by Ecology that there is too much smoke from grass field burning is not based on the lawful particulate standards now in effect, the purpose of which is to protect public health. Grass filed burning has not caused these standards to be violated, and evaluation of air pollution data available shows that grass field burning is a minor source of particulate pollution in the Spokane area where most of the health related complaints arise. (#1 --Citizen)

- The grass growers have not exceeded the PM_{10} and the $PM_{2.5}$ limits. These limits have been exceeded 42 days. The $PM_{2.5}$ levels were exceeded in 42 days in 1995. That was the $PM_{2.5}$ level. The PM_{10} level was exceeded 29 days. All of those days where it was exceeded was outside of the grass growing season... (#1509 --Citizen)

- A common sense interpretation of these laws would be as follows: 1) Unhealthy air pollution levels are levels of pollutants in excess of current officially adopted standards. 2) Particulate matter is the pollutant of greatest concern in the connection with the burning of grass seed fields. 3) The current officially adopted Washington State standard for PM_{10} is the same as the Federal standard, set in 1986, which is 150 $\mu g/m^3$ of air, averaged over 24 hours, and 50 $\mu g/m^3$, averaged over a one year period. 4) If the present smoke management program is successful in preventing any area from exceeding these standards, there is no health basis to limit acres of grass field burning in Washington or to declare a health

emergency... Yet (The Department of) Ecology bases its proposal to control emissions by limiting acres burned on the claim that burning grass seed fields is resulting in unhealthy air pollution levels. However, the preponderance of evidence shows that such burning has not resulted in violations of the particulate standards even in the Spokane area where levels are generally higher than in other areas of the state. If Ecology's actions are guided by these standards, there is no health basis for Ecology to force these regulations on all of Washington State…. (#1320 –Citizen) (Exhibit)

- ...I have never been so infuriated as when Department of Ecology said there's too much smoke in the air. Whose smoke? What level? What standard? In Spokane County we have never exceeded any of the applicable air quality standards; Never! Yet, the grass growers are the first one to go under the ax. Why? We're the smallest group. This is clearly an agenda... (#1505 --Grower)

- ...There is a claim out there that the PM_{10} is supposed to be changed to a $PM_{2.5}$ in the near future... We are currently not dealing with a $PM_{2.5}$, we are dealing with a PM_{10} legal issue and should not be sidetracked from that. (#1317 --Citizen)

Response:

Ecology acknowledges that grass seed field burning has not resulted in any recorded exceedences at PM_{10} monitoring locations in Spokane. The federal government has established health based criteria or standards for six common types of air pollutants. These National Ambient Air Quality Standards are the ones which are occasionally exceeded or violated in Washington. The limited monitoring of these air pollutants is focused near sources of the particular kind of pollution. Ecology has determined the emissions are not effectively controlled from this source, based on the intensity and duration of smoke from the practice of grass seed field burning. As was discussed in the previous comment response, the burning of grass seed fields occurs for a relatively short period of time during the late summer or early fall. As a result, the air emissions from this source are intensified. This proposed rule will reduce emissions of PM_{10} by approximately 1,077 tons, reduce emissions of CO by approximately 6,797 tons, and reduce volatile organic compounds by approximately 1,010 tons.

It is important to look at the intensity of grass smoke.

- ...I think that the consideration of averages, statewide averages for the year, ignores the concept of intensity. I think some simple examples that everyone would understand, at least that I understand, if you hold a match to your skin and maybe only hold it there for two or three seconds, your skin will be damaged, sometimes irreparably, and yet if you take the average environmental temperature over your body for a year, that might not be changed one iota... So I think that with physical agents, with toxins, the overall exposure's important, but also the intensity of a single exposure is important, and I think what we have with smoke in the Valley, anyway, and probably all of the Spokane area, is a high intensity of smoke. So I think you need to have some consciousness of the intensity and perhaps also in your ways of dealing with it to try to deal also with the intensity. (#1535 --Physician)

Response:

The Department of Ecology agrees and has taken intensity and duration into consideration in the proposed amendment.

Only a small percentage of agricultural production is grass seed.

- To put this into perspective, there are 36,000 farmers in Washington State, and only 150 of them grow bluegrass. Bluegrass is a rotational crop which means that grass growers also grow a variety of other crops. Using alternatives will of course increase production costs for bluegrass. Each farmer then, like every other businessman or industry person, will have to make an economic decision. He will decide whether it is more profitable to produce bluegrass without the fire or to grow another crop, as do

35,850 other farmers in Washington. No farmers will go out of business, and no farmers will be forced to sell their land to developers if the can't burn bluegrass. (#1536 --Save Our Summers)

- I wanted to say something about Garfield County... Last year the permits were for 2,000; that's one percent of your total farm acreage. In Columbia County they have a 180,000 acres of farmland; 169 acres was permitted in bluegrass. (#1570 --Citizen)

- I would like to talk a little bit about Adams County... Bluegrass at 2,430 acres is less than one percent of the total acreage here in this county. (#1603 --Citizen)

- ...In Whitman County... They have 4,400 approximate permitted acres to burn and had approximately 24 permits to burn those, and I'm going by the 1994 figures. That's a fraction of their total acreage of farmland... (#1592 --Citizen)

- In the state of Washington there are 15,800,000 acres of farmland. There are 36,000 farmers; 41,000 of that is permitted acres of bluegrass, and about 150 farmers farm that. That's a fraction of the total farms, acreage, and number of farms. (#1512 --Citizen)

Response:
Thank you for your comments. The number of growers and the total acreage in bluegrass production varies every year. It is true that a relatively small percentage of farm acreage in eastern Washington is in grass seed production and a relatively small number of growers generate the volume of the seed produced.

There is no scientific evidence to support the Department of Ecology's decision.

- It is incomprehensible that the DOE (Department of Ecology) can wipe out an entire industry without scientific evidence and due process of the law... (#1061 --Grass seed producers)

- ...I have not seen any scientific data to support this ban and feel burning should be allowed. (#998 --Physician)

- A major health effect on Spokane from grass seed field burning has not been demonstrated... (#362 --Physician) (Attachment)

- ...Some physicians in the Spokane - Coeur d' Alene area have gone on record as opposed to field burning, believing it to have a major adverse impact on their patients. Many of the statements made, however, are anecdotal in nature, and so may not be free from subjective bias... (#362 --Physician) (Attachment)

- ...I think a decision based on scientific fact, not political climate, is how this issue should be addressed. (#1598 --Grower)

- Dr. Jeffrey Corkill is a respected colleague and fellow scientist and I value his knowledge and expertise. There are several inconsistencies in his symposium publication that need to be clarified with regard to dates of field burning referred to as data collection times in his table on page three. The table refers to samples taken during periods of field burning on 9/3/93 and 9/4/93. the 3rd, 4th, 5th of September are Friday, Saturday, and Sunday when no burning takes place. Sample #7 and #8 refer to 3/29 and 4/4/96 which is clearly impossible since the Symposium was in March of 1996. On page 4, a period of extensive grass burnings referred to on 9/4/93 and 9/5/93, which is also Saturday and Sunday and no burning occurred. The dates referred to in all of the samples do not coincide to field burning episodes and therefore at this point do not make sense and therefore do not support the conclusions and this should be recognized by D.O.E. (Department of Ecology) personnel. (#1337 --E.W.U. Professor)

- And for this I earned a master's degree in biology with a concentration in mammalian neurobiochemistry, and I conducted scientific research for five years in that field... I developed a very critical eye for the

claims of reliable data as my publications were held to a very demanding and reproducible standard. I would like to make a comment on that point... As one of two physicians in this community, the health of the population here is of utmost importance to me, but also as a physician who's responsible for the health of many people in this county, I must evaluate all data presented to me which may have an effect on my patients. (#1574 --Pomeroy Physician)

- ...It appears to me that the DOE (Department of Ecology) is proposing a change or implementation of grass seed burning without having adequate information on which to base this change. I'm opposed to this change at this time with the information available. (#1606 --Grower)

- ...All regulations should be based on sound scientific evidence and all hearings should be held before the fact rather than after the fact... This regulation was enacted on emotion and not on sound scientific evidence... DOE (Department of Ecology) was unable to answer more than half of (the) questions (at the Colfax hearing) and was very vague on many other answers. (#1313 --Grower)

- ...This ruling again has demonstrated that lack of proper study and responsibility that the Department of Ecology in the past exhibited... The information released by DOE (Department of Ecology) (through) your informational hearings and written material have NOT once indicated that the 'Department of Ecology" followed properly any scientific analysis of the subject matter... (#1304 --Grower & Director, USDA Farm Service Agency)

- ...To pull the rug out from under an entire industry is not only shortsighted, it is scientifically unsound. (#394 --Whitman County Conservation District)

- The proposed burning regulation have been made without solid scientific evidence to back them up... (#1636 --Rancher, Zahn Ranch)

- ...My background is based in scientific research where I studied secretory dynamics of neurotransmitters... DOE's (Department of Ecology's) own study of the issue of Kentucky bluegrass smoke impact is in its first year with no incriminating findings... (#1494 --Grower / Processor)

- ...I feel the DOE (Department of Ecology) needs to find more facts. They need to get out there in the field. They need to investigate. You have that job to do that. You can listen to skewed facts, but in reality, it comes down to scientific evidence, and I just asked that you consider that when you make your decision. (#1604 --Grower)

- I would like somebody to explain to me how an agency that my tax dollars go to support can justify taking away my livelihood and that of thousands of families in the grass seed industry without scientific evidence to show the grass seed production is detrimental to the environment on an annual basis... (#1577 --Grower)

- Department of Ecology staff has failed to quantify in an objective scientific manner the public's need for a permanent ban on grass field burning. Department staff have fabricated this rule based on personal "perceptions" rather than legislative intentions... The department has failed to provide evidence of the impact of grass seed field burning relative to natural background levels of smoke produced by forest and range land sources indicates that smoke produced from events such as forest and range land wildfires... (#1264 --Citizen)

- I feel that for DOE (Department of Ecology) to follow this sensationalized aspect of the burning and not the science involved is unconscionable. It's a waste of taxpayers' money... (#1572 --Grower)

- ...You say we have monitors out there. I don't know of a monitor, Grant, that DOE (Department of Ecology) has in the state of Washington to monitor grass seed smoke. (#1508 --Grower)

- The proposed amendment appears to be the result of political action and not scientific information... (#1527 --Citizen)

- ...The Internet site did not have any data on PM_{10} levels in the atmosphere or the expected levels after implementation of this rule. I believe that all government emission regulations should be based on quantifiable data where implementation results can be measured. (#400 --Citizen)

- If you cannot tell if grass field burning is going on without seeing the smoke, isn't the problem more aesthetic than anything else? (#1008 --Pomeroy Grain Growers Employee) (Attachment)

- Stopping the field burning makes it appear that something is being done, but the reality is that big problems are not being addressed. I would urge the Department of Ecology to separate opinion from fact, and then make a decision that benefits the long-term future of our farmlands and environment. (#1527 --Citizen)
- ...To unilaterally restrict one source of smoke, regardless of its proportion, concentration, regional effects, or proven health effects is obviously a politically-motivated decision. It is not justified on scientific data, and it does a disservice to the residents of the state of Washington. (#1528 --Eastern Washington University Professor; Certified Meteorologist)

- We do need good science to make these decisions, not emotions, and we need to evaluate the entire picture... (#1531 --Washington State Farm Bureau)

- ...Another thing, what are the DOE (Department of Ecology) doing as far as the test plots or the mock agricultural studies that were to follow. We haven't yet seen you guys out getting your hands dirty, doing any farm work showing us this will work. I haven't figured out exactly what you base your facts on. (#1539 --Citizen)

- Grass growers have been arbitrarily singled out to comply with standards which do not even exist. The federal EPA has not yet issued standards for $PM_{2.5}$. I would certainly call this putting the cart before the horse... Farm Bureau members encourage the Department of Ecology to drop these proposed rules and rethink their position from a scientific standpoint as they should have from the beginning. (#222 --Grower)

- My impression of DOE (Department of Ecology) and others... Is they don't care about true scientific data... The grass industry has been a victim of much misinformation and unfair propaganda by (those) who do not face any effects of burning. The grass grower has been blamed for smoke from other forms of burning when there hasn't been any grass burning for several days... (#1006 --Grower)

- ...The Department of Ecology has not provided any verifiable scientific or economic data to support their recent ruling... (#1021 --Vice President, Washington State Association of Wheat Growers)

- I realize that we do live in a political world, but the worst of policies is to make a unilateral decision that has permanent effects on a valuable industry and peoples' lives when that policy is based on surveys, anecdotal evidence, inferences, and not on hard scientific data. Specifically, if DOE (Department of Ecology) sincerely feels that smoke is a major hazard to public health on a statewide basis, where's the objective data to support that decision, and in particular, how is it that one particular source of particulate or smoke matter is going to be terminated in terms of an industry in two years, particularly in face of the data from SCAPCA as far as the proportion of particulate loading in Spokane and other areas... (#1528 --EWU Professor; Certified Meteorologist)

- ...How does one sort out the smoke this summer from those wild fires from that that has been produced by burning our grass fields? I'm not really sure how that might work. All of these things might make your research skewed and fallible. Good science includes risk-benefit analysis and facts from competent

sources. Both things that I think the DOE (Department of Ecology) has overlooked in it's proposals thus far. (#1531 --Washington State Farm Bureau)

- I believe that the decisions of Ecology should be controlled by measurable standards of air quality, otherwise decisions will be inconsistent, insupportable, and biased… Rather than being guided by official particulate standards, Ecology's actions are based on complaint... (#1320 –Citizen) (Exhibit)

- ...We keep asking for scientific evidence on any of this; we don't have any. (#1589 --Grower)

- The proposed reductions in acres which a farmer may burn this fall and beyond is completely arbitrary, not based on full consideration of consequences to the farmer, the processor, or the environment for good or bad." (#1 --Citizen)

- What kind of democracy are we living with that lets a handful of uneducated blow-hards with no proof or scientific evidence on what they are saying and asking for, destroy an important industry? (#213 --Citizen)

- ...I would like to see policy developed that is scientifically sound and based on both environmental common sense and (economic feasibility). (#1006 --Grower)

- ...The industry in the Columbia Basin will grow if the Department of Ecology will let it. It could be one of the largest industries in the state. It could rival grain in the Columbia Basin. We urge that for the protection of the citizens of the state of Washington, our area farmers, and our thriving grass seed industry, that this grass seed field burning rule be dropped and a new regulation based on good science and common sense, be developed by all involved in the process. (#1490 --Jacklin Seed Columbia Basin operations manager)

Response:
Thank you for your comments. In fact, a great deal of research has been done on the health and air quality impacts of particulate matter air pollution. Grass seed field burning emits intense levels of fine particulate matter during a short time frame. The research and knowledge about fine particulate matter and its impact on health was used to develop this proposed amendment.

Comments on Whether Grass Burning is a State or Local Issue

Grass burning is in violation of my right to clean air.

- ...What about the right of people to breathe clean air? That has to be number one in this country. You know, there comes a time when you can't buy your health... (#1603 --Citizen)

- ...The amendment is vital to all of us who breathe in our shared airshed. (#329 --Sandpoint Clean Air Coalition)

- ...For somebody that doesn't have an economic interest in farming, it's been a real sad sight for me to listen to farm organizations and to farmer after farmer get up and defend their right to pollute the air. I guess I ought to go home to Idaho and buy three or four wood stoves and crank them up real fast particularly when the wind flows back towards Pullman and exercise my right to air pollution as some of you seem to exercise your right. Maybe if I was diligent enough about it, I could keep up with you and produce as much particulates as one grass seed farmer. (#1595 --Citizen)

- I have never felt that a very limited number of individuals and corporations should be allowed to degrade a public resource such as clean air. (#1052 --Citizen)

- ...The convenience this practice (grass field burning) affords farmers cannot be balanced against life, health, and the right of the public to clean air. (#1052 --Citizen)

- It is the responsibility of the government to protect its citizens from all forms of dangerous pollution when possible... (#1058 --Citizen)

- I feel the grass smoke is a violation of my personal privacy when I have no choice but to breath in the particulate matter that the farmers have seen fit to release into the atmosphere. (#1058 --Citizen)

- The atmosphere is a "common" - It does not belong to any one person or group. No single person or group should be allowed to pollute the atmosphere for gain or profit. (#1069 --Citizen)

- ...When it comes to the choices between affecting our health and our lives, how can their "right" to burn really be justified? Don't we all as citizens in this area have a "right" to air free from smoke particulates from intentional burning? And a right to clear skies during August and September?... (#1290 --Citizen)

- ...People who can't breathe (due to grass smoke) have their constitutional rights taken from them (#1417 --Citizen)

- …My personal feeling is that nobody has the right to pollute the air like these farmers just in the name of farming... (#1463 --Citizen)

- ...The right of the grass seed industry to pollute the air stops where the right of every citizen to breathe clean air begins. (#1298 --Citizen)

- ...Why should hundreds of thousands of people be subjected to the ill effects of smoke inhalation so that 125 growers can squeeze out a higher profit for themselves? The common good of the majority is what must rule in this situation... (#1292 --Citizen)

- ...The health above all, emotional and esthetic impact on all of us should be considered well above the grass seed industries profits. (#1290 --Citizen)

- Why the federal EPA doesn't step in and stop this grass burning is a mystery to me. (#364 --Citizen)

- Air is basic to human life. Breathing air is a human necessity and right. Along with this right, all citizens share the responsibility of acting in ways that minimize air pollution. (#1487 --Citizen)

- ...I think 115 growers between Spokane and Coeur d' Alene should not have the right to determine air quality for a half of a million people. (#1417 –Citizen)

- Littering and polluting is against the law. How can one small group be allowed to infringe upon and force their practices on an entire community that has no control... (#1056 --Citizen) (Attachment)

- I am against grass burning and it is illegal. I think if a law is passed, everybody has to go by that law and there should be no exceptions. If you can't burn and I can't burn, grass growers should not be able to burn either. (#1362 –Citizen)

- ...They are growing grass in some places without fire, but people are not breathing without air! (#1297 --Citizen)

- ...The smoke goes somewhere, and with our population in this country, there's large populations throughout, and they're affected whether it's in Spokane County or not, and we see that in our practice. (#1523 --Physician, Spokane)

Response:
Thank you for our comments. The Department of Ecology is diligently working, under the State of Washington Clean Air Act, "to preserve, protect, and enhance the air quality for current and future generations."

The proposed regulation violates the rights of growers.

- This statute creates two classes of open field agricultural burners, those who burn turf grass grown for seed and those who burn grass, to burdens not imposed on the other class. Neither the legislature, nor DOE (Department of Ecology), has offered any rational basis for distinguishing between the two classes... There is no rational basis for distinguishing between farmers who burn grass and those who burn anything else. The legislature's attempt to create classes without a rational basis for distinguishing between them violates grass field burners constitutional right to equal protection. Since the legislature cannot constitutionally distinguish between the two classes, neither can the DOE (Department of Ecology).This proposed rule violates the US and Washington constitutions. (#1338 --Attorney)

- The statute and proposed rule effect a regulatory taking of grass growers property without compensation. Grass growers make a substantial investment to establish stands of Kentucky bluegrass on dryland acres. They expect to recover this investment over the life of the grass stand. The proposed rule denies farmers the opportunity to recover investments which were made prior to the rule proposal. By denying farmers any opportunity to recover their investments the proposed rule confiscates their property. Since there is no provision for compensation, this confiscation of existing investment violates provisions of the United States and Washington constitutions. (#1338 --Attorney)

- ...Something changes (more than politically) when the State declares a state of emergency and grants further right to those who have illegally defied the system and punish the individuals who comply with their laws. (#1319 --Citizen)

- ...I am sure this edict of yours is unconstitutional... (#1029 --Grower)

Response:
Thank you. Ecology believes it appropriately followed state statutes for the contents and process used for adopting this rule. The Clean Air Act grants specific authority for acreage burning reductions. A state statute is presumed to be constitutional and Ecology has acted consistent with this presumption in adopting this rule. Ecology also understands the importance of compliance and enforcement for this rule, and is working with our delegated permitting authorities on this issue.

Burning is a dangerous practice and should not be allowed.

- It is my sincere hope that some documentation can be produced concerning the very dangerous methods these farmers are using in their fields, and the results show that field burning will be rushed to a rapid conclusion. (#209 --Citizen)

- ...The real farmers, the ones who grow food for us all, are a great part of our community but the very few dangerous and costly grass burners of our region have taken us for a ride long enough; too long, but at least let us be firm and final now… (#1385 –Citizen)

- ...I come from a farming family that raises grass in Central Idaho. I know the importance of saving the money to burn after the harvest however, I think when you are so close to a metropolitan area and so many are affected, it is not morally correct to allow this... (#1408 --Citizen)

- I am also very nervous every time they burn, because the smoke hangs in our valley (near Mt. Spokane) and I keep thinking the woods are on fire. (#354 --Citizen)

- As we're flying towards Spokane, it gradually gets worse, and you can see the brown ridge even more, and this was the last picture. We were about eight to ten miles from Felts Field, and all of a sudden, we were enclosed in smoke, and this is taken right out of the front of the plane, and you can no longer see the ground. Now that's dangerous, and we just prayed that the radar would be working, and there wouldn't be any other small planes in the area. (#1534 --Citizen) (Exhibit)

- I had to drive to Rathdrum (where I lived) and the smoke was so thick on Hwy. 53 that you couldn't see two feet in front of you--This abominable condition always existed and there never was anyone directing traffic. There also is a train track running across the highway in that area. We just held our breath and drove through. This is insanity to think that people are exposed to a situation like this year after year and for nothing more than financial gain. (#129 --Citizen)

- ...On Tuesday we had our rather scary experience... We (were flying) from the lake to Spokane. It was midmorning. There wasn't a cloud in the sky...so I started taking pictures, and I have them here... You can see not only the haze in the sky but the dark brown kind of a ridge over the sky, a streak over it... (#1534 --Citizen) (Exhibit)

Response:
Thankyou for your comments

The rule must apply statewide

- The Clean Air Act applies to the entire state of Washington. It doesn't just apply to one county; it applies to all of you. And all of the growers in my area have said, "Well, if we can't burn in Spokane County, we'll just take it on down to any county that will allow it," and they will do it. (#1570 --Citizen)

Response:
Ecology agrees that the Washington Clean Air Act applies to all counties and that this rule is best addressed on a statewide basis

Grass burning is a local issue, not a state issue.

- ...Why should Columbia County, which burns less than 200 acres, be required to reduce its burning by 2/3 to 66.6 acres when Spokane County, which has about 26,000 acres to burn is required under (Department of) Ecology's plan to only cut its acreage to 8,666.6 acres? This is obviously unreasonable, particularly when Spokane is the site of most of the complaints. (#1320 --Citizen) (Exhibit)

- Grant told those fellows down there (Benton County) that in the first place they said why are we being drug into a situation that is a Spokane problem. We want to be completely away from those guys; we don't want to be involved with it at all. Grant told them that they had a lot of dust pollution down there, and they had a little smoke pollution, and the typical dance they've been doing around here tonight... (#1510 --Grower)

- ...As a taxpayer,...I feel that this is a huge waste of our tax dollars. I cannot believe that you are pursuing something that is what I view as a very small problem in a large metropolitan area. I do not think it suits the taxpayers to have to deal with a bureaucracy that cannot follow the facts or proceeds to this giving in to amateurs with their own personal viewpoints just because of something that they feel they want to do for other areas of the state... (#1558 --Bank Manager, Pomeroy)

- ...It's time that legislators took a reality check. If Spokane doctors don't like Spokane air, then let them clean up Spokane... (#386 --Citizen)

- It is my opinion that there should be zoned areas of the agricultural region of our state where grass field burning is permitted (it) can be proven to have a very limited impact on the population. These areas should be monitored as to pulmonary problems so burning does not cause a smoke pollution problem to any people. (#1007 --Grower)

- To ban burning statewide because of a perceived problem in one area of the state makes no sense. (#1013 --Grower)

- I feel a state wide ban is unfair and not environmentally sound. It is a power play for the agenda of questionable people who call themselves environmentalist(s)... (#1006 --Grower)

- Statewide one-size fits all rules do not work in Washington State. The vast differences in topography, climate, and population differ throughout the state. Each county should be allowed to set their own rules in regards to the benefits or disadvantages of each industry after an impact study is done in each county... (#1072 --Grower)

- During the rule meetings, I formally asked that the Columbia Basin and other sparsely populated areas be given a total exemption from this emergency order. I believe this request was justified because we in the Columbia Basin and other rural areas were able to show through information submitted to the D.O.E. That we are not impacting people's health in an adverse manner. We demonstrated this by submitting information from hospitals in our area that showed no admittance's <u>ever</u> from grass field burning. We also submitted a letter from our county commissioners which gave us overwhelming support for our position against this emergency order. (#1262 --Grower) (Attachment)

- ...There is an air quality problem where the burning of grass residue is practiced (in) urban areas...near grass fields. Restrictions have been placed in these areas. The complete banning of burning grass residue in the entire state of Washington is not necessary, practical or advisable. The loss of jobs, income and soil conservation in rural areas far exceed the minor benefits achieved through statewide restrictions of burning. (#991 --Former extension agent)

- You are not being fair with them (Growers) and making it a state wide ban which not necessary. (#1478 --Citizen)

- ...Those of us raising and burning bluegrass away from populated areas should be allowed to continue... (#1311 --Grower)

- ...I have always thought that the role of government was to regulate where regulation was needed and not regulate by elimination. It is hard for me to imagine and accept that an official can put me out of the grass growing business because of a problem 100 miles away... Perhaps an area by area determination could be made to solve the problems where problems exist while leaving things alone where there are no problems. (#1306 --grower)

- ...This regulation only affects 1 to 2 1/2% of particul(ates) in the air for a relatively short period of time and is only a major problem in Spokane County. Does this justify a State wide regulation?... (#1313 --Grower)

- ...If the seed field burning is supposed to be in Spokane, what are we doing here?... (#1556 --Optometric Physician)

- ...Most farmland is in sparsely populated areas... (#11 --Grower)

- ...Regulatory overkill was definitely achieved when DOE (Department of Ecology) slapped the identical emergency rule on all of the grass growers across the state. (#1576 --Washington State Farm Bureau)

- ...The problems of one area should not cause a statewide ban... (#1605 --Grower)

- "Ecology's plan to include all of Washington in its partial ban ignores regional differences, population densities, and the like. If the Spokane area has a particulate problem, SCAPCA data show it is certainly not significantly affected by grass field burning in other counties of the state and to only a small degree by such burning in Spokane County. (#1--Citizen)

Response:
While Spokane County has the largest number of acres permitted, there are also thousands of acres outside Spokane County that are burned each year. Fine particulate matter, one of the prime pollutants of concern in smoke from grass seed fields, travels great distances ignoring county boundaries. These two facts alone make this a statewide issue rather than a local one. Furthermore, the statute calls for pro rata acreage reductions, suggesting that the state legislature intended for emission reductions.

The impact from burning in our region is minimal.

- ...We're in a different air corridor. You look off to the northeast of you, which where most of our wind always prevails, to the northeast. We don't affect a lot of people, and most of our smoke is always dispersed immediately. And I think that is one of the questions when they make the decision they need to really look hard at. Is there any proven health data from our area? How many direct complaints were actually this year?... (#1493 --Grower)

- Secondly, I feel that a broad state-based authority should use discretion when imposing rules on a state-wide basis as each county has its own set of environmental circumstances. (#1329 --Grower)

- ...So I would urge that you look at Garfield County and not what Spokane has to say because we are a completely different area. (#1559 --Garfield Co. Sheriff's Department)

- We have burned (bluegrass) after harvest and there has not been any smoke drift into the Lewiston-Clarkston Valley. The smoke goes to the south and when it (reaches) 1000-1500 feet it goes east. Two hours after the (burn), you cannot locate the smoke. The EPA's (Environmental Protection Agency's) ban on burning is not going to be a solution for Spokane County's problem. (#986 --Grower)

- ...The grass growers in Garfield County do not harm the people in the Spokane-Coeur d'Alene valley; therefore, I believe they should not have any restrictions on their burning operations." (#1569 --Farm Machinery Business)

- ...Most farmland is in sparsely populated areas... (#11 --Grower)

- Ecology failed to properly consider an exemption for grass seed field burning for the Columbia Basin counties. The number of complaints against grass seed field burning in the Columbia Basin verified by the Department of Ecology has never been clearly documented... Field burning in the Columbia Basin has "never" created significant air quality problems, because climate and terrain offer more frequent

opportunity for efficient vertical smoke dispersal than other areas of the state. (#1264 --Citizen)

- Why don't we, in the Columbia Basin and other sparsely populated areas, have a problem with grass burning? 1. We have a very very large airshed which allows good smoke dispersal. 2. We get very hot burns because of our hot dry climate. This means less emissions because of higher burning temperatures. 3. We have very flat terrain which minimizes effects on smoke from inversions. 4. And most important, we have a fairly sparse dispersion of our population. (#1262 --Grower) (Attachment)

- The smoke we generate in our sparsely populated (region) is very minimal in comparison to Spokane County. You should...separate the two areas. (#993 --Grower)

- ...If the problem is a Spokane County problem, and a City of Spokane problem, let SCAPCA handle it - Reduce it or disallow it. But, for the rest of rural Eastern Washington, it is a crazy ruling. The evidence of health concerns for rural Eastern Washington are unfounded. With this in mind, a full exemption for rural Eastern Washington including the Columbia basin and the southern Palouse, should be granted... (#1482 --Rainier Seed Inc.)

- ...The principle cry against burning is coming from the Spokane area which has very poor overall air quality anyway... (#1026 --Dye Seed Ranch Employee)

- Burning is causing problems for some people in some areas, both real and perceived, but not in all areas of the state. We believe the State D.O.E. (Department of Ecology) burning rule has been imposed arbitrarily and capriciously, as Garfield County, for example, has not had any problems with grass seed field burning. (We have a) strong belief that other ways can be found to solve the problem. Rulings should be drafted on an area by area basis...using local or district control boards. Smoke dilution and reduction methods...can be utilized to reduce the effect on the environment and people. We suggest that different measures be tried to see if they won't help solve the problem prior to the proposed total abolition. (#1012 --Citizen.)

- ...The smoke we generate in our sparsely populated area is very minimal in comparison to the heavily populated Spokane County. You should take this into account, and separate the two areas. (#1029 --Grower)

- I question the rational that contributed to the banning of grass burning, in a county where medically documented, the citizens are not affected. The economic devastation would befall all aspects of the community. I don't see how the banning of grass burning can be justified for Garfield County. (#1030 --Director of Nursing, Garfield County Hospital District)

- ...I hope that this process will lead to more study and compromise on this issue. Our circumstances, conditions and needs (are) quite different than the Spokane area. (#1027 --President, Pomeroy Chamber of Commerce & Grocer)
- Garfield County is clearly an emissions attainment area. Imposing emergency emission reduction regulations seems to be outside the spirit of the Clean Air Act. The fact that the advisory committee was unable to come to a conclusion indicates that the issue is not clear and regulations are premature. (#400 --Citizen)

- ...Walla Walla county is an agricultural county, with a major portion of our total income derived from agriculture. We are aware of the apparent health problems attributed to field burning in northeastern Washington, but in (Southeastern Washington / Walla Walla County) we are not aware of any exceeding PM_{10} air quality standards due to field burning. We strongly protest that our Walla Walla County farmers might be forced to curtail or possibly cease production of an entire crop because of problems in another part of our state... Please do not make this a blanket order when it is not necessary in southeastern Washington... (#1637 --Walla Walla County Board of Commissioners)

- The rule doesn't take into account that some areas of the state suffer more from grass field burning than do others. The grass growers in this area (Whitman County) are understandably opposed to being lumped in with what seems to be a Spokane County problem... (#1063 --Public Health Officer of Whitman, Asotin, Garfield and Columbia Counties)

Response:
As stated in the previous comment response, thousands of acres of grass seed fields are burned outside of Spokane County each year. Since there is no effective way to stop pollution at county boundaries, the practice of grass seed field burning needs to be addressed on an industry wide basis and the industry is located in several counties in eastern Washington.

Ecology should consider regulating on an airshed by airshed basis.

- There is a productive way to view this problem--it is the fundamental principle by which all states, all 50 states in the United States, have addressed their air pollution problems, and it is inconceivable to me that DOE (Department of Ecology) is not looking at them this way. And that is to identify specific airsheds... The Willamette Valley is a particular airshed confined by the Cascades and the coast range with its particular meteorological conditions and the sources of pollution. You address the problems in that particular airshed. The same logic applies to the Spokane Valley. DOE needs to make a sound principle in designating airsheds in the state of Washington, and permit local authorities like SCAPCA, under state guidance, to set sensible air quality standards based on specific air quality criterion and designated sources... (#1528 --Eastern Washington University Professor; Certified Meteorologist)

- ...There's certain parts of this state that certainly can't be the same as another area, so in this predominant airshed here that we have which is large and wide, perhaps we could be burning without giving you a problem. (#1615 --Adams Conservation District)

- The airshed in the Columbia Basin is much larger and different than the airshed of Spokane. (#1265 --Grower)

Response:
Thank you for your comments. The Department of Ecology reviewed this issue with the “airshed” concept in mind. Because particulate matter from grass burning travels great distances, it was determined that this issue is one that deserves to be addressed equitably by the root source of the pollution. The root source is burning the grass residue which occurs in many counties in eastern Washington. Additionally, Ecology has the responsibility to review impacts of sources of emissions between “airsheds.” Using both criteria, a state-wide rule is most appropriate.

Comments on Grass Field Burning as an Industry Practice

Agriculture should be regulated similar to other industries.

- There is no industry except Ag. That has not had to adjust to changes required because of research on health, clean water, etc... (#1031 --Citizen)

- ...Because you (Department of Ecology) are a regulatory agency I guess I expect you to regulate. Every other industry gets regulated except the grass seed guys... (#1409 --Citizen)

- ...I spend a considerable amount of money on additional cost of cars to pay for smoke equipment and maintenance and the hassle of going each year to have it inspected and I’m having trouble understanding

how the grass industry is somehow different from all the other industries in town which have to conform to air pollution guidelines, and I don't think they should be exempted no matter how much money they have... (#1447 --Citizen)

- ...The right of the majority rules in this case and the pollution caused by the grass burning should be regulated like other industry. (#1477 --Citizen)

- ...Other states have stopped field burning without the disastrous results claimed by the grass seed industry, and Washington must do the same. I can think of no other industry whose operations cause pollution that has not been required over the past 20 years to reduce that pollution, regardless of the expense... (#1298 --Citizen)

- ...If we regulate the amount of pollution other industries can emit, should we not also regulate the amount of pollution farmers can emit?... (#1295 --Citizen)

- ...Every other industry is compelled to keep emissions within established guidelines... Why should this industry remain unregulated?... (#1290 --Citizen)

- Any other business that would Pollute the air would be closed down. I have lived here 24 years and have hated this time of the year as breathing is difficult. (#346 --Citizen)

- ...As a society we have not continued to support other industries that have dangerous pollution practices and we should not exempt the grass farmers from the pollution controls. (#208 --Citizen)

- ...Are there any other business practices that are allowed by permit to pollute the atmosphere?... (#328 --Citizen)

- ...Industry would not be allowed to cause that much pollution, it would be against air quality laws. (#1414 --Citizen)

Response:
The Department of Ecology, with this proposed rule, has taken steps to require reductions from grass burning consistent with those imposed on other industries. The Washington State Clean Air Act addresses grass seed field burning in a specific section (RCW 70.94.656) which provides the methodology Ecology must use. The methodology to follow for reducing air pollutant emissions differs among sources, whether that be cars, smokestacks, woodstoves, or slash for example. Each category or source has, however, reduced air emission levels at the product level, user level, or both.

Grass seed growers are held to a higher air quality standard than other industries

- ...(Department of) Ecology publication #96 - 1010 Air pg. 2 last sentence of the proposed amendment, "it is important to point out that the limitations being imposed treat grass seed field burning in a manner consistent with limitations previously imposed on other sources of air pollution." Every study and report from Ecology staff could not produce evidence of a 33% reduction in a 12 month period for any other air polluting source. (#1331 --Citizen)

- In Reason #7 DOE (Department of Ecology) states "(r)equiring additional reductions from the grass seed industry is consistent with the requirements imposed on other industries and segments of society." This statement is false in some ways and irrelevant in others. First, the statement is false when the grass seed industry is compared with other agricultural industries that utilize open field burning. The statement is also false when reductions imposed on the grass seed industry is compared with those imposed upon users of automobiles which DOE attempts to do... Other industries have had emissions standards imposed

which were based on available technology. New sources of air pollution are held to high standards of control technology, while existing sources are held to lower standards. No other industry has faced regulation of production activity, as opposed to emissions. More importantly, regulation of grass field burning should not be determined by the technological capabilities of other industries... (#1338 -- Attorney)

- ...The director of the Department of Ecology has insinuated many times that the grass seed industry as we now know it today must be eliminated. So it is time that the grass seed farmer cease the best management practices. I must point out that other industries have had to reduce emissions over the years, not eliminate emissions after two years. This proposed rule is not adequate and will not be beneficial to our industries... (#1555 --Jacklin Seed Company)

- The bluegrass industry means as much to Pomeroy and some of these small communities around here as Boeing does to Seattle, and I would submit that we might have a bigger PM_{10} problem around SeaTac. (#1575 --Grower)

- The proposed amendment reduces total burned acres of grass stubble by one third until production of particulate pollution by grass field burning is eliminated in 1998. Grass seed production in the only industry in the entire state put to this high standard, that is the elimination of all particulates in less than three years. Grass seed production is being unfairly discriminated against by this amendment. (#1065 -- Grower)

- ...Other industries have had to reduce emissions over a period of years, not eliminate emissions in a matter of two years. (#1597 --Jacklin Seed Company Employee)

- ...Other industries have had to REDUCE emissions, over a period of years, not eliminate emissions in a matter of two years. This proposed rule is not equitable with other industries. (#221 -- Processor/Wholesaler)

- Should not DOE (Department of Ecology) be required to regulate fairly and evenly and not single out a very small industry and not have the same standards for all industry?... (#1313 --Grower)

- ...Anti-burning advocates don’t seem to worry about big business and other polluters which are responsible for more pollution during the year than grass. The state wide burning ban seems to be a form of big government harassing small industry. It is probably unconstitutional to allow big business to reduce particulate matter and still operate and not a particular small business... (#1006 --Grower)

- ...Do Kaiser or PFI give quality things back to our resources every day but one- NO... (#1025 --Grower)

- I'd like to say that numerous times I've been in a restaurant and sat down to eat and breathed more smoke in my lungs from that hour-and-a-half than I did from his entire field burning there, and the thing that bothers me is that they're selecting these farmers and penalizing them when we have factories all across the United States that are allowed to put out smoke 24 hours a day and still have big business and big money, so maybe they aren't controlled by environmentalists... I think it's not a fair situation as far as I'm concerned. (#1582 --Grower)

- ...I also feel as a grass grower that I'm being discriminated unfairly by imposing this amendment. It would be an unfair and non-uniform standard for one particular sector of industry in the state of Washington. The proposed amendment reduces our acres of grass stubble burned by one-third until we produce no particulates. This is unfair and is not a standard held by any other industry... All I ask for is equal requirements... (#1594 --Grower)

- The Director of the Department of Ecology has stated many times that other industries have to make changes in ways they do business. This is true; it's hard to dispute that, but they've been able to do

this over time, not two years. Not a single industry has been forced to zero in two years. (#1490 --Jacklin Seed Columbia Basin operations manager)

- ...When you approached Kaiser Aluminum did you demand that they cut production by one-third, or did you establish some criteria for them to meet as far as particulate emissions? (#1506 --Spokane County Conservation District)

- ...The elimination of field grass smoke--now I'd like to know how that is comparable to other industries in Spokane as well as in the state of Washington... At the symposium I heard Mr. Tenold speak from Tenold Steele. I'm spending thousands of dollars to reduce my emissions, but yet the DOE (Department of Ecology) comes back and says the grass industry which is a two-and-one-half percent polluter of the whole five percent of agriculture, you have to eliminate your emissions. Now where's the equality in that?... (#1511 --Grower)

- ...I don't see Kaiser cutting their production by 50 percent like you requested us to do... (#1516 --Grower)

- Would the Department of Ecology do something that would shutdown Boeing Inc. in King County? (#965 --Garfield County business person)

- ...To limit and soon prohibit grass seed burning in a small rural county like Columbia is over regulation... Forest service and tribal resource managers are using fire more frequently as a management tool. This double standard seriously impacts survival of our grass seed producers. Burning is a management tool for grass seed production and other areas of agriculture and forestry. Will these other industries face the same type of biased and unscientific decision making? As an agriculture and forest product producer, and a representative of WAWG (Washington State Association of Wheat Growers), I urge DOE (Department of Ecology) to drop its proposed rules on grass seed field burning. (#1021 --Vice President, Washington State Association of Wheat Growers)

Response:

Thank you for your comments. They have been taken into consideration. The Department of Ecology, over the last twenty or more years, pursued other options available under the Clean Air Act. Burning of grass seed fields had not been reduced as of 1995. No other industry has had that amount of time available with no reductions in emissions achieved. Ecology has taken regulatory steps to reduce emissions from this source.

Grass burning is being singled out, instead the focus should be on major pollution sources.

- The D.O.E. (Department of Ecology) has singled out the grass industry as a target for their emergency order... (#1329 --Grower)

- ...Grass burning is an easy target. Their emissions are concentrated in a short period and it is obvious when grass smoke emissions are being produced. Other major contributors are harder to point a finger at yet their pollution is more constant and widespread. (#1071 --Palouse Conservation District)

- ...The uncontrolled and ignored terrible pollution of nitrous oxides from locomotives and freight trucks is every day and hour, all year and far, far more damaging to the environment than the grass fires. (#12 --Citizen)

- I realize that air pollution is a complex issue, especially in this metropolitan area. We have a serious problem in this metropolitan area, especially in regard to single-occupancy vehicles, and that's a year-round problem... (#1541 --Citizen)

- Submitted an article from *The Economist* that discusses the high amount of pollution generated by automobiles. (#17 --Citizen) (Attachment)

- ...I have just read an article in the Lewiston-Tribune dated September 15th about Kelly McNulty that collapsed and nearly died from grass smoke in Coeur d'Alene, Idaho. The article went on to say that she says her problem began about a year ago when already the grass growers in that area were under a controlled burn days and limit," which was pointed out by Mr. Jim Scott and Senator Loveland. "I do not (believe) her problem is from grass smoke. You can go to Spokane and Coeur d'Alene any time between October and March, and you can hardly see across the Valley from the smoke from the autos and the wood burning. I find it really hard to blame the grass growers who burns one day per year for the problem of the other 364 days. Please reconsider the issue of attacking only the grass grower who does far more good than any harm... (#1569 --Farm Machinery Business)

- ...Obviously, why not the car polluters, why not the people who burn wood in the wintertime?... (#1556 --Optometric Physician)

- In Reason #9 DOE (Department of Ecology) states "the substantial amounts of smoke generated from grass burning over a short period of time in confined geographic areas has to date, made it virtually impossible to adequately prevent the smoke from impacting roads, homes, population centers, and other public areas." This statement is not supported by the rule making file. As discussed above, neither DOE nor any of the proponents of this rule has determined that the smoke in question is from grass burning as opposed to other agricultural burning which occurs at the same time in the same geographic areas. This bare assertion, without reasonable basis, is inadequate to support the proposed rule. (#1338 --Attorney)

- In Reason #5 DOE (Department of Ecology) states "serious incidents of heavy smoke in and close to higher populations have persisted." This statement may be true but it is irrelevant. The assertion is irrelevant because it does not link any serious incidents of heavy smoke to smoke from other sources such as grain stubble or wildfires. As discussed above, grain stubble is burnt at the same time as grass residue. Furthermore, both of these activities take place during the dry season before fall rains begin. Historically, this is the time period associated with high levels of wildfire activity... (#1338 --Attorney)

- Blue grass growers are a small segment of the population, and an easy target. We are the victims of politics... (#1061 --Grass seed producers)

- Ecology's action in implementing a ban on Bluegrass stubble burning is arbitrary and capricious in nature. Why were not the larger sources of air degradation addressed before banning the grass seed industry from our state?... (#1071 --Palouse Conservation District)

- ...What justification can Ecology have for the arbitrary selection of the grass seed industry to bear the burden of improving air quality? A small number of individuals will be economically devastated... (#1071 --Palouse Conservation District)

- I am disappointed that Grass Growers have been singled out as a target for cleaning up air quality in Eastern Washington. Our district averages about one call per year for (grass field) fires that get away. (#989 --Garfield County Fire Chief & Pomeroy Grain Growers Co-op employee)

- ...Why does Ecology require that all cars in the state or at least the Spokane Valley be converted to propane? This is an economical and viable alternative that could produce far greater air quality improvement... (#1071 --Palouse Conservation District)

- Why is the bluegrass industry told that we must adhere to a zero emission standard? Other industries, automobiles, and wood stoves in the state release emissions as a result of their operations... (#1072 --Grower)

- ...I am frustrated that the Department of Ecology takes one petition from 300 doctors "which states grass burning, wood burning, automobile emissions, industrial sources and road dust from unpaved roads and re-suspended road dust causes difficulty breathing to patients with respiratory problems" and shuts down an entire industry in the State of Washington. We are the smallest air polluter on this list, yet they attack us because they feel we are the easiest one to stop. (#1268 --Grower and Producer)

- We (grass seed industry) are the smallest source of the overall pollution. (#994 --Dye Seed Ranch)

- ...Are you going to stop the burning of wood stoves? Are you going to phase it out? Are you going to phase out the use of automobiles in that zone? No you aren't, so you are treating these people very unfair... (#1478 --Citizen)

- Your "Focus on Grass Seed Field Burning" states, "It is important to point out that the limitations being imposed treat grass seed field burning in a manner consistent with limitations previously imposed on other sources of air pollution." Are you then requiring Spokane County to pave 1/3 of the unpaved roads over the next three years? Instead of pushing an issue that will cost jobs, why don't you push one that will create jobs? (#1303 --United Food and Commercial Workers)

- ...To suggest that 3% of the air polluters should be subjected to studies, restrictions, regulations, permits and taxes while 97% of the polluter continue with business as usual with total impunity, seems hardly worth of serious consideration... Any Agency that is serious about finding a solution for air pollution doesn't start by encumbering the industry that pollutes the least and produces the most basic sustenance for life... A good place to start is bringing the air pollution level in cities down where rural Ag is now. (#399 --Grower)

- I believe Ms. Riveland...was impulsive in eliminating an industry without considering the whole picture. She could find more benefits to a 33% reduction in auto miles driven. The reduced deaths and injuries would be an immediate benefit and the technology is in place for walking, bicycling, car pooling, the use of electric cars, the use of low emission vehicles, such as those that use propane, and an increase in public transit use. (#241 --Grower)

- The farming community (does) not understand why the Department of Ecology has chosen to focus on only grass burning to improve the air quality in the Spokane area. That the proposal is to extend the ban beyond the Spokane area was even more confusing. Grass burning emissions only provide 1% of the particulate matter in the air. Why (does) DOE not choose to focus on the vehicle emissions which currently makes up over 55% of the air pollutants? (What) about wood burning stoves?... (#1020 --Washington State Farm Bureau)

- ...We firmly believe this is being done because it was easier to pick off a small minority of farmers rather than tackle the real problem... In the minds of many, DOE (Department of Ecology) has arbitrarily singled out the grass burning industry. Which commodity group will be next on this arbitrary hit list?... (#1020 --Washington State Farm Bureau)

- ...Grass field burning simply provides an easy target for the public since the emissions are concentrated in a short period of time, and it's obvious when grass fields are being burned. The farming community believes that grass burning has been unfairly painted as the main culprit for health and air quality problems of Spokane. It is public knowledge that vehicle emissions make up over 55 percent of the air quality problems in the Spokane area. Does the public know that dust from unpaved roads, construction, and wood-burning stoves are much bigger culprits than the agricultural community?... (#1576 --Washington State Farm Bureau)

- The process of burning fields is something that has taken place for many years... I do concede that it does create a certain degree of pollution in the atmosphere, but I find it interesting that you are zeroing in on

one industry and ignoring some of the major polluters--for what appears to be "political reasons". (#333 --Citizen)

- I object to the proposed amendment that DOE (Department of Ecology) currently has before us... The main reason I have an objection to it is because if we're going to do it, let's make it fair across the board. You're phasing us out completely from all pollution that we can make. Hey, let's go after the automobile; the automobile has an alternative. GM, Ford, they have battery-operated cars that do work. I don't see DOE going out and saying we want a phase-down of all fossil-fuel cars by 1998. Let's keep it fair across the board. (#1546 --Grower)

- I feel that the doctors are the ones that are pushing a lot of this, but what happens when the farming doesn't burn, but they still have all their patients to treat? Was it the smoke, or is it the cigarette smoke in town? Right here in this room, is the air very good for us? I feel, "no." The humidity is so high, everybody's fanning themselves. Why? Because we're all congested here. The air in this room is probably worse than out in any field, near any field, when the farmer's burning it, because the humidity is so high here, the germs are carried by that humidity. Just because there's smoke in the air at the farm is not as bad as the cigarette smoke is from people smoking at the entrances of buildings. If you want something to regulate, let's stop these people from smoking when I go into a building. I can't smoke in the building; I can't burn the grass in the building; I burn it outside. (#1532 --Former grower)

- The law to protect the most sensitive--that's right in the Clean Air Act. I'd like to know what you're doing with the other sources of pollution to help those most sensitive people that are out there that might be complaining. (#1511 --Grower)

- I applaud your efforts to try and do something about air pollution, but I wish you would take a bigger view and see the big picture. Most of the farmers I know and have spoken with are genuinely concerned about the possibility that their smoke and their practices could be harming their neighbors. (#1614 --Physician, Whitman County Health Department)

- As a member of the industry, I feel singled out as the only polluter in the area even though Grant Pfeifer has presented this pollution is only two-and-one-half percent of the total pollution in the Spokane area... (#1539 --Citizen)

- ...I think the state of Washington is narrow focused and cowardly in their attack on a small group of farmers because they're easy to target. If you're serious about air pollution, let's go after cars that affect all of us... (#1502 --Citizen)

Response:

Thank you for your comments. As identified in other responses in this section, other sources of air pollution have already significantly reduced the amount of pollution emitted and continue to reduce emissions. On the other hand, the grass seed industry has not reduced emissions of air pollutants. One aspect of grass seed field burning that differs from other types of industrial sources is that the burning is done in a relatively short period of time, but the emissions are intense during that time period. Because all grass seed burning emissions occur during a short time period, an annual average of emissions from grass burning is not indicative of the impact. Furthermore, it is not the only criteria used by Ecology in making a decision on whether emissions from this source are effectively controlled. Ecology also considered the duration and amount of emissions released for that period.

Growers are already making strides to reduce air pollution from grass seed.

- ...The grass industry has spent many thousands of dollars on research for alternatives to burning and ways to lessen the impact of smoke on the surrounding area... In 1995, burning adds up to only some 44 hours (the) entire year... (#1028 --Grower)

- ...Blue grass growers are already working under restrictions which are being followed. It seems this is a proper compromise. (#1061 --Grass seed producers)

- Grass growers (are) currently trying to comply with air quality regulations by monitoring weather conditions and trying to burn in the shortest period of time and by creating the least possible pollution. (#984 --Dye Seed Ranch employee)

- With monitored burning now, smoke dissipates in a very few hours. (#990 --Grower)

- When I burn I try to have a wind (which) allows the smoke to miss any major city or town. I challenge anyone to prove that the smoke from my farm has any more of a detrimental health effect than any other form of pollution that is allowed... (#1006 --Grower)

Response:
Smoke management, the technique of burning when meteorological conditions are most appropriate to allow grass seed field smoke to be minimized and directed away from the most heavily populated areas, has been the tool used over the last twenty plus years. This tool is not adequate to effectively control emissions because it does not reduce emissions, it only controls where the smoke travels.

Grass seed is not a critical commodity like food crops.

- ...These farmers, if they were growing food stuff or something important, it would be different, but all they are doing is growing grass seed to make golf courses green... (#1356 --Citizen)

- ...As you can see, for more than 20 years they have done nothing but expand their burning and their acreage, and I feel like if you could eat grass, it would be different, but this is something that people put in their golf courses in Japan and places, and I feel like our health is more important than a few people's pockets. (#1522 --Citizen)

- ...Lawn seed is not a critical commodity. (#1069 --Citizen)

- Don't forget this is grass, it's not produce and it is definitely not as important as the lungs and sinus of my son!! It stinks and is dangerous. (#353 --Citizen)

Response:
Thank you for your comments. They are noted.

Washington is a significant contributor to the grass seed industry and implementing this proposed rule will destroy it.

- ...Over 90 percent of the world's supply of Kentucky bluegrass is grown right here in the inland northwest. No other local industry can claim that dominance. (#1500 --Citizen)

- The timeline of this phase-out puts undue economic pressure and hardship on the grass seed farmers in the state as well as the value added industry that processes this important crop and ships throughout the U.S. and the world. Our company alone ships 16 million lbs. of seed out of the Port of Seattle each year... (#238-- Processor/ Wholesaler)

- ...Since 80 - 90% of Kentucky bluegrass seed is grown in this region, total production will be reduced to one third of the current level. The market will decide the impact on price level, but wholesalers

could substitute other types of seed if the price becomes prohibitive. Farmers will be denied the opportunity to economically raise a crop (and) I expect that 2/3 of the grass seed processors will go out of business. Washington will lose an industry. (#400 --Citizen)

- ...If the proposed amendment...goes into effect as written, it is likely that the Kentucky bluegrass industry in dryland eastern Washington will be, for all practical purposes, defunct within three years. Bluegrass producers do not currently have the capability to produce seed economically without open field burning... (#1316 --WSU/Spokane County extension agent, agronomist)

- ... There will be very little grass seed marketed off those unburned acres, either through drastically reduced yields or destruction of those acres... As it stands now, the industry will be history by November 1997. Processors can't continue to be viable operations with only 1/3 of their past acres available to them... (#1318 --Grower)

Response:

It is not the intent of the Department of Ecology to eliminate the grass seed industry. Ecology is very hopeful that a viable grass seed industry can be maintained. Indeed, WSU's research shows the industry can adapt to the burning reductions. Ecology has a responsibility to protect and enhance air quality and this rule will more effectively control emissions from this source.

The benefits of grass production and burning are less important than public health.

- Don't forget this is grass, it's not produce and it is definitely not as important as the lungs and sinus of my son!! It stinks and is dangerous. (#353 --Citizen)

- The monetary benefit of a few farmers should not be allowed to impact the health of thousands of people... (#1050 --Citizen)

- Grass field burners don't want to use alternatives to burning. They claim it's too expensive. The hundreds of people with asthma and other respiratory and cardiovascular disease who are hospitalized and their lives threatened by the particulates in the smoke, must question the economics of this practice too. Isn't their well-being worth something too? (#207 --Citizen)

- Public health concerns must take priority over the profits of an ornamental products industry that has been subsidized for too long by the suffering of those who must breathe it's waste product... (#329 --Sandpoint Clean Air Coalition)

- ...I think it is terrible that other people are allowed to make others sick and kill each other just so they can reduce the cost of producing the grass seed. (#1348 --Citizen)

- …Thousands of people up here in Washington have to suffer from this to make a few people lots of extra dollars... (#1404 --Citizen)

- I don't think there is any doubt that they (grass growers) are harming people's health and the idea that profits are as important as people's health, or even more important is outrageous. (#1409 --Citizen)

- ...I don't think there is a need for the grass burning to take place when it affects human health like it does. Human health is much more important than letting some grass seed growers pollute the air... (#1420 --Citizen)

- I've read the material in the Spokane and Lewiston papers, have read the arguments about it and I think

the physicians who've reported on this area are correct and the air pollution is serious and damaging to many people and the benefits of making an extra profit at the expense of these people should not be tolerated. (#1425 --Citizen)

- ...My daughter has asthma and allergies and I can't believe that anybody would let any economic situation get in the way of people's health... (#1439 --Citizen)

- I would support a complete ban on all grass burning in Eastern Washington, particularly in areas where people live, such as Spokane. I have health problems due to it and I really object to the selfishness of the grass growers who are endangering the health of thousands of people just for extra profit in their pockets. (#1483 --Citizen)

Response:
Thank you for your comments. Ecology believes the reduction levels proposed in this rule will more effectively control emissions and reduce negative health impacts

General Comments on the Proposed Rule Ammendment

I support the proposal.

- I am for the proposed regulation, but only as a beginning... (#1534 --Citizen) (Exhibit)

- Field burning is an archaic practice. Its short-term benefits in no way outweigh the long-term consequences... (#1587 --Palouse Preservation League)

- …I think the Amendment is a very good compromise in trying to deal with the situation right away, but a couple of people made comments I really wanted to agree with… I think we are doing a lot of particulates and I think to just zero in on grass burning is maybe the easiest thing to do even though it is difficult... (#1431 --Citizen)

- I think that it is very important that something be done about it (smoke and dust). (#1396 --Citizen)

- I am calling to protest any form of grass burning. (#1454 --Citizen)

- The (burning) practice is barbaric, and has had a direct negative impact on me and on members of my family... (#297 --Physician)

- We support the Department of Ecology attempt to reduce field burning. (#1296 --Citizen)

- Grass field smoke just does not recognize state boundaries. (#329 --Sandpoint Clean Air Coalition)

- ...We support the proposed regulation. (#1536 --Save Our Summers)

- The valley is no longer a farming community and the farmers (millionaires) need to wake up to the facts of burning their fields. (#355 --Citizen)

- I am very concerned about the quality of the air in Walla Walla county. Today, I went down to speak with our Burn Control Officer regarding my concerns on this issue. At first, when I cam in and introduced myself, I was told I could talk with her downstairs. When I mentioned what it was in regards to, I was

told she was not in and I would have to contact her via telephone. I have tried to contact our Burn Control Officer and the county commissioners. When I called several weeks ago, neither Mary Hansen, our control officer, or the county commissioners had returned my call. So, I decided I would need to try the person again but once again I was told no one was available to speak to me... (#1392 --Citizen)

Response:
Thank you for your comments. They have been noted.

I do not support the proposal because the rule amendment side-steps the democratic process.

- ...A lot of the government employees lose rational relationships with people. They have a job; they got job security; and they don't give a damn about you. And ten years of experience has taught me that very plainly... (#1498 --Washington Cattlemen's Association)

- ...The DOE (Department of Ecology) has an agenda, not to eliminate the practice of burning grass, but to eliminate the Kentucky Bluegrass industry in the state of Washington... The DOE (Department of Ecology), SOS (Save Our Summers), Washington State Lung Association and the Clean Air Coalitions are working together on this issue... State bureaucracies are supposed to take a neutral stance, take in all the facts and make an objective decision. It is obvious to me that your decision has already been made. Any testimony collected by you on this subject is irrelevant... (#1317 --Citizen)

- If DOE is able to randomly impose regulations shouldn't they have to address all questions before they enact that regulation. Wouldn't a much better solution be to work out an agreement with all parties involved? Should not DOE be responsible for remarks and actions of their department head and employees?... (#1313 --Grower)

- ...Why has the legislature given DOE (Department of Ecology) the power to ruin an industry, cause erosion and be a detriment to water quality without any input from those affected?... (#1025 --Grower)

- We ask why no representative of the soil conservation or the ag industry, the Department of Agriculture, was even consulted. Your department has done nothing but treat us poorly. In the past few months when we've requested information, it's taken a while to get there... We ask for you to reconsider reduction of particulates, not acres. We have asked you to consider the rolling hills of south Spokane. We've asked you to identify an alternative. You have done nothing except demand a one-third reduction this year. (#1500 --Citizen)

- ...You (Department of Ecology) want to protect public land? State land? Protect national forest land, those are what your job is. Leave the public's land alone. We own the land. You do not own this land. Stay the hell off of it. (#1419 --Citizen)

- ...The grass farmers have been cheated out of every part of the public process involved in this regulation. We agreed to participate in a symposium that was staged in March in Spokane. They couldn't leave that alone. One week before the symposium, Director Mary Riveland declared an emergency. That pulled all of Ecology behind Mary Riveland's decision, regardless. They put on the blinders. (#1505 --Grower)

- ...I think that's exactly what you guys have got, is an agenda... (#1513 --Grower)

- In the course of one year, we are faced with a devastating economic consequence brought on by suspiciously premature, premeditated pull-it-out-of-the-hat decision that smells like politics... (#1598 --Grower)

- I remember a time when the legislature passed laws that were beneficial to the population. They were not subject to administrative rules which alter the meaning of the law. (#1507 --Grower)

- ...I'd just like to say I oppose this regulation that's been proposed... I'm a little disappointed with the way the Department of Ecology can sidestep some of the questions that were presented by the people here tonight. You never did give us the true answers, and I'd like to see that change. (#1585 --Grower)

- Mary Riveland just gut shot grass growers when she issued her announcement; there was no traditional warning shot across the bow. She fired a dead-on broadside right in the middle, a real gut shot that will kill the entire industry in the state of Washington... The big losers are not the farmers but the future generation. (#1591 --Grower)

- ...It's quite evident DOE (Department of Ecology) does not have the slightest idea of the magnitude of agriculture. When we find our homes, businesses, yes, our ability to produce food and fiber for state, nation, and the world, when that is threatened by a government agency that has grown too big for its britches, all I can say is look out! (#1600 --Othello Chamber of Commerce)

- I would like to state from the Department of Ecology, they thank the following 15 suborganizations for their data research, and this is interesting 'cause it has nothing to do with, I assume this is the groups that could not get a consensus, but it was supported by American Lung Association, The Atmosphere Alliance, Coalition of Clean Air in Washington, Coalition of Washington Communities, Community Coalition for Environmental Justice, Northwest Bicycle Federation, Physicians for Social Responsibility, Save Our Summers, Seattle Community Council Federation, Seattle Citizens for Quality Living, The Sierra Club, Washington Citizens for Resource Conservation, Washington Environmental Council, Washington Toxics Coalition, and Washington State Clean Air Network. I submit to you that I don't know any farmer that is not for clean air and not for clean water, but the power behind this study and this kind of data I think is funneled by a group of people that don't have a clean air initiative. They have an agenda, and I would ask that they would reassess this law that was passed that wasn't an emergency. (#1574 --Pomeroy Physician)

- ...Some groups (environmental activists) have been successful in destroying resource based industries without real cause through bureaucrat edicts. What’s the next target--open field burning, dust?... The heavy handed action taken by DOE (Department of Ecology) is the latest example of why those of us in business have, in general, total disgust for bureaucrats, and cynicism for government in general. (#1318 --Grower)

- ...The recent actions taken by the Department of Ecology in regards to grass burning were not justified. The changes due to Department of Ecology's reduction on grass seed burning in the state has made an uneasy balance between the general public and agriculture... (#1581 --Washington Association of Wheat Growers)

- ...That this is a prime example of government regulators not serving the public, and I must say a prime example of sleazy Democratic politics. You farmers and businessmen of Garfield County are being misused for a hopeful political seat in Spokane... (#1556 --Optometric Physician)

- ...I think one of the most dangerous things that we're headed down this road is consensus ruling. That is nothing more than having a dictator up here conducting the meeting, and they lean back and forth, and they get an idea that's what the public wants, and that is very dangerous to our country. (#1562 --Grower)

- ...I see another bureaucracy telling the farmer what to do. (#1532 --Former grower)

- You're going at this all wrong. This is not an issue of smoke and grass. It's an issue of somebody wanting to run somebody else's business... I will say to the grass seed growers, they should stop the lawsuit in Olympia because the deck is stacked against them. They will not get a fair deal. You've got your grass fields over here; have the lawsuit over here. Fight 'em on your own ground, or you're going to lose

an industry that supports the state of Washington. (#1520 --Former Member / Spokane Co. Noxious Weed Board)

- ...The DOE (Department of Ecology) should only ban a proven-and-necessary process in ag(riculture) production as a very last resort. The banning of grass seed field burning set a poor and dangerous precedent. Will the next ban be on potato production because excessive nitrogen is used and runs off and infiltrates lower soil layers? Will the next ban be on the sugar-beet refining industry because smoke is emitted from this process, or will the next ban be on cattle feeding-and-confinement arenas because a special interest group of 300 doctors don't like the smell of cow manure on Wednesday afternoon? Where will this stop?... (#1605 --Grower)

- ...Once again it seems that Olympia has passed legislation that affects a relatively small but viable part of the population in eastern Washington. But a lot of the citizens and bureaucrats, including the Department of Ecology, seem to think that Washington State just stops east of Yakima and that Spokane is a large northern suburb of the Tri-Cities. Their concept of eastern Washington is this vague, nebulous area of farmers and other quaint small towns, and, oh, a university in there somewhere, too... (#386 --Citizen)

- Item two--field burning. It is evident that DOE (Department of Ecology) is trying to sneak one through. When you look at the law, and I know I'm right, field burning includes waste from any crop, and I have the law right here that says "field and grass burning," and that said "field burning," so you've tried to sneak one by. (#1600 --Othello Chamber of Commerce)

- ...The governor may have upheld this ruling during the appeal process, but by talking with his assistant Ms. Gilmore, it didn’t sound like he had been given much information from our side of the issue. (#1262 --Grower) (Attachment)

- D.O.E. (Department of Ecology) shouldn't be able to impact a mutli-million dollar industry of the entire state by using only one areas testimony. (#1265 --Grower)

- KBG (Kentucky Blue Grass) field burning must not be singled out in smoke management regulations. Even with so many unknowns about the nature of the burning problem DOE (Department of Ecology) made an arbitrary emergency rule to phase down burning not based on sound science and done without a hearing. DOE needs to realize that with its oversight capacity it must sift through the conflicting viewpoints...and come to some compromise in regulating the KBG industry in the future. (#217 --Grower)

- ...People not indigenous to our area are making policy and regulations for us to follow. (#997 --Grower)

- This plan recommends that Ecology not extend the present order but instead allow the law to revert to what it was before the emergency order was issued. The view of Washington State Farm Bureau President Steve Appel reflects the opinion of the farming community in general. He said the recent decision made by Ecology to ban grass burning over the next three years is arbitrary and capricious. The department made this decision without any sound science and it made it on impulse. The burn ban was imposed under an emergency rule which allowed the department to act unilaterally without public notification, without public input and without assessing the damage the ban will inflict on bluegrass farmers who contribute about $90 million to the state’s economy. (#1 --Citizen)

- ...We expected that the March symposium would be just as fair in allowing the facts to be heard by all parties involved. Instead we were given a three-year phase down a week before the symposium. It was a blatant attempt to shape the dialogue of the forum. No longer would the forum discuss the benefits of grass or alternatives. Now it was used as a meeting to back up the politically driven decision to ban all grass burning. There was no logic to the decision. No clear indicator why grass and not any other agricultural burning was the focus... (#242 --Intermountain Grass Growers Association)

- ...Do not impose this regulation which will more than likely open the door to further agricultural controls that will only hamper the progress of this industry as a whole. It is the responsibility of any governmental agency, including DOE (Department of Ecology), to only review fully all the facts an(d) only present them to the public for information and opinion. And not operate based on self serving political agenda, which this Department has in the past corroborated... (#1304 --Grower & Director, USDA Farm Service Agency)

- ...I do not believe Ms. Riveland properly evaluated the positive values of field burning. (#397 --Grower)

- Please save grass farming, a Washington State INDUSTRY. (#1335 --Citizen)

- ...I just kind of listened tonight...what probably was the most frustrating to me is that I hear about the political side of this issue. We sit up here and talk about the conservation issues, the economic issues, and all the other issues that make sense. The problem is I'm not sure that's what is going to help us win this battle, and I'm not sure that we have to go over to the political part of it. I don't know where that's going to come from. I'm not going to give you a lot of answers, but I think maybe they're not listening to all this other stuff that we're talking about tonight, and I think that's probably the most frustrating... (#1560 --Grower)

- ...The emergency order without hearings (while legal) is not right and should be changed. (#1330 --Arrow Machinery, Inc. president)

- ...The very fact that DOE (Department of Ecology) listens and caves into anti-agricultural advocates in the Spokane area is disturbing... Physicians do not want to have their profession regulated by those not in it. Why should agriculture or DOE allow physicians to decide this complex issue?... (#298 --Citizen/Grower)

- Now today we are here again to comment to (the) Department of Ecology on a burning ban of grass seed fields. One time the DOE (Department of Ecology) encourages the continuous burning of tons of unhealthy, hazardous waste, the next time the DOE bans the burning of grass-seed stubble once a year. Is the health the concern here, or is special interests the concern here?.. (#1605 --Grower)

Response:

Thank you for your comments. The Department of Ecology has made every attempt to create a fair rule. For over twenty years, while other industries were required to drastically reduce emissions for reasons of human and environmental health, no emission reductions were imposed on the grass seed industry. The industry has made little progress toward reducing emissions from this source.

In March of 1996 a symposium on Grass Seed Field Burning was held to consider the economics, alternatives, and health issues of grass seed field burning and the potential reduction in emissions from this source. To be as equitable as possible, the symposium included presentations from representatives of all sides of the issue and those representing the grass seed industry were given equal time to express their views.

Later that spring, an advisory committee was established that included the members of all involved parties including the Intermountain Grass Growers Association, Columbia Basin Growers, the Conservation Districts, Washington State Legislators, and Seed Processors. This advisory committee was formed to assist in the creation of a permanent rule for reducing emissions form grass seed burning. The meetings were open to visitors who were given an opportunity to comment. Although consensus was not reached, information gathered from these meetings was used to develop the proposed amendment. In addition, this group also advised Ecology on the locations of the public hearings that took place in September of 1996. Ecology followed the suggestions to enable as many growers to voice opinions as possible. While only one hearing was held in Spokane, five others were held in farming communities.

The side / views of the grass seed growers and producers were not well represented during the decision-making process.

- ...The Department of Ecology's recent press releases states that your new regulations were discussed and approved by a task force that included growers and industry people. Well, I know a lot of the growers and industry people that were on that task force, and not one of them agreed to this. They opposed these decisions. (#1500 --Citizen)

- ...The conservation district was not invited, but sat on the advisory committee's work session. Consensus was not reached, and everyone I talked to felt it was a total waste of time. I've never been involved in such a fruitless effort. Solutions come to problems from both sides giving, and there was no give, specifically, on one side... (#1506 --Spokane County Conservation District)

- I was elected to represent the grass growers in the Columbia Basin during the rule-making process earlier this spring. I must say that by looking at the current rule proposal, much of what we, as growers and processors, proposed during those meetings, was not given any consideration by the D.O.E. (Department of Ecology) (#1262 --Grower) (Attachment)

- Your press releases state that the new regulations were discussed and approved by a task force that included growers and industry people. Why wasn't it recorded that the growers and industry people were against what was passed and did not agree with anything that your organization decided upon. (#242--Growers/ Intermountain Grass Growers Association)

- I voice (the) frustration (of the grass farmers) at the lack of regard you (Department of Ecology) have shown for the farming community. You stand by a loosely worded petition of local doctors that says they back any efforts to reduce air particulate pollution, including grass smoke. A petition almost any doctor would sign without reservation, especially (those) who live in Spokane where air quality is poor 365 days a year. You never mention the thousands in the Spokane Valley area who signed a very straight forward petition that states they are against what you re doing to local farmers and their towns. These names were gathered in just a few hours (in one location), we would gather more but you have disregarded their voices. (#1011 --Intermountain Grass Growers Association)

Response:

The Department of Ecology has made every effort to involve the grass seed industry in the rule making process. At every stage growers were involved; from the grass seed field burning symposium planning to the advisory committee to the various economic studies.

This proposed rule should be abandoned and the issue should be decided by the legislature.

- Earlier this evening Grant has said that the legislature's made the changes in the clean air law. You had that book there. And why was the decision made after the state legislature had recessed? (#1539 --Citizen)

- ...Why did DOE (Department of Ecology) issue this so-called emergency ruling when the legislature just addressed the issue, and why did they wait until the legislators were out of town, and does it bother you bureaucrats that you are destroying the main industry of this town?... (#1556 --Optometric Physician)

- Earlier this evening Grant has said that the legislature's made the changes in the clean air law. You had that book there. And why was the decision made after the state legislature had recessed?... (#1540 --Grower)

- ...We have one person in the Lowry administration that is making a political decision about an industry that's worth over $100,000,000, and that's your director, Mary Riveland. (#1575 --Grower)

- ...However, what these three people (Mary Riveland, Joe Williams and Grant Pfeifer) in fast-tracking this process towards a permanent rule is objectionable. It is, in fact, side-stepping two very crucial institutions in a democracy! They are the state legislature and the judicial branch of government... (#1262 --Grower) (Attachment)

- ...I implore DOE (Department of Ecology) to allow grass field burning to continue...anytime that a woman in Olympia can shut down an industry on a "feeling" is very bad (#298 --Citizen/Grower)

- Because the issues involved go beyond controlling emissions for the sake of controlling emissions, the question of whether grass field burning should be allowed should be decided by the legislature and not Ecology. (#1 --Citizen)

- The use of the word <u>may</u> [in RCW 70.94.656 (4)], means this is a discretionary power which Ecology is exercising. Some fundamental questions which the legislature needs to answer are these: Has Ecology acted in a fair, reasonable and appropriate manner? Is this action in accord with the intent of the law? (#1 --Citizen)

- ...And there were two legislators last night from Walla Walla. And I'm sorry I don't have their name, one of them was Dave. Young fellow, got up and gave a really nice talk--Dave Matheson or something like that. And he said that the state of Washington addressed this problem or that the legislature addressed the problem as to smoke, and the DOE (Department of Ecology) did not have the common courtesy or the intelligence to let the legislators, what they intended to work, they didn't even allow them to let that thing work where they opened up the burning period. They came down with this emergency rule. They told them last night, they ask them to rescind, both legislators, asked them to rescind the emergency order, and they also said that the DOE (Department of Ecology) was practicing bullyism on a very viable industry and honest tax-paying citizens, and if they didn't rescind it, they would take care of it when the legislature came back into session. And that would probably be the removal of some of the people that are involved. (#1510 --Grower)

Response:

The legislature, realizing that "strong efforts should be made to minimize adverse effects on air quality from the open burning of field and turf grasses frown for seed" provided the criteria under which burning of this crop could be reduced. The "department (of Ecology) or the authority may limit the number of acres on a pro rata basis among those affected for which permits to burn will be issued in order to effectively control emissions from this source."

The public does not have correct information on the grass field burning issue.

- ...It's too bad... The media didn't stick around, to report the total picture at the hearing last night (Spokane hearing). KREM-2 reported there were in excess of a hundred people in attendance but failed to report only one of those was in favor of your DOE (Department of Ecology) regulation. This is yet another example of media bias. (#1529 --Cenex Supply and Marketing)

- ...You (Department of Ecology) said the law had been changed, you mentioned Senate Bill 5609, and it referred to sending our money to WSU. 5609 does nothing to send our research money to WSU; that is Senate Bill 5898, and Grant, if we're going to tell the people, let's tell them the truth. And this is what this hearing, and this is what I hope DOE (Department of Ecology) looks at, is the facts... I don't know who on DOE's (Department of Ecology's) going to review this, but look at the facts and not the fictions because just like you said tonight on 5609, that did not have anything to do with our research money. (#1610 --Grower)

- I think the DOE (Department of Ecology) could go to a third step, and that would be to release this kind of information that grass is good as well as the fact that it does produce some impact for a limited number of people. (#1615 --Adams Conservation District)

- In reference to a quote in the Spokesman-Review, I would like to respond in like manner to Grant Pfeifer. Grant, I find your answers incredible. Remember when you quoted me in the paper saying that the toughest system in the United States was founded to uphold the truth supported by facts and evidence. Human nature, however, tends to finer emotions over statistics, and news media naturally caters to its audience. The news media is a crowd pleaser and no longer a fact finder. (#1591 --Grower)

- ...So basically what we're doing is we're saying that in my operation in 1997, which I would be allowed to burn 1,200 acres based on the fact that in 1995, excuse me, 1996, I had 3,600 acres in production, I burnt 2,400 acres this year. In 1995 I sent my request for a burn to Spokane which was returned to me, and therefore, the numbers on that board are totally erroneous, and I suggest that basically the data that DOE (Department of Ecology) is working from is totally erroneous... (#1489 --Grower).

- ...It would help if the people who are against grass burning had the true facts instead of half facts and very poor information... (#1315 --Citizen)

- I want to talk a minute. As the director of the farm service agency here in town, you mentioned in one of your answers to the questions that there was approximately 2,000 acres of burning of which four percent was from grass seed--that's totally untrue. Records in our office show that grass seed raised in Garfield County in the last ten years ranges from a low of about 2,500 acres up to a high of around 4,000 acres of which the majority will be burned each year. So I don't think you're working with the proper statistics sometimes. (#1561 --Port of Garfield County)

- ...In your overheads you had steps to reduce burning, and not, nothing's in there's said about the perceived health effects. Now to me, that's a little bit of a bias... (#1513 --Grower)

- The field burner burns to squeeze out a few more dollars of profit per acre. What does the scientific community stand to gain monetarily? Sounds to me like doctors stand to see their smoke-affected going patients less often, thereby reducing their income. Under this scenario, who are you to believe? (#296 --Citizen)

Response:

Ecology has made every attempt to obtain the correct information for the proposed rule. The Department of Ecology has followed all standard procedures for information dissemination to the public and has gone beyond what is required in the effort to keep the public informed and has provided interested parties the pertinent information. As an example, Ecology used the Internet to provide information on this proposed rule such as the hearing notice, the SEPA determination, and the code reviser filing information.

Enough research has been done on grass burning to adopt this ruling.

- Over the years the industry has had access to hundreds of thousands of dollars, this is not grass burning, this is federal and state tax dollars, to fund research projects. Industry leaders are currently spending over one million dollars in federal tax money each year on research. I believe the grass growers and the public have the right to know that none of the money is directed towards projects which will help growers. The crisis facing grass growers today is not the public's fault, and it is not the DOE's (Department of Ecology's) fault. The responsibility lies with the industry leadership which has wasted 33 years. Industry leaders should redirect their research efforts towards developing straw markets and increasing seed yields in the absence of burning, but the public should not have to wait any longer for the burning to stop.

(#1299 --Save Our Summers) (Attachment)

Response:
Thank you. Your comments have been noted.

More research needs to be done.

- ...And so I find it hard to believe that you can make decisions based upon other people's reading of research when they haven't been out there in the field actually doing the research themselves... (#1516 --Grower)

- ...If this total ban is allowed to stand, other crop burning bans could easily follow with no scientific back-up. In order to make wise decisions, the Department needs more information regarding how and why their decision to ban was made. (#1581 --Washington Association of Wheat Growers)

- ...It seems like there needs to be a lot more studies go on than the quick decision that came out of the air, very quickly, all of a sudden we found out we have to cut our burning back... (#1611 --Grower)

- The actions of the Washington State Department of Ecology to ban the practice of open burning of grasses grown for seed production must be studied very closely to determine the effects this rule will have...and whether or not (it) will balance what must be given up to what will be gained economically and environmentally... There are some tradeoffs that have to be considered in the implementation of this rule amendment but (to do so) without consideration of the impact on the grass seed industry would be negligent. (#1010 --Citizen.)

- With all of the wildfires and other pollution this year, you still won't have a clear indication of the effects of grass smoke or if (the) regulation will have any profound effect on poor air quality in August and September. Maybe because you have never set clear measurements or goals even though you have promised to do so. Just as you promised to declare an alternative which you have not. (#1011 --Intermountain Grass Growers Association)
- I strongly urge the Department of Ecology not to place any further restrictions on the burning of grass seed residues in the state. I would encourage the DOE (Department of Ecology) to increase support of research between the growers and the state universities to (cooperate) in solving the problems and maintaining this important industry. (#991 --Citizen, former extension agent)

- ...Another thing, what are the DOE (Department of Ecology) doing as far as the test plots or the mock agricultural studies that were to follow. We haven't seen you guys out getting your hands dirty, doing any farm work showing us this will work. I haven't figured out exactly what you base your facts on. (#1540 --Grower)

- ...We call for (PM_{10}) testing by Dept. of Ecology (Whitman County) before more lives are jeopardized. (#1291 --Citizen) (Attachment)

Response:
Thank you for your comments. A great deal of research has been done on the health and air quality impacts of fine particulate matter. The studies show increased particulate matter levels are associated with negative health effects. The Department of Ecology believes that sufficient evidence exists to indicate that grass burning generates high levels of particulates and other dangerous air pollutants, and negatively affects health.

There is also scientific research into alternatives generated by a number of universities in Washington, Oregon, and Idaho. Ecology will continue to support research activities as it has over the last twenty plus years.

More research into alternatives needs to be completed before such an amendment is imposed.

- ...On the other side of the issue, it seems clear that there also needs to be some additional work done to find reasonable alternatives for the farmers. I, nor I don't believe anyone else who has testified on this side of the issue tonight, is trying to put people out of business or is trying to harm their livelihood in any way. (#1538 --Citizen)

- ….I would like to echo the remarks made by Sharon Bromely and end by saying that (the) Natural Resources Conservation recommends that the Department of Ecology both the Air and Water Quality Divisions work cooperatively with the grass growers, the Natural Resources Conservation Service, Conservation Districts, Washington State University Cooperative Extension Researchers and other conservation partners, to develop feasible alternatives and actions that will take into consideration all natural resources, including soil resources, water resources, plants, animals and air as well as economic and social concerns that all interact in grass fields, and burning issues. (#1473 --Natural Resources Conservation Service)

- ...3) Provide financial assistance from the grower funded research pool administered by DOE (Department of Ecology)...for the three year on-farm research project on which I have embarked. 4) Provide technical assistance for measuring smoke emissions so that emissions from the “flaming” treatment can be compared with emissions from the open burn check... (#1316 --WSU / Spokane County extension agent, agronomist)

- ...I would like to make a recommendation for the activists that we seem to be doing battle with. Nothing’s going to be solved if we keep butting heads. I think cooperative efforts are going to be the only way that we’ll ever get this thing settled down, and you know, I realize that those folks had to go out and gather 300 signatures for that petition, and I wonder about what a group of well-directed researchers could have done with the money that was spent to hustle up those 300 doctors to sign it. I’d like to have that money for research. (#1572 --Grower & Chairperson, Columbia Conservation District)

- ...Anyway, I just want you to know that I'm opposed to the Department of Ecology putting on this regulation. I would like to see them lift it and do a little more research. (#1596 --Grower)

- I'd like to see a more verifiable and accurate scientific research performed on issues at hand, such as grass burning, before the DOE (Department of Ecology), decides to step in and drastically reduce or limit or ban the functions performed by area farmers without knowing all the facts. (#1608 --Grower)

- I would like to recommend that the Department of Ecology puts this on hold and give further study to the implementation of the three-year phase out. (#1515 --Grower)

- ...(I) believe with time grass growers can come up with alternatives to burning, if aid is given to our research universities and the grass industry... (#989 --Garfield County Fire Chief & Pomeroy Grain Growers Co-op employee)

- Utilize local WSU Cooperative Extension research plot data to formulate alternatives with growers. Involved NRCS, Spokane Conservation District, and WSU Cooperative Extension staff in developing alternatives and actions based on all resources that include soil, water plants, animals, air and economic factors. Include the involvement of WDOE’s (Washington State Department of Ecology)Water Quality Division in assessing impacts and developing alternatives with producers and other conservation partners. (#141 --Natural Resource Conservation Service)(Attachment)

- ...I am hopeful with ongoing research such as charged in cooperative research, we will discover how we can produce grass seed without the necessity of burning the residue from production fields, but until they

do the only way for this production to continue is by the use of fire and planting fields for best long-term production. Alternatives do not do this. (#1552 --Dye Seed Ranch Employee)

Response:
Thank you for your comments. As was mentioned in the above comment response, a great deal of research has been done on the potential alternatives to the practice of burning grass fields and the effects of fine particulate matter. Research efforts regarding alternatives will continue. Ecology determined that emissions were not effectively controlled from this source and it was appropriate to exercise its authority to limit grass seed field burning and initiate the process of certifying alternatives.

Format of the hearings may bias the results of the comments.

- How will the information obtained from this series of hearings be balanced? Only 1 hearing was held is Spokane where over 300,000 people live. Opportunities were provided throughout the towns in 4-5 farm localities. Was it considered to provide folks in the East Valley, Newman Lake, Liberty Lake and North County towns easy hearing access as well? (#1260 --Citizen)

- ...It seems odd that an Idaho corporation was not included in the ES but testimony from Idaho residents is welcomed at these public hearings. It seems as though DOE (Department of Ecology) is using two different sets of rules... (#1554 --Dye Seed Ranch, General Manager)

- ...Most said they would not (attend the Colfax hearing) because they were afraid to testify. Never have I seen an atmosphere that was so hostile and intimidating... During (a) testimony someone shouted "if you don't like the smoke, why don't you move away." (#1300 --Citizen)

- It (the toll-free comment line) is being well used, but my question concerns who is actually using it. Is it folks who are actually being impacted by smoke or by a telephone tree of special interest people who dial whenever smoke is in the air, regardless of whether it is impacting them or not... I believe that the vast number of calls are being generated by the SOS group and I want to know if there is a way to determine who is calling and if they are truly being impacted by the smoke. (#217 --Grower)

Response:
Thank you for your comments. A variety of concerns have arisen about the format of the hearings as well as other methods used to gather testimony. Ecology used the 1-800 number to allow an opportunity to testify without attending a hearing. This additional method was used to balance the number and location of hearings. Ecology is able to identify repeat callers to the 1-800 number and identify those who testified multiple times. Ecology made every attempt to accommodate all parties concerned and avoid bias during the commenting period.

Other air quality rules and regulations do not allow unmitigated burning.

- This practice (grass field burning) is quite harmful to the well being of the population and the act of open burning has been against the law...for over ten years. (#391 --Citizen)

Response:
Thank you for your comments. You are correct that other types of burning have restrictions. Open burning is restricted in many areas and other sources such as slash burning are required to reduce emissions. The Clean Air Act establishes specific allowances for agricultural burning.

This rule contradicts other rules or laws growers are already following.

- ...I take exception to the fact that WAC 173-430-040 is being ignored. This states: "agricultural burning is allowed when it is reasonably necessary when it meets the criteria of the best management practices and no practical alternative is reasonably available." I feel this subverts the legislative process and that a ruling should not supersede circumstances. (#1329 --Grower)

- ...Another fact not being taken into consideration is that grass growing is part of our Federal Farm plan... (#1315 --Citizen)

- I want to talk about... The agency stress that farmers deal with. We deal with agencies that tell us to burn, and agencies that tell (us) we cannot burn. Agenc(ies) that tells us to burn (are) extension (and) ...US Fish and Wildlife. An agency that tells us to burn has different goals than the DOE (Department of Ecology), but they are goals; they are important. (#1530 --Grower)

- ...We're under a restriction that is unreal and nonviable, and the alternative prescribed by law has not been provided. (#1594 --Grower)

- Wheat growers burn stubble, the Forest Service burn(s) slash, highway department(s) burn along roadways, people burn yard waste, wood, oil and gas. Some consistency in burning with conservation of soils and air quality and an equal responsibility for both city and country neighbors are needed. Just because farmers are a minority in number isn't a reason not to listen to the real air pollution problems. (#1024 --Growers)

Response:

Thank you for the comments. Under the State Clean Air Act (RCW 70.94.656)it is "declared to be the policy of this state that strong efforts should be made to minimize adverse effects on air quality from the open burning of field and turf grasses grown for seed." The Department of Ecology is given authority to effectively control emissions by limiting the amount of acres burned on a pro rata basis until practical alternatives are available. The intent is clear. Pro rata reductions are appropriate until alternatives are available. Not the other way around. This proposed amendment to WAC 173-430-040 Agricultural burning requirements establishes a schedule for pro rata reductions.

The Department of Ecology does not have the statutory authority for the grass burning amendment.

- DOE (Department of Ecology) is exceeding its statutory authority in promulgating this proposed rule. DOE claims the statutory authority for the proposed rule is RCW 70.94.656(4). That statute provides that DOE "may limit the number of acres on a pro rata basis among those affected for which permits to burn will be issued on order to effectively control emissions from this source..." Pro rata means proportionately or according to a certain rate, percentage or proportion. By freezing the date for determining acres in production as May 1, 1996, DOE has promulgated a rule that is not a pro rata reduction... (#1338 --Attorney)

Response:

Ecology disagrees that the proposed rule is flawed in its pro rata approach. Ecology believes that the pro rata reductions based on acreage in production as of May 1, 1996 are consistent with the statute.

It is not the job of the Department of Ecology to find alternatives.

- It is up to the grass seed industry to find practical alternatives not the DOE (Department of Ecology)... (#390 --Citizen)

- ...It is not a regulatory agency's job to show them how to adopt alternatives. (#1536 --Save Our Summers)

Response:
Thank you for your comment. The legislature has required department involvement in this process. RCW 70.94.656(3): "Whenever on the basis of information available to it, the department after public hearings have been conducted wherein testimony will be received and considered from interested parties wishing to testify shall conclude that any procedure, program, technique, or device constitutes a practical alternate agricultural practice to the open burning of field or turf grasses grown for seed, the department shall, by order, certify approval of such alternate." Ecology agrees that the industry should participate in the search for alternatives.

Certification of alternatives should be done before a reduction in grass seed burning.

- The publication goes on to state that the Department of Ecology "will identify and certify practical alternatives to open burning of grass fields".. Wise management of resources and economics would suggest that the practical alternatives be in place before the reductions. (#1331 --Citizen)
- I also contend that the DOE (Department of Ecology) has failed in their direction according to the law. As presented by Grant Pfeifer, the edict is for the Department to (1), study alternatives, (2) certify practical alternatives, (3) limit the amount of burning, and (4) condition permits. I feel that this is a premature law given the fact that the DOE has not studied alternatives, in fact they're still being studied. Nor have they certified any practical alternatives. This has been directed to the Department by law, and they have admitted they have not studied those, nor have they certified. It appears that they only have followed the third edict of limiting burning. I feel the DOE (Department of Ecology) should follow the law and study the alternatives and certify an alternative prior to banning, specifically, bluegrass. (#1539 --Citizen)

- ...I'm really concerned that no alternatives have been certified for the removal of residue on bluegrass fields or the thermal treatment for bluegrass fields in advance of this rule being put into place. (#1575 --Grower)

- You have the cart before the horse! Any law passed that does not address the needs of a viable alternative is doomed to fail. Either by non-compliance or by legislative means to change the portion or portions that are not right. (#1330 --Arrow Machinery Inc. president)

- ...Why was there no consideration given to the availability of viable alternatives before the unilateral ban was issued?... (#1071 --Palouse Conservation District)

- It seems clear that the law recognizes that it is in the public interest to so administer the law that farmers who include Kentucky Bluegrass seed production in their long range rotation and conservation plans are able to continue to do so... This intent of the law is clearly thwarted if Ecology puts the cart before the horse and stops the burning of grass fields prior to identifying a practical alternative to burning that is reasonably available." (#1 --Citizen)

- The method used by Ecology to reduce acres burned circumvents the need to find an alternative... Is it the intent of the law to grant Ecology discretionary power to arbitrarily reduce the acres of grass fields a farmer is allowed to burn, prior to certifying a practical alternative that is reasonably available...? (#1 --Citizen)

- I am opposed to any further cuts in grass field burning simply because an alternative has not been found... If and when an alternative is found, that's a different story. I think when that day is found, farmers and everyone will be happy… (#1469 --Grower)

- ...Let's find an alternative before we kill an industry which employs many people and puts money into the economy. (#1469 –Grower)

- …What I am saying is that even the fact that the Department of Ecology hasn't provided options to the farmer; what to do about it, or resolve the grass burning issue... (#1472 --Citizen)

- It seems clear that the law recognizes it is in the public interest to administer the law so that farmers who include Kentucky bluegrass seed in their long range rotation and conservation plans are able to continue to do so. If farmers are to be able to continue growing Kentucky bluegrass and not burn the fields, there will necessarily have to be a practical alternative that is reasonably available. The method of mandating a 2/3 reduction in acres burned circumvents the requirement that (The Department of) Ecology first certify an alternative... (#1320 --Citizen) (Exhibit)

Response:

Thank you. Your comments have been noted. Provisions of the Washington State Clean Air Act (RCW 70.94.656(4)) declares: "Until approved alternates become available the department or authority may limit the number of acres on a pro rata basis..." In other words, the Department of Ecology has the legal authority to impose reductions in acres burned "in order to effectively control emissions" without first certifying alternatives. The Washington Clean Air Act establishes provisions for moneys to be allocated to Washington State University for research into "economical and practical" alternatives (RCW 70.94.656(1), which has been underway for over 20 years. Additional research into alternatives to grass field burning has been and continues to be conducted in other states and state universities. Ecology continues to applaud and acknowledge serious research activities. It was determined by the Department of Ecology that pro rata reductions in acres burned was necessary.

The Department of Ecology does not have the right to certify alternatives without public hearings.

- Finally, DOE attempts to enlarge its power by providing for the certification of alternative burning practices through administrative order. This power grab seeks to deny the citizens of Washington of the protection of the Administrative Procedures Act. This portion of the proposed rule is in direct conflict with the provisions of RCW 70.94.656 (3), which provided that an alternative may be certified only after public hearings. (#1338 --Attorney)

Response:

Some confusion exists about the certification of alternatives as outlined by the State Clean Air Act (RCW 70.94.656(3), and the method for certification of alternative <u>open</u> field burning practices under the proposed rule. Section 70.94.656(3) states that "Whenever on the basis of information available to it, the department after public hearings have been conducted wherein testimony will be received and considered from interested parties wishing to testify will be received and considered from interested parties wishing to testify shall conclude that any procedure, program, technique, or device constitutes a practical alternate agricultural practice to the open burning of field or turf grasses grown for seed, the department shall, by order, certify approval of such alternate. Thereafter, in any case which any such approved alternate is reasonably available, the open burning of field and turf grasses grown for seed shall be disallowed and no permit shall issue therefore." In other words, once alternatives are certified

using the outlined procedure no more grass seed field acreage will be allowed to burn. This procedure clearly contemplates a public process.

On the other hand, the proposed amendment to WAC 173-430-040 describes the process for Ecology's evaluating alternative methods of open burning. The rule will allow more acreage to be burned provided, "The acreage application of the practice is adjusted to reflect effectiveness in reducing emissions so as to meet or exceed the emissions reduction required by (d) of this subsection; and in no case shall the emission reduction requirement for the field and turf grass grown for seed be less than that required in (d) of this subsection.

The proposed amendment should have a Grandfather clause; the growers already burning should be allowed to continue to burn.

- One thing lacking in Ecology's proposed plan is a grandfather clause. Any restriction on burning should apply only to fields of Kentucky Bluegrass planted after a burning ban becomes effective. The only exception to this would be when Ecology is required to designate an area as a no-burn area where the ambient air quality standards for suspended particulates...are being exceeded or threaten to be exceeded.' (#1 --Citizen)

- ...Burning of grass fields has been allowed by law, and the individual farmer has invested in special equipment and Kentucky bluegrass fields with the expectation that burning would continue to be allowed. If there are to be restrictions on burning grass fields, such restrictions should apply only to fields of Kentucky bluegrass planted after a burning ban becomes effective, and fields in production should be allowed to be burned for a reasonable period of time. (#1320 --Citizen) (Exhibit)

Response:
Thank you for commenting. Unfortunately, a grandfather clause would not meet the goal of reduced emissions, nor would applying restrictions to only fields planted after the reductions become effective.

The amount of money designated for research into alternatives is insignificant.

- 1. $25,000 each year for 3 years is not a realistic amount of money. This cannot and will not find certifiable alternatives. 2. Giving this token amount to a university is a joke it costs more than that to administer the research. 3. If it is determined that only $25,000 is available make it available in the form of grants to Farmers or small business to make the money go as far as possible. 4. Who is going to certify alternatives as to whether or not they work? University studies have been so off base in the past that they are no longer credible. A private research company needs to do the testing. 5. You already know that there is not going to be a certifiable alternative found. the funding and placement of that funding guarantees that this program will not work. (#1330 --Arrow Machinery, Inc. president)

- ...The $25,000 figure mentioned in the question-and-answer period to dedicate to research to come up with alternatives, is with all due respect, pathetic. Instead of that commitment to research, all we have is an arbitrary action by regulatory fiat. (#1066 --Washington Association of Wheat Growers)

Response:
Thank you. Your comments have been taken into consideration

It will be difficult to enforce the proposed rule.

- Opposition for this rule and rule making process is further supported by the fact that both the Department of Ecology and the local air pollution authorities are implementing permit programs that could be improved for the protection of public health; as well as the fairness and consistency that is required for all environmental regulators... (#1319 --Citizen)

- The Director of Ecology is charged with the authority to have her agents issue agricultural burning violations that all carry the penalty of ten thousand dollars; and which the fines for these violations can be assessed for any or all of the ten thousand dollars; and make permanent record for the alleged violator(s). But, can she or any of her assigned officers, agents, or Air Quality Specialists carry out to the letter of the law the rules that she is changing and/or insure that regulations will be carried out in a fair and consistent manner? Can she guarantee that the right people are going to receive the violations and that the wrong people won't be rewarded for ignoring them? Can she guarantee that the people ignoring the regulations aren't out numbering the people that are complying? I don't think so! (#1319 --Citizen)

Response:
Thank you for your comments. They have been considered.

Comments on Specific Sections of the Proposed Rule

Section 040 4(c)

The phase out should be continued.

- ...It is just about time that something is done about this (grass burning) problem and when even the doctors get behind it, we know something needs to be done, and it needs to be done quickly. (#1341 --Citizen)

- My husband and myself are for phasing out grass burning. (#1374 --Citizen)

- ...I find the proposed amendments (to WAC 173-430-040) to be an effective tool for reducing air contaminant emissions from grass seed field burning, while at the same time offering flexibility in addressing unusual and field specific conditions which may require a slightly different approach. (They) also preserve the burn option, provided that burning can be accomplished in a way that creates less emissions than encountered under current practices. The amendments appear to be a reasonable compromise between the farmer's need to manage field residue and the public's need for clean air... (#387 --Spokane County Air Pollution Control Authority Director)

- I oppose the grass burning. I encourage you to continue to put reductions on it so it will be an eventual reduction and hopefully summers without grass burning... (#1382 --Citizen)

- ...On behalf of the citizens of Washington, Idaho, and the medical community, the lung association urges the Department of Ecology to enact the strictest possible grass field burning regulation. (#1518 --American Lung Association)

- Political moves have given grass growers the right to an unlimited number of burn days. Obtaining this right, to me, seems to be a logical step in the preparation to supply the growing, unlimited Asian market for grass seed. If this was a facet in obtaining these unlimited burn days, could this indicate a possibility for future conversion of more and more acres of farmland to grass burning with unlimited quantities of

smoke emissions? Is this the future in store for us if the Department of Ecology ban is lifted?... (#1521 --Citizen)

- People should let their ideas on this be known to their local legislators. They should encourage their Chambers of Commerce, convention visitor's bureaus, and State Department of Trade and Economic Development to oppose the lifting of the Ecology Department burning ban in order to protect their members' economic well-being. They should also write to the central Washington legislators who have demanded that the Department of Ecology lift its ban. They're reportedly working to initiate laws to exempt field burning from all regulations next year. Let them know that their efforts to protect the economic benefits of 150 Washington grass growers are doing far greater overall damage to the rest of the community. Several of these legislators are from Thornton, Ritzville, Walla Walla, and Moses Lake. (#1521 --Citizen)

- ...My question is how many people have to be injured or die while a practice that is known to cause us harm continues to be allowed to happen? I oppose the lifting of the burning ban. I support that we as a society find other crops for the farmers of our region to raise and make a living, and that we all work together to eliminate all sources of air pollution from our environment. (#1541 --Citizen)

- ...The Washington Environmental Council goes on record as supporting the Department of Ecology's proposal to phase out grass burning. I feel that it was based on a very sound and long-overdue information, and that it's enforcing the Washington Clean Air Act. (#1543 --Washington Environmental Council)

- ...It is our responsibility to the public to speak out on issues such as the air pollution created by the annual burning of grass fields that can damage lung health. Our position is against the particle air pollution resulting from burning grass fields. We fully support Ecology's grass field burning regulation's intent which is to reduce smoke from this source. We support the requirement of alternatives to burning as certified during the second and third year of phase down... (#1518 --American Lung Association)

- ...A phase-down of Washington field burning will substantially reduce the negative health impacts from grass smoke sent to populated areas outside of Spokane County and the target zone of the IGGA (Intermountain Grass Growers Association) smoke management program. Therefore we support Ecology's regulation. It will serve to protect all citizens impacted by grass smoke. (#1518 --American Lung Association)

- I am supportive of the Grass Seed Field Burning Rule Amendment, and I'm supportive of the discontinuation of the agricultural burning in general. (#1423 --Citizen)

- We feel there is adequate smoke and particulates in the air in the Spokane area without the need of the grass burning smoke to enhance it and I suggest grass burning be phased out totally within a reasonable amount of time. (#1366 --Citizen)

- ...In the future we urge a limit to the number of acres burned on any one day and a second Department of Ecology process that would eliminate large-scale open burning, and the employment of certifiable alternatives. (#1518 --American Lung Association)

- I don't agree with the farmers being able to burn their grass seed. I think they should be stopped and the only way you're going to get them to stop is to start to curtail it and I hope that you are successful and don't give in to the farmers. (#1462 --Citizen)

- The grass seed needs to be phased out and the phasing schedule seems very fair that the Department of Ecology has proposed... (#1475 --Citizen)

- I was elated by the news that the acreage to be burned had been reduced by 1/3. I am further encouraged by plans to reduce acreage burned again next year, and to eventually eliminate this practice. (#27 --Citizen)

- Please continue to enforce the grass seed field burning rule to protect my family, my community and the great state of Washington. The time has come for change, the grass seed industry needs to eliminate archaic farming practices and implement more up to date, environmentally friendly practices. (#390 --Citizen)

- We can't make it to the Colfax hearing later this week, but we do strongly support the Department of Ecology's revised WAC 173-430 proposal to reduce grass field burning in the Inland Empire. (#1429 --Citizen)

- I am writing to voice my support for the DOE's (Department of Ecology) efforts to limit grass field burning (and) to urge the Department to end the practice entirely. I would urge the Department to seriously consider the many arguments in opposition to burning... We live in community and we have a moral and legal obligation to avoid harming our neighbors. Unfortunately, there will always be a few, like the grass growers, who feel that they have a "manifest destiny" to do whatever they want to do in the pursuit of money. (#396 --Citizen)

- Additionally, these producers are subsidized by Washington State taxpayers, through the "Open Spaces Tax Act", with a substantial property tax break. We are paying them to pollute and if we regulate them, they want to be paid not to pollute! (#1069 --Citizen)

- It is imperative that regulations which stop the practice of grass field burning be enacted. This should be followed up with legislation that would put the weight of RCWs behind the decision so that the growers...can not circumvent the decision... I am not opposed to grass seed production. Compared to other farming practices, grass seed production does provide some small benefits for the environment over (other) agricultural practices. I am adamantly opposed to the burning which occurs following the harvest. There are alternatives. It is time that we demand that burning be stopped. (#392 --Citizen) (Attachment)

- I have two preschool children that I am raising and I work very hard at parenting. I need your help. Stopping the burning of grass fields in eastern Washington will help insure that my children grow up strong healthy and asthma free. Would you please continue toward the ban on the burning of Kentucky Bluegrass fields. Thank you. (#331 --Citizen)

- ...I can understand why Ecology hasn't reached out and embraced farmers and tried to work out some cooperative program with farmers. First you have to recognize the problem, and then you have to offer some constructive approach, some incremental approach to begin to solve the problem. The farmers take this defensive attitude, and paint yourself into a corner and say we'll have the lawsuit over this, and we'll have a war over this. Then you'll lose. You ought to ask yourself what do you have to lose in this battle, and what do we have to lose. I think the public will eventually prevail in this battle, and the farmers do paint themselves in a corner, and they have a lot more to lose in this one than we do. (#1595 --Citizen)

- Burning contributes to air pollution, respiratory disease, and global warming... (#1487 --Citizen)

- ...We shouldn't lower the standards; raise the standards. Keep them high. That's what makes progress... (#1496 --Citizen)

- Last weekend there was a field grass burn on Camano Island which was several miles away. Although the prevailing wind carried the bulk of the heavy smoke due south over communities and the water, for the early part of the afternoon I had to shut all of my windows as the acrid smoke smell spread west to where I am located. I strongly urge you to legislate an end to this air polluting practice. (#15 --Citizen)

Response:
Thank you for your comments. They are appreciated and noted.

The grass burning phase out should not be continued.

- ...I'm just here to support my grass-growing neighbors in their plight for this burning ban. (#1590 --Citizen)

- …Number two, I believe that the reduction is too drastic... I'm against it because of the livelihood issue, and I'm also concerned about the future, not just the future ramifications in terms of farming... So I would just like to reiterate that I am against permanently implementing this emergency proposal. (#1580 --Citizen)

- ...Farm Bureau members encourage the Department of Ecology to drop the proposed rule and do what is best for the environment and family farms. (#1576 --Washington State Farm Bureau)

- ...I would like to ask you folks to reconsider the burning ban at this time, and the reason I say that is I think we need to look at the benefits of grass burning. (#1567 --Chemical Retailer)

- ...A topic on the agenda later this fall 1996, with the World Trade Organization is how to meet a 100% increase in the demand for agricultural products {food} in the next 35 years... If we do not start writing rules and regulations that protect some of these most productive agricultural lands in the world and it's producers, the mortality issues that DOE has, without any sort of conclusive evidence, associated with grass field burning will in no way compare to the mortality issue in the future with people starving to death... (#1304 --Grower & Director, USDA Farm Service Agency)

- One other lady...made a comment that if we had enough petitions, that this can all be reversed... I want you to know one battle does not a victory make, and believe you me, the grass growers are just now beginning to fight. (#1579 --Grower)

- ...What is the one asset this Nation controls? Agriculture!... We see an agricultural vastness that exists no where else on this planet... The final solution in this Country will be food for the world! But not if we continue to impose these types of half-cocked regulations... (#1304 --Grower & Director, USDA Farm Service Agency)

- ...My greatest fear is that the Department of Ecology is going to overreact to a small, very emotional and very vocal group of people. I can't help but think as an educator that if you objectively look at the evidence on both sides, that this whole issue deserves another look... (#1514 --Superintendent, Freeman School District)

- ...I remember when this was a free country and government was designed to leave people alone to pursue their lives as they saw fit. I urge you to refuse to grant a permanent rule banning bluegrass field burning, and I shall actively petition the legislature to decrease the DOE (Department of Ecology) funding in the same amount that you are recommending to reduce ours. (#1507 --Grower)

- There's no basis in any standard in Spokane or any place else in the state of Washington to support this emergency rule. Without further study there is no possible way that you can support another one-third reduction in the acres of bluegrass. You cannot keep building regulations based on bad facts from the beginning... (#1505 --Grower)

- ...Issues that need to be addressed by the Grass Seed Burning Rule are twofold: 1) Reduce smoke emissions from grass field burning to minimize health and other impacts; 2) Afford grass seed producers

economically and socially acceptable crop production methods... (#1316 --WSU / Spokane County extension agent, agronomist)

- ...Our opinion is that we must act in a decisive and positive manner in order to maintain the use of selective field burning as a valuable tool for current and future production of cereal grains. I urge DOE (Department of Ecology) to review its approach on this issue. (#395 --Washington Association of Wheat Growers)

- ...Spokane County cattlemen voted to support the bluegrass growers in their battle against this burning thing because we feel that tomorrow the Department of Ecology or somebody is going to be onto the cattlemen next, or somebody else for your stink or your dust, or whatever. So, we think that this is something that is getting out of hand and out of control... (#1498 --Washington Cattlemen's Association)

- I will first speak for the conservation district. For the record, we are absolutely opposed to the restriction on burning for bluegrass. (#1572 --Grower & Chairperson, Columbia Conservation District)

- This process of these burn hearings, I believe it's been three years ago that we met in Dayton with Grant Pfeifer, the original start up on burning? What it was the start of the burn task force, and the idea that we were going to reduce emissions. And so in three years we have pretty much gone nowhere except backwards, and I've paid out over $1,000 worth of permits so that I could not know any more. That is what has resulted from that meeting was in two of those three years we had to buy permits for burning, and you know I kind of look at this restriction as a good news-bad news, and the bad news is we won't be able to burn, and the good news is I guess I can save my money for the permits. You know that to me is a sad scenario. (#1572 --Grower & Chairperson, Columbia Conservation District)

- I would like to say to the people that are disagreeing with the burning need to put their money where their mouth is and help us find a solution. (#1572 --Grower & Chairperson, Columbia Conservation District)

- ...I'd like the Department to reverse its decision on burning and allow grass farmers to continue to burn and make a decision based on science and not on political expediency. (#1553 --Citizen)

- We urge for the protection of the citizens of Washington State and our area farms and our thriving grass seed industry that this grass field burning rule be dropped and that regulations of good science and common sense be developed by all involved in the process. (#1555 --Jacklin Seed Company)

- ...I urge the Department of Ecology to please reverse the total ban within the three years of the grass seed burning. (#1558 --Bank Manager, Pomeroy)

- ...I think you people are on the wrong track completely. I think you're doing what you're paid to do, but I think you're doing the wrong thing, and I hope you will make an effort to turn this thing around... (#1562 --Grower)

- I urge the DOE (Department of Ecology) to rescind its order to eliminate burning by one-third and its plans to eliminate the other two-thirds by 1998... (#1563 --Grower)

- ...I live and work in this area contracting Kentucky bluegrass with the area growers. We are very much opposed to the rule brought by the Department of Ecology eliminating the use of field burning for the production of our crops... (#1597 --Jacklin Seed Company Employee)

- ...I'm against the proposed changes to reduce grass burning and limit grass burning for area farmers in the state of Washington. (#1608 --Grower)

- The proposal to reduce the acres burnt down to 17,500 also concerns me... (#1062 --Inland Empire Chapter Soil and Water Conservation Society)

- ...Which is worse? For a large group to suffer long term effects or a small group suffer for a couple of weeks each season.? (#981 --Citizen)

- The proposed grass burning regulations will be a detriment to the proper stewardship of our natural resources, economic well-being, and very possibly the over all health of the citizens of our state... I believe that these burning regulations are not going to contribute in improving the general health of our citizens and will most certainly have devastating economic effects to our farmers and community. Please consider the total effects of these regulations before they are implemented, not after the fact when it will be to late to correct the situation. (#1001 --Grower)

- We are in favor of burning grass fields. Do what is right. It's the law. (#1342 --Citizen)

- ...We will all succumb to failure if we keep attempting to write rules and regulations that protect such a small minority without weighing equally the benefits to the majority... (#1304 --Grower & Director, USDA Farm Service Agency)

- ...I live very close to a grass field, about 2,000 yards of one they burned. I don't have a problem with it... (#1419 --Citizen)

- I ask that DOE (Department of Ecology) move to immediately rescind the emergency order to reduce burning of grass fields by 1/3 this fall (1996) and 1997... (#1318 --Grower)

- I hope you will reconsider implementation of the emergency rule and not make a permanent rule change. (#400 --Citizen)

- There are a great number of injustices that happen all around us. Do not create yet another injustice by banning all grass burning in this great state. Once this pattern is started, where will it all end? Do we ban: all hydrocarbon based fuel burning? smoking of tobacco products? what about Mother Nature and her tendencies to start a good blaze now and again? Who will you put out of business next? Think carefully before you decide to nail the coffin lid shut on the local grass growers (and) the community. Many of these growers have done what they felt was "the right thing" by growing grass. It conserves the soil, reduces water pollution and air pollution because of reduced tillage. Do " the right thing" and put a stop to the ban on grass burning. (#1014 --Citizen)

- ...I feel that the DOE (Department of Ecology) ruling is very wrong on bluegrass burning and should be rescinded or at least modified after a complete study. (#1022 --Grower)

- The DOE (Department of Ecology) has capitulated to a very few who have used questionable statistics and gotten the cooperation of a very liberal media to attempt to destroy a multimillion dollar industry that is, in reality, a conservation minded, environmentally sound one. I hope that DOE will reconsider it's phase-out of the grass burning, sit down with the industry and work out something that will be acceptable to all concerned. (#1028 --Grower)

- ...Spokane will lose (as a result of the proposed regulation) the 25,000 + acres of grasslands which surround the city; we will lose our best tool to control soil and wind erosion; 400 farm families will be in jeopardy as falling grain prices make producing grain uneconomical; 1200 jobs will be lost in this area; and the custom and culture of this community will be forever changed. (#335 --Grower)

- Where has all the bluegrass gone? We are living in a dust bowl! The streams and rivers are clogged with mud. The wheat fields are dirth with erosion. The dust is everywhere. Dust is dirt, dirt contains silicon, silicon is glass. Glass cuts! Glass cuts the mucus membrane if my nose, mouth, throat, and lungs... It's because they put the bluegrass growers out of business. Why! "We don't need bluegrass growers, we get our blue grass seed form the hardware store." (#337 --Citizen)

- As a resident of Washington State, I am totally opposed to the proposed regulation of the Ag Burning Task Force, as well as the people who it bestows it's legal expectations on to comply with the rules. (#1319 --Citizen)

- We encourage WDOE (Washington State Department of Ecology) and the grass growers to cooperatively utilize a task force that includes NRCS and Conservation District personnel, to develop proposed actions that take into consideration soil, water, air, plant and animal resources as well as economic and social resources... (#1016 --District Conservationist, Pomeroy) (Attachment)

- We want to work with WDOE (Washington State Department of Ecology) and the producers to develop alternatives that protect ALL the natural resources in Washington State, not just the air resource. (#1016 --District Conservationist, Pomeroy) (Attachment)

- Nothing could have prepared us for this year's disaster, just as it seemed that we were going to manage our tricky crop with a more favorable environment, we are told that we can no longer use the one essential tool that makes the production of this crop possible. We want to do what is right for this land (but) this rule makes it impossible. (#1023 --Grower)

- I feel that this is a misguided move on the part of the State of Washington and does not give the grass industry an alternative. (#298 --Citizen/Grower)

- I kind of feel a little uncomfortable that grass growers are pictured as being insensitive to the problems of people with respiratory problems. My family's been growing grass for probably 60 years in the Inland Northwest, and they've had respiratory problems, chronic respiratory problems. My daughter nearly died at age three from chronic respiratory problems. My uncle that used to raise 500 acres of grass a year west of Spokane had chronic respiratory problems, but he saw the big picture. He understood that no matter how much he suffered, you know, putting up with all the difficulties that he had to face raising grass seed in terms of his health, and having not only the smoke but the pollen and everything else, that it was the long-term benefits--the big picture, the soil and those resources that were so fundamental to the long-term health and sustainability of human beings. (#1549 --Grower)

- ...I think it's because they've been doing it for many years and until they find another way of growing it, besides burning it, I think they ought to be allowed to… (#1480 --Citizen)

Response:

Thank you. Your comments have been considered.

Burning should be eliminated; growers should be stopped from burning immediately.

- I (give) my support (to) all efforts by the state of Washington to completely eliminate the practice of grass seed field burning. (#1289 --Citizen)

- I am against the grass burning. (#1464 --Citizen)

- On March 3, 1969, Don Jacklin, representing the grass growers industry at the Spokane County Air Pollution Control Board Meeting, stated "We realize that we will have to give up burning in the foreseeable future." This quote was almost thirty years ago. A three year phase out is not justifiable. Yesterday should have been the last day of burning. (# 1056 --Citizen)

- ...To ban burning in 10 years or 6 years, whatever it is now, is not sufficient. It needs to be done now... (#1342 --Citizen)

- I am 100% opposed to burning any fields, any time and any where it impacts my living and breathing space….It should be reduced to zero by next year. Cut it out for good. (#1364 --Citizen)

- …However, I believe the phase down in the current proposal of 3 years, is not enough. I believe grass burning should be eliminated completely, and immediately... (#1391 --Citizen)

- I am pleased that you have proposed a regulation to reduce the amount of grass burning. I am disappointed, however, that it isn't reduced to zero at the end of three years. I feel that it should be totally eliminated... (#1545 --Citizen)

- ...I think that there are enormous costs of this practice, and I want it ended totally. (#1545 --Citizen)

- Or better yet, stop it entirely!! (#1252 --Citizen)

- We...wish to endorse the Department's plan. Our only regret is that the ban is not immediate...and total! (#5 --Citizen)

- Grass burning needs to come to a halt and I do appreciate the efforts by those who have worked so hard and the doctors who have put in their important contribution towards ending the burning. (#1376 --Citizen)

- I support the Department of Ecology on stopping grass burning in Eastern Washington. (#1435 --Citizen)

- ...I know that anyone else that's as affected as much as I am will support the DOE (Department of Ecology) and do everything in our power to end this as a regional problem... And I want our farmers to end burning now, and I want our state and agencies and all of our resources to end this regional problem so that we don't have burning going on in Idaho and on the Indian reservations like you were mentioning, and I'd just like to see it stopped. (#1519 --Citizen)

- I am writing to express my support of all efforts by the state of Washington to completely eliminate the practice of grass seed field burning. This reckless disregard for the region's health and environment is an unacceptable affront and the burning must stop! (#366 --Citizen)

- …I support this three year phase down, or even a total ban altogether. (#1442 --Citizen)

- ...The rule which allows 1/3 burning until practical approved alternatives are implemented can prolong grass seed field burning indefinitely. A three year timeline should be set in stone for the elimination of smoke... (#390 --Citizen)

- ...Not only do we support all efforts to phase down grass burning, but we support all efforts to eliminate burning entirely. (#388 --Citizen)
- I'm not for this reduction; I'm for a phase-out. I'd like to see the end of it immediately. I can't compromise on it. (#1519 --Citizen)

- I believe the grass growers should be curtailed completely. Not 1/3 now and 1/3 next year, but immediately... (#1378 --Citizen)

Response:

The Washington State Clean Air Act (RCW 70.94.656) specifically establishes the framework for reductions in emissions from grass seed field burning. The Department of Ecology is allowed to limit the number of acres on a pro-rated basis "until approved alternates become available." Gradual reductions allow the grass seed growers, grass seed processors, and the grass seed distributors an opportunity to adjust to changes in the industry.

The grass burning should not be discontinued entirely and/or immediately; growers should be allowed to burn.

- ...What really disturbs me is the Department of Ecology put a ban on us of burning. (#1508 --Grower)
- I am in favor of allowing us to let the farmers burn. (#1388 --Citizen)
- I vote for grass burning and I agree with it and hope this helps farmers. (#1468 --Citizen)

Response:
Thank you, so noted.

Burning should be banned or altered under certain circumstances.

- ...Our children are a captive group and forced to breathe the air when school is in session... We would like to see the farmers banned from burning near the (Colton) school during school hours. (#1067 --Citizen)
- I want to make a real quick statement that my husband and I understand that the farmers at this point do not have viable alternatives to burning. When we moved into the Johnson area, we knew that those alternatives did not exist. We feel that we do not like the burning going on doing school hours with the fields near the school. We don't feel that it's acceptable that we should send our children as a captive audience to be taught in a school filled with smoke, whether it's been going on for 100 years or not. We feel that this should be changed. We do not think that we should take away the burning rights of farmers; however, we feel that some compromise or alternative to the way they're doing things now needs to be changed whether it's the school giving up half days so that the farmers can burn in the afternoon, or whether it's that schools let out for a week, saying that this is the week that the farmers burn. But if there's no alternatives and no things worked out amongst the people of the community and the farmers, then my husband and I have the opinion that the burning be discontinued 100 percent. (#1593 --Citizen)

Response:
Thank you for your comments. This proposed rule does not address burning during school hours. This is primarily because, under current law, growers may burn anytime except when conditions are meteorologically unfavorable.

Additional burning should be allowed under special circumstances.

- In recent years grass seed farmers have learned that grass seed fields may be rotated out of seed production into grain production with no tillage. This has been documented and adopted by the Dept. of Ecology's Agricultural Burning Task Force as a Best Management Practice. However, this state of the art practice requires burning the grass residue prior to seeding the grain crop. I am asking that you allow these acres that are being rotated to food crops to be burned and exempted from other burning restrictions. If the residue from harvest was baled first, emissions would be dramatically reduced and yet the remaining stubble would burn adequately because it would have been chemically killed with herbicides. (#223 --Grower)
- …I am a grass seed grower, but not a Kentucky Bluegrass grower. The rules thus far do not differentiate the different kinds of grass seed. The majority of my grass is reclamation grass, not Bluegrass, and yet I'm subject to the same rules. My grass for the most part is grown in 30" rows. I provide a clean and

reasonably priced product that goes to seed the wild fire acres that have burned and mining reclamation. A lot of my sales go to the Bureau of Land Management for land and environmental improvements. I cannot raise this product without burning. Mechanically, it does not take care of my weed problem and if I have cheat grass in it, it is not a salable product. I would ask that you consider that grass seed is not all grass seed, there is some differences in the different varieties... (#1460 --Grower)

- ...Reward cooperating farmers...for on farm research plots. Acres provided for plot sites should not be counted against registered burn acres... (#1316 --WSU/Spokane County extension agent, agronomist)

- There is a better way--the way is burn-no-till. It's a one-pass operation instead of eight, and it leaves the soil virtually undisturbed--the sod is still intact. This is in rotating bluegrass seed into food crops. This practice is documented, and it's been passed by the Department of Ecology Ag Burning Task Force as a best management practice. I've not seen that carried out in these latest regulations, as they say Spokane County said you can still do this, but it counts against your one-third, two-thirds. I would like this practice to be exempt from any burning practices. Agriculture and environmental science is a dynamic science. This is the state-of-the-art as we know it today. This practice must be allowed to do without burning restrictions because, as a last resort, even if we found a market for our baled straw, if we could even remove this straw and then just burn the stubble, because the stubble is chemically killed, and so it would burn even with very little residue... (#1504 --Grower)

Response:

Comments noted. The grower may choose where to burn and where not to burn provided the reductions are met. The rule includes a five percent exemption for special situations and a permit trading provision which may make implementation easier for farmers. The rule also includes a provision for burning less of the straw as long as the emission reductions are met.

All agricultural burning, including grass seed, should be reduced / eliminated.

- I speak for the thousands in Spokane County and neighboring counties that breathe the polluted air from burning fields. This can be addressed to the farmers who burn wheat stubble, too, for they are polluting the air and at this moment in time they do not have any regulations. (#1631 --Citizen)

- ...I've noticed in this area (Pullman) there has been more burning of stubble fields and wheat fields lately. I don't know why this is, but for many years there have been essentially none of it and I think that should be of concern too. (#1425 --Citizen)

- I was calling to see if there is any way farmers could be stopped from burning wheat fields. (#1434 --Citizen)

Response:

The Washington State Clean Air Act (RCW 70.94.656) includes language which applies specifically to open burning of grasses grown for grass seed. It declares "to be a policy of the state that strong efforts should be made to minimize adverse effects on air quality from open burning of field and turf grasses grown for seed." This same section gives the Department of Ecology the authority to limit acres of grass seed fields burned on a pro-rated basis. The State Clean Air Act does not specifically authorize the same approach for other types of agricultural burning.

Grass burning is no different from other forms of agricultural burning.

- The other thing I'd like to say is that grass, the grass seed burning, or the grass field burning, versus all the other types of burning that is done in the state, is it's sort of a shame to see that singled out, if you would... (#1492 --Citizen)

- ...A lot of burning in the fall is not grass, it is wheat stubble. (Which has known) alternatives to that practice... (#989 --Garfield County Fire Chief & Pomeroy Grain Growers Co-op employee)

- ...Why does your Director, Mary Riveland not have the guts to single out Agriculture in general? Could it be that she is afraid of losing her job plus having a law suit on her hands? (#1307 --Grower)

- If agricultural smoke is such a hazard, how is it that DOE (Department of Ecology) records indicate that Adams, Columbia, Lincoln, and Whitman County registered over 40,000 acres of wheat and other non-grass crops in 1995 to burn in comparison to 12,000 acres of grass, and yet somehow that smoke from non-grass sources is not a hazard to health and grass smoke is. There is a incredible inconsistency in this ruling with respect to agricultural smoke. (#1528 --EWU Professor; Certified Meteorologist)

- …I don't believe that there's enough difference in smoke to allow wheat stubble burning and to issue a fine to a grass stubble burning process. (#1591 --Grower)

- You have shown in the chart over here that bluegrass was significantly higher than anything else. You'd be amazed to know, someone asked how much bluegrass is burned compared to wheat stubble or that sort of thing. You'd be amazed for those people to know that last year, there's was almost two-thirds more wheat crops burned in Spokane County than there was bluegrass in Spokane County, two-thirds more. That's an interesting fact. But yet it's five percent total, and you say grass is two-and-a-half percent. Maybe people can do a little more research on that. (#1511 --Grower)

- First of all, we need to know an answer as to why we should not burn bluegrass stubble and yet we can burn wheat stubble if we so choose. Wheat stubble can be incorporated into the soil and is a good conservation practice whereas blue grass straw and stubble cannot be worked into the soil until the stand is removed from production. (#219 --Citizen) (Exhibit)

- ...Unfortunately, all that smokes in this part of the state at this time of year is not just blue grass. As I understand it, there are at least as many acres of non-bluegrass fields burned each year, producing as much or more particulate matter, that does not fall under your rule. Subjecting only bluegrass to a reduction in acres seems unfair at best, and may not produce the intended health benefits you expect after all. (#1063 --Public Health Officer of Whitman, Asotin, Garfield and Columbia Counties)

Response:

Thank you for your comments. The Clean Air Act (RCW 70.94) specifies how air pollution is to be controlled, prevented, reduced, managed, permitted, etc. Varying sources of pollution are dealt with differently even though the same types of pollutants may be generated by different sources. The Department of Ecology strives to implement the provisions of this law in a reasonable, fair manner. The provisions of the law differ depending on the source type and therefore implementation differs. Because sources differ, programs and rules aren't "identical" even though differing sources may emit "identical" pollutants. There are significant differences between grass seed production and other crops even though burning the residue from both makes smoke. This proposal specifically applies to grass seed field burning reductions under RCW 70.94.656(4). Other types of agricultural field burning are regulated under RCW 70.94.650.

A three year period for a reduction in burning for growers is appropriate.

- The grass industry is complaining that three years is not enough time. In fact grass growers have had over three decades to adopt alternatives and have been refusing to do so. In 1971 a regulation requiring straw removal prior to burning was adopted. The industry objected--they said they needed a little more time. The regulation was repealed. In 1977 a regulation was adopted which called for a curtailment of all burning no later than 1983--the industry objected. They needed more time. The regulation was repealed. Research dating back to the early 1980's showed that seed yields could be maintained with every-other-year burning. The industry was asked to consider alternate-year burning--they refused on economic

arguments. In 1990 the Spokane County Air Pollution Control Board voted to phase out burning. The industry objected--they said they needed more time. The phase-down was not adopted. In fact, prior to March of this year no regulation requiring smoke reduction has ever been implemented. In 1963, 16,000 acres of bluegrass were burned in eastern Washington. Last year, nearly 60,000 acres were burned... Public health concerns have been put on a hold for over three decades while this industry has been given more time to essentially solve the smoke problem on its own terms. (#1536 --Save Our Summers)

- The purpose of the Clean Air Act is to prevent air pollution... The number one intent is to protect public health and safety. I fully support Department of Ecology's rule to reduce the number of acres of grass burning by 1/3 in 1996 and 2/3 in 1997... (#1302 --Citizen) (Exhibit)

- We think that the industry has had adequate time... (#1536 --Save Our Summers)

Response:
Thank you. Your comments are appreciated and noted.

A three year period for the burning reduction is too long a time period.

- I want to note I am in full support of new rules and I think perhaps these current rules are on the conservative side. We need to eliminate the threat to clean air ASAP... (#1359 --Citizen)

- I hope the proposal as it is will stand. In fact, in my opinion, you could speed it up a little and perhaps save some lives... (#1390 --Citizen)
- I'd like to tell the Department of Ecology to continue what they are doing, but maybe even faster. (#1409 --Citizen)

Response:
Thank you for your comments. It was the goal of the Department of Ecology to develop an aggressive schedule to protect and enhance air quality and human health impacted from grass seed field burning and we believe the proposed rule accomplishes this.

A three year time period is too quick, growers need time to adjust.

- The time line of this phase out puts undue economic pressure and hardships on grass seed farmers in the state as well as value-added industries that process the important crop and ships throughout the world... (#1555 --Jacklin Seed Company)

- ...I would propose that we look at a long-term means of trying to phase out if you wish to burn bluegrass. Give the farmers a chance to find an alternative... (#1609 --Grower)

- The timeline of this phase-out puts undue economic pressure and hardship on the grass seed farmers in the state as well as the value added industry that processes this important crop and ships throughout the world... (#221 --Processor/Wholesaler)

- ...I'm against permanently implementing this emergency proposal for a few reasons. One has to do with pace of the proposal and how quickly it is implemented... (#1580 --Citizen)

- ...Over time we will have time to adjust, but in three years, there's no way... (#1494 --Grower / Processor)

- ...The time line of this phase-out puts undue economic pressure and hardship on the grass seed farmers in

the state, as well as value-added industries such as ours and other production and sales throughout the world. (#1490 --Jacklin Seed Columbia Basin operations manager)

- ...Particularly, I would point out that here they are, trying to make you change your methods to solve this burning thing, and in three years time, you're to get it all done... If they could have found something that would have worked, they would have had it in place now, but they don't. And so they're working on it, and you expect them in two years time to solve this thing? I think that's absolutely preposterous, and I think it's clear out of step... (#1498 --Washington Cattlemen's Association)

- ...We have in conjunction with cooperative extension sent a load of bluegrass residue to a pulp plant in Vulcan, Alberta, to have it made into paper. We have some venture capitalists coming in here to look at the potential of putting a plant in here that will bring in another industry. Our greatest fear now is that we will not have time. We will not have the residue. We will not have the acres of bluegrass and the production to sustain a plant to help us put into effect an alternate plan. Our recommendation from the conservation district would be to reverse Mary Riveland's order until practical alternatives have been certified, and we would request a full disclosure and accounting of the moneys that have been designated to DOE (Department of Ecology) to solve these problems. (#1506 --Spokane County Conservation District)

- In our lifetime one of the biggest changes in agriculture that we have taking place has been the United States Agriculture Program that has just gone into effect... And how many years did the federal government give us to implement this? Seven years we had to implement the biggest change. What does the Department of Ecology give us? They expect us to implement a bigger change than this in the grass seed industry, and they give us three years... (#1515 --Grower)

- ...Three years with no alternatives, but did you also notice that Grant stated one thing? We will have an alternative implemented in three years... If he can pull this out of the bag and say there is an alternative in three years, we want it... We don't enjoy burning, Grant, but we know of no other way to raise grass than to burn. But he did not say we would look for an alternative and try to, we are going to adopt it. Did you notice that statement? We are going to adopt it. It may be plowing it out, but that's going to be an alternative... I cannot change my farming practice fast enough to meet your requirements in three years. It means that I will not raise bluegrass. I will have to raise other crops... (#1515 --Grower)

- ...My farming operation, my grass seed operation, has very quietly grown from six years ago having no grass seed production, to where in 1997, I will, my partner and I will harvest somewhat in excess of 5,100 acres in Benton County. In this six-year period of time, which I might add, I don't have the luxury of making snap decisions like the DOE (Department of Ecology), my growth and my acres in 1997 were determined basically three years ago through contractual obligations on land leases... (#1489 --Grower)

- ...2) allow adequate time to document "flaming" and other treatments before legislating grass seed producers out of business... (#1316 --WSU/Spokane County extension agent, agronomist)

- Sort of my final point is that the schedule for this certification of alternatives is much too ambitious in my mind, maybe even goes beyond being ambitious, maybe in the realm of impossible in terms of really providing something that's practical and maybe economic, and might serve as a real substitute for the farmers... (#1492 --Citizen)

Response:
Thank you, your comments are noted. The Department of Ecology combined reductions in acreage burned with a commitment to review and certify alternatives where appropriate. Ecology believed enough information about the adverse health effects of fine particulate matter had been generated to warrant an aggressive schedule for the phase out of grass seed field burning. The overall three year schedule is in line with change requirements scheduled for other industries.

Reductions by acreage in production as of May 1, 1995 is inappropriate.

- It's sending the wrong message to other farmers in agriculture that it is right to burn as much as you possibly can. To protect your future right to burn what ever portions may disappear in the regulatory rule making process or emergency rule by burning all your land. Better yet, lease more land and burn all of it to assure that if they take anything else away, it will be your neighbor, or your friends, or someone else; totally unexpecting. (#1319 --Citizen)

- ...Even if this statute passes constitutional muster, it does not confer authority for the rule in this proposed form. Pro rata means proportionately or according to a certain rate, percentage or proportion. By freezing the date for determining acres in production as May 1, 1996, DOE (Department of Ecology) has promulgated a rule that is not a pro rata reduction. (#1338 --Attorney)

- DOE (Department of Ecology) has no statutory authority to freeze an individual grass seed producer's acres at or below the acres in production on May 1, 1996. (#1338 --Attorney)

Response:
Ecology believes the proposed rule appropriately implements a pro rata reduction as described in RCW 70.94.656.

Section 040 4(e)

The five percent exemption is not appropriate.

- ...The exemption for unusual or extraordinary circumstances capped at 5% I believe is unenforceable... (#1302 --Citizen) (Exhibit)

- The five percent exemption is not justified. Those who farm other crops don't need an "exemption" to access steep slopes. Land is cultivated which is accessible by equipment and land which cannot be accessed is placed into alternative use... That acreage which constitutes five percent under an exemption petition can be placed into an alternative crop management plan. Hold to a straight forward 1/3, 1/3, 1/3. (#1260 --Citizen)

- The five percent exemption rule is a...loophole that can have devastating effects by allowing an increase of acres burned... (#390 --Citizen)

- ...I do not like the five percent exemption, and I want to come out against that... (#1522 --Citizen)

Response:
Exemptions for land that was steep or highly erodable were discussed during the rule advisory meetings with no consensus. The Department of Ecology determined that a five percent exemption should be allowed and described those circumstances and criteria. The purpose of the exemption is to ease implementation of the proposed rule. It was not meant to compromise the goal of reducing the impact of smoke burning, nor was the exemption linked to a specific farm condition such as land slope over a certain percentage.

The five percent exemption is too small to be of much value.

- I'd also like to talk about the five percent due to the hillsides and that sort of thing. That is a slap in the face. Seventy-five percent of our land is in the HEL (Highly Erodable Land), and for those of who do not

know, I'm not sure if you do, that's highly erodable land. We cannot put level-ground machines on that high, steep land. (#1511 --Grower)

- If this amendment (WAC-173-430) is adopted it will devastate (my) present farming operation (which) is approximately 90% Bluegrass. These fields are on highly erodible soil and a majority on slopes of 35-40% or more. (Under) the proposed amendment we would have to replace approximately 700 acres of bluegrass with alternative crops (which are much more devastating to the environment... (#995 --Grower)

- The proposed permanent rule allows for up to 5% of the grower's grass seed crop to be exempted from the burn ban for "unusual or extraordinary circumstances". In our area this would mostly be used for steep slopes... Over 60% of my acres are planted on slopes of 25% or greater. This is typical for our area and a 5% exemption only pays lip service to the dangerous operation of removing residue from these steep slopes. The soil erosion benefits of bluegrass will be lost if this exemption is not increased. (#1072 --Grower)

- ...My one-third, my reduction has been tore out. It's on ground steep as a cow's face. I had to keep one set of tires on the black dirt to keep the tractor on the hill. So that kind of gives you an idea what we're up against... (#1513 --Grower)

Response:
As was discussed in the previous comment response, exemptions were considered in the advisory committee meetings but no consensus was reached. These discussions revealed that many growers generally might feel that their entire farm qualified for exemption. Ecology believes that a five percent exemption is appropriate, and does not compromise the overall reduction goal.

Section 040 4(f)

The trading of burning rights program will not work.

- Also, on their proposals, it states that if the person is not going to use their 1/3 of the burning permit or something, they can allocate this to another person. This is just going to cause corruption, collusion, because they will be selling this third. I don’t understand this at all. This shouldn’t be allowed... (#1406 --Citizen)

- ...Allowing growers to trade unused portions of burn permits if they do not burn their full allotted share is...another loophole that will prolong the smoke problem. (#390 --Citizen)

- ...I also don't like the idea of trading because if someone decides not to plant, then I think someone new shouldn't get into the business. I feel like we're trying to phase it down, and every time you get a new person in, that could cause more people that want to burn more and more... (#1522 --Citizen)

- We would like to see the reduction to zero on the field burning, and also, hopefully no transfer of acres to anybody else. That's what we would recommend, and there is no compromise for health. (#1537 --Kootenai County Clean Air Coalition)

- ...I understand that permit trading improves the flexibility of the program but I am not sure how this will help the growers. It could have the effect of consolidating the industry to only a few growers... (#400 --Citizen)

Response:
Thank you for your comments. The purpose of the trading program is to aid in implementing the rule. The

trading program concept was introduced at the federal level in the 1990 amendments and has had some success with other emission sources and types of pollutants.

The trading of burning rights program is a good idea.

- The permit trading system is a good method... (#1302 --Citizen) (Exhibit)

Response:
Thank you. Your comment is appreciated.

The trading of burning rights is illegal

- DOE (Department of Ecology) also is exceeding its statutory authority by adopting a rule that provides for the permissive development of a permit trading system. Nothing in the language of RCW 70.94.656, or any other section, authorizes DOE to create a new property right which may be transferred between parties, yet that is exactly what DOE is attempting to do. (#1338 --Attorney)

Response:
Ecology does not view the trading program as creating a property right. Rather, it is intended to provide flexibility in rule implementation without compromising reduction goals.

The trading of burning rights program is all right but needs revisions or is flawed.

- …I believe the right to transfer a burning permit to existing farmers should be allowed, but not to new people coming in… (#1391 --Citizen)

- ...The health impact issue will most likely be disputed, especially if it leads to dissolution of a trading program. (It) would do well to consider in advance the scenarios which would lead to dissolution of the program and be prepared to defend (the) actions. If a trading program is dissolved there will be questions as to who is entitled to the burning rights. Do the trades which occurred prior to dissolution remain in effect or do the burn rights revert to the original owner?... (#387--Spokane County Air Pollution Control Authority Director)

- On my own behalf, I would like to say that I would hate to see the additional, or adding to the regulation, any kind of amendment or stipulation that would allow transference to new growers. I think that possibly that flexibility is, may be warranted between growers, but not to introduce new ones. We've found now that there's a health problem, and the Department has ruled based on that fact, and so it would be inconsistent to then allow that to go into effect from anyone who was coming into the industry. (#1543 --Washington Environmental Council)

Response:
Thank you for your comments. They are noted and appreciated.

Section 040 4(g)

Acres, preferably permitted acres, should be the basis for particulate emissions reduction.

- The only logical way to reduce emissions should be based on the number of acres. It would be a time consuming, costly enforcement nightmare to evaluate emissions based upon other criteria. (#1302 --Citizen) (Exhibit)

- Acreage reductions should be based on permitted acres... Those who did not permit their acreage in the past should not receive further economic advantage over the farmers who did apply and pay permit fees. (#1260 --Citizen)

Response:
Thank you for your comments. Ecology believes, given the nature of the grass seed industry that to reduce acres from a permitted levels does not allow the grower enough flexibility. The "acres in production", as the proposed rule reads, allows a grower to look at their entire acreage rather than just one year of burning specific pieces. The "acreage in production" also allows growers to count fields that were just planted.

The proposed ruling should be based upon a reduction in emissions not acres.

- ...Emissions from combustion are a function of the composition of the fuel and the fuel load. The composition of the fuel, grass field residue, is the same before and after this rule. There is nothing in the proposed rule that necessarily reduces the fuel load. A farmer could, under the proposed rule, transport grass residue from acres which are not burned to those which are. In this way, the fuel load remains constant and emissions are unchanged even though the number of acres burned is reduced. The reduction in acres does not effectively reduce emissions. (#1338 --Attorney)

- I would just like to testify that I would like to see the Department of Ecology look at particulate matter instead of acres when they're making this decision. I'd like to be on the same basis as you put other industry when you're talking, you're talking particulates, and not acres. (#1548 --Grower)

- ...Three-quarters of what we burn is straw standing that comes out the back of a combine--let's take it off with a baler. There goes three-quarters of your emissions immediately. Bang! They're gone; three-quarters not two-thirds or one-third; three-quarters. We'd be willing to do that. Let's reduce emissions, not reduce acres... (#1490 --Jacklin Seed Columbia Basin operations manager)

- DOE (Department of Ecology) must acknowledge this issue to be an emissions issue, an emissions-reduction issue, not a burn acre reduction issue... (#1494 --Grower / Processor)

- Rather than a burning ban, DOE (Department of Ecology) needs to develop an emissions reduction plan that allows farmers to reduce the residue to a desired level while allowing enough residue for a thermal treatment... Regulate area-wide and monitor emissions to set definable standards. An acre basis is too arbitrary. For some years an acre produces twice as much straw as another... (#1494 --Grower / Processor)

- The proposed ban limits the acreage each grower can burn. In my view this is a very wrong approach. The State should be concerned with tons of residue to be burned, not worried about field acres. Residue can be gathered and stockpiled for cattle feed. It can be used for ground cover on other farming practices, and it can be used in other undiscovered economic uses. This all would be available to burn would it not be for gathering and baling. This is easily accomplished, (and) in our case would result in a 75 percent reduction in burnable crowns... (#1605 --Grower)

- WDOE (Washington State Department of Ecology) implement alternatives based on quantified levels of air-borne particulates released, rather than total acres. (#141 --Natural Resource Conservation Service) (Attachment)

- ...In reviewing Ecology's clean air goals, I would like to specifically address the fourth one that states, "Alternatives to standard open burning that still use fire to remove residue from the grass seed field will be considered as alternatives if they are proven to substantially reduce smoke." The question I have is, is the health issue smoke or particulates? In reading some of the explanations here in the hearing notice, I understand that it's particulates. So if we're going to reduce particulates, how do we do it by reducing acres? Why don't we do it by reducing residue? The emergency rule addresses reducing acreage, not particulates... (#1506 --Spokane County Conservation District)

- ...Why are you requiring them to cut acres? All of the studies deal with particulate matter, and that should be your focus. These farmers are willing to use new methods to reduce particulate matter... I am asking you to help find a reasonable and fair solution to Spokane's air quality problem. (#1303 --United Food and Commercial Workers)

- Are we trying to reduce pollution or acres? Growers thought pollution and agreed to bale excess straw to reduce particulates but the DOE demanded a 1/3 reduction this year. You don't even know what the results of your regulation will have... (#1011 --Intermountain Grass Growers Association)

- Rather than a burning ban, DOE (Department of Ecology) needs to develop an emissions reduction plan, and allow farmers to reduce the residue to the desired level while allowing enough residue for a thermal treatment... (An acre basis is too arbitrary, for some years the acre produces twice as much straw as other years). (#217 --Grower)

- ...I feel the farmers, if they remove the straw to be able to burn fields, let's base this on emissions, not on acres. If the farmer can reduce emissions and still be able to run a fire across that field, that should count for something. (#1469 --Grower)

- ...I encourage incorporation of the following points in the burning rule amendment; 1) adjust rules to measure compliance by emission levels rather than by acres... (#1316 --WSU/Spokane County extension agent, agronomist)

- ...The proposed rule amendment should address reduction of smoke emissions directly rather than acres... Wouldn't a better approach be to reduce smoke emissions by 67%? Enforcement would require satisfactory measurement of emissions (which) could be accomplished indirectly by measurement of residue since emissions should correlate well with the amount of residue to be burned... (#1316 --WSU/Spokane County extension agent, agronomist)

- ...The regulations should be determined on a particulate matter basis instead of acres... (#1315 --Citizen)

Response:

Thank you for your comments. The Washington Clean Air Act (RCW 70.94.656) clearly states that the reduction method is a limit on the number of acres on a pro-rata basis. The advisory committee discussed options for measuring emissions other than acres, but did not arrive at a solution. In fact, the conclusion was that acres are the best measurement tool at this time. The door is open to other methods should they become available.

Section 040 4(h)

Alternatives that use open field burning practices should not be allowed.

- I don't believe propane flaming is a realistic practical alternative. I have enclosed Chapter 173-400 WAC...which defines "open burning"... I interpret this to mean that propane burning is open burning and this contradicts RCW 70.94.656...I do not believe this is an acceptable alternative practice under 70.94.656. (#1302 --Citizen) (Exhibit)

- ...These growers are concerned only with the ease of which they can remove 3 to 4 tons of straw per acre because they are <u>not removing</u> it before they burn... (#328 --Citizen)

Response:

The inclusion of this section (WAC 173-430-040(h)) is not meant to compromise the goal of significant emission reductions from this source. In fact, an alternative burn practice can only be used when certified by Ecology. The alternate methods must meet or exceed the emission reduction. In other words, although open burning techniques will be considered, if certified, such practices will not be allowed to exceed the level of emission reductions obtained by reducing the acres burned by two-thirds.

Alternatives that use open field burning practices are good and should be considered.

- ...DOE (Department of Ecology) should continue to allow a joint farmer-DOE managed regulated open field burning and continue an enlarged current cooperative smoke management system to keep smoke away from people and redesign the buffer zones around sensitive areas to solve some of the nuisance problems... (#1494 --Grower / Processor)

- ...I'd like to make this proposal. First, urge those people (whose health is significantly impacted by grass burning) to get an air purifier for their home. Maybe even help them to do so. This would be a help to them all year long. Then maybe organize some system that will make an accurate prediction when smoke is apt to be in the air at any particular place. I can't imagine farmers not being willing to work with this system and tell those monitoring it when they will burn any particular field. (#1336 --Grower)

- ...DOE (Department of Ecology) should continue to allow the joint farmer/DOE managed regulated open-field burning and continue and enlarge the current cooperative smoke management system to keep smoke away from the people and redesign the buffer zones around sensitive areas to solve some of the nuisance problems, regulate area-wide and monitor emissions to set definable standards. (#217 --Grower)

- ...The amendment should also facilitate development of acceptable seed production systems. Following is a proposed dryland grass seed production model: (A) Stand establishment and harvest operations as conventionally practiced. (B) Removal of harvested residue by baling. {May be hazardous on environmentally hazardous steep slopes.} (C) Burn the remaining residue which would constitute, by most estimates, less than 25% of the original load. This would usually require an assisting operation such as propane flaming... Timing might be more flexible since it would be easier to control {i.e. (earlier) when grain fields I the vicinity are ripening}. (D) Fertilization and other operations as conventionally practiced... We will have preliminary data (which tests this model) to report after the 1997 harvest and a final report by 1999... (#1316 --WSU /Spokane County extension agent, agronomist)

- ...(When) we burned the grass field, most of the straw had been baled and removed to lower the possible particulates. In our dry land agriculture, a satisfactory burn can result even with the removal of that much material... (#397 --Grower)

- If a burning ban is to be imposed at least consider the alternative of straw removal from more level areas and then let all the acres be burned. This would reduce the pollution and farmers would still be able to maintain a viable income from these acres... (#1074 --Retired grower)

- ...(When) we burned the grass field, most of the straw had been baled and removed to lower the possible particulates. In our dry land agriculture, a satisfactory burn can result even with the removal of that much material... (#397 --Grower)

- Although I have not read the proposed amendments, it appears from your Hearing Notice in August that

the WAC may be modified to authorize burning alternatives which are "proven to substantially reduce smoke" or, in other words, a 20% opacity standard. My purpose herein is to provide some background in support of such an amendment, for the benefit of all parties involved... IGGA has committed to a cooperative effort in developing a burner system that is considered a technology breakthrough in the thermal treatment of Kentucky Bluegrass seed fields. The new concept, proposed by TPI Associates, Inc., a Seattle based engineering development company, is believed to provide all of the grower benefits of open burning, while eliminating the controversy over smoke which occurs at the end of each harvest season. The proposed technology is a modified version of a mobile burner unit which was developed by TPI and tested successfully on the grass fields in Oregon... The advantage of the proposed burner system is that instead of building a large mobile combustion chamber, the burner encloses the combustion process in a "tunnel of air" which allows release of the intense heat to atmosphere, thus maximizing both the life of the burner and the number of acres which can be treated per hour. The hot gases produced by the combustion process instantly dries the incoming stubble allowing operation even under high moisture conditions. The net result is a smokeless burn which can operate at 10 times the rate of prior mobile burners and at one tenth of the cost... It would seem that this approach, if proven successful during the 1997 burning season, would be a compromise solution which would resolve the present controversy to the benefit of all interested parties. Smoke from open burning would essentially disappear, to the benefit of the public in general and the tourist industry in particular. Particulate emissions would be minimized and, more importantly, localized in remote, non-sensitive areas, to the benefit of those who are at risk with respiratory problems. The seed industry would obviously benefit through maintaining their competitive position in the supply of seeds, certified free of weed seeds and disease... I want to stress that this program has no chance to succeed unless the resent particulate imposed on mobile burners is removed. It must be realized that a mobile system which faces many different field and fuel conditions, cannot be made to meet the same particulate emission standards as an expensive fixed system, without destroying the economic feasibility of the concept. (#332 --Engineer, President TPI Associates, Inc.) (Attachment)

Response:
Thank you for your comments. The current proposal allows the Department of Ecology to certify alternate methods that prove to be as or more effective in reducing emissions than the acre reduction method.

The language of the proposed regulation needs to be altered.

- ...(Suggested language changes:) First paragraph, 2nd to last sentence;...ecology may certify the <u>alternate open</u> burning practice(s)...Suggested language changes: {§040(4)(f)} First paragraph, last sentence; If ecology or the local air authority finds that <u>emissions resulting from</u> trading <u>are</u> creating...{§040(4)(f)(v)} Acreage that is exempted under (e) of this subsection <u>is</u> not eligible... {§040 (4)(f)(vi)} ...the grass seed growers to adjust to the <u>two-thirds</u> overall reduction...{§040(h)} (#387 --Spokane County Air Pollution Control Authority Director)

Response:
Thank you. These changes clarify the intent and have been made in the final rule language

Comments on Health Effects

Scientific evidence supports the contention that particulates / smoke cause an increase in morbidity and mortality.

- ...The grass seed industry is economically beneficial to our community and we believe that the crop brings certain demonstrable environmental benefits. However, we cannot continue to ignore our patients

annual increase in respiratory symptoms (#368 --petition by three physicians - American lung Association)

- Although there has been much controversy about the health effects of air pollution in general and grass burning in particular, there is now no question of the adverse effects on the respiratory system of people, especially among young children and persons with chronic respiratory illnesses. (#1068 --Spokane County Medical Society)

- The scientific literature adequately documents the connection between excessive amounts of many kinds of small particulate matter (PM_{10}) and the incidence of respiratory disease, particularly in children and those who have previously existing lung disease... (#1068 --Spokane County Medical Society)

- I believe there is good data supporting the danger of fine particulate pollution to all people in the Spokane/North Idaho area. This pollution causes deaths, illness and increased health care costs. Furthermore, I believe there is good scientific evidence that grass field burning is either the most important or one of the most important causes of this pollution. (#13 --Physician)
- Any form of combustion resulting in significant smoke production can be a significant health risk. It is clear that respiratory problems occur more frequently and are more severe when air quality deteriorates from excess smoke. This is due to very small particulate matter ($PM_{2.5}$) causing toxic injury to the respiratory tract. Grass field burning is a major health risk. (#14 --Physician)

- The medical evidence is overwhelming that smoke in general and particularly grass smoke is very deleterious to the health of everyone and particularly to my patients with chest disease... (#229 --Physician)

- I am a chest physician here in the Spokane area having practiced here for ten years, and I come to this body on behalf of my patients... While training at Salt Lake City, an area where pollution is a big problem as well, ...an important study came out which defined some of the effects of air pollution, particularly as it relates to particulates within the air, and the responsive respiratory diseases, both in terms of mortality and morbidity. The study reported that in the Utah Valley region, there was a clearly documented 11 percent increase in mortality related to concentrations of PM_{10}'s greater than a hundred micrograms per meter cubed. This study validated what I, as a practicing physician at that time, was experiencing in the care of my patients. Since that study, many other studies have come out, in Philadelphia, Santa Clara, and other regions of this country which have very clearly documented that respiratory mortality is increased significantly due to increases in particulates--PM_{10}'s. (#1524 --Physician)

Response:

Ecology agrees. Scientific research has documented the adverse health effects of fine particulate pollution. Effects range from minor respiratory irritations to death with the most severe impact occurring in individuals with chronic respiratory illnesses. Studies indicate that incomplete combustion produces high proportions of fine particulates. Grass burning involves a uncontrolled and incomplete combustion process. Therefore, it is our conclusion that grass smoke contains fine particulates which would adversely impact health.

Studies show that smoke from grass field burning is harmful to health.

- ...There's been six different studies in six different US cities, and I have a study here in front of me I'm going to leave with you for the city of Seattle (exhibit)...These particular studies are for the mortality rates. It's really difficult other than to listen to a physician come up here and say, "Hey, I got a lot more guys coming in," this certain time of year, and there can be a lot of other reasons for that, but this study relates mortality to PM_{10}. The results are very similar in every case, and at a PM_{10} of 25, which is very low, it increases the mortality rate by one percent. At a PM_{10} of about 55, and there's different increments--you

can look at the chart, at a PM_{10} of 55, which is still about year average, the mortality rate increases by three percent, so there is a direct reflection between PM_{10} and mortality... One thing that hasn't been mentioned up here is the grass smoke is carcinogenic. Where field dust and so forth doesn't cause cancer, and so maybe a lot more field smoke would be fine, but a little less burning would be all right. (#1537 -- Kootenai County Clean Air Coalition)

- ...I'm a professor at Eastern Washington University, and one of my areas of study includes (epidemiology). I am in the process of working on a study with...a professor of chemistry at Eastern Washington University, and I'm briefly going to tell some of the results of that study (because) I think they're important for this issue. Asthma rates in the county are almost double the national asthma rates--very briefly, 11.2 percent for adults vs. 5.1 percent nationally. The childhood asthma rate is ten percent in Spokane County vs. six percent nationally according to a 1990 survey used by the national statistics folks. We have approximately 40,000 cases of asthma in the county. Studies have shown that approximately 30 percent of those cases will be impacted by chemicals in terms of either causing asthma to occur or making it worse. We also did as part of our study an examination of four asthma medications. We found a positive correlation between asthma purchases and $PM_{2.5}$ levels. We did look at 10's, but we did not examine them as closely because studies have shown repeatedly that PM_{10}'s are not as dangerous to the health as 2.5's. So those are what we looked at, and those are produced by combustion. We also have a higher rate of emphysema and chronic bronchitis in the county when compared to the national levels, and our smoking rate is less than the national level, so it is not explained by smoking. We found in a chemical analysis in the first portion of our study six polyaromatic hydrocarbons which have been found to be carcinogenic, have been found to be mutagens, and also are mucal irritants. Those were found in analysis of the grass smoke. We found the background level of these PAH's without grass burning occurring is ten nanograms per millimeter cubed. Immediately after the burn or within a few days of the burn, the rates ran from 120 to 2,670 nanograms per millimeter cubed. We've been working on this study and recently were given better equipment, loaned it, and one of the things we have also found in addition to this other information is phenol which is a respiratory irritant and is associated with chemically induced asthma. So we are continuing on this analysis, but the results would indicate clearly that grass smoke is not harmless steam. (#1517 --Eastern Washington University Professor)

- Our position rests on research that identifies air pollution from open burning, including ag(riculture) sources, as it presents public health hazards. Over 50 national epidemiological studies on particulates and health conducted by independent and respected researchers conclude that premature disease, increased ER visits for asthma attacks, and death increase in direct relation to particulate air pollution especially in the fine $PM_{2.5}$ range. The portion of $PM_{2.5}$ particle emissions from grass field burning and the concentrated nature of the combined particle emissions, an estimated 800 tons per one-month season, demonstrate the urgency to enact the strictest possible grass field regulation in order to protect the health of all citizens. (#1518 --American Lung Association)

Response:

Comments noted. Please see the preceding response.

Data indicates that grass burning does not create a health threat.

- These SCAPCA data establish beyond reasonable dispute that grass field burning cannot be reasonably charged with being a major contributor to health effects on the citizens of the state caused by levels of particulate pollution allowed under present standards. (#1320 --Citizen) (Exhibit)

- Grant Pfeifer made reference to the Washington Clean Air Act and the protection of sensitive members of the population. I would like to read a quote from Dr. Bardana who was at a, prior to the symposium, had given a speech. He is the head of the allergies and immunology at the Oregon Health Sciences Center at the University of Oregon. "In developing public policy and regulation, I think you have to have a goal in

mind--what you expect to achieve with the particular measure with the particular restriction or regulation. As an individual who is interested in the environment, grass burning is not playing a major role here in terms of health impact. Now it may be playing other kinds of problems with visibility, etc., but it's not playing a major role in health impact. What is playing a major role in impact inclusion is what you don't measure and what you haven't talked about. It's indoor pollution. There are 50 million smokers out there, and the wood stove use in this country is horrendous in terms of what it is producing in and outdoors. So I think in terms of goal, what will be the total abolition of burning produced? I think that is what you have to ask yourself. What goal will I achieve. Is it going to be enormous, and then, is it worth doing? But if the goal is minuscule and the total problem, then I think I would try to redirect my focus on some of the things that are major contributors on the impact of health. The smoke research center in Missoula, Montana, has done some research on smoke as far as wild fires. So far it has been virtually impossible to directly associate long-term health problems with smoke exposures. We have found no records of smoke inhalations that are adequate to determine if chronic illnesses are solely the result of smoke, or even if smoke contributed to the development of illnesses that otherwise might have remained latent. They may be related to other factors such as how much environmental tobacco smoke and or radon the firefighters or persons have been exposed to, whether they live or have lived in cities with highly polluted air, whether they live in a home that was heated with wood, or whether they smoke tobacco." (#1509 --Citizen)

- ...There was a symposium in Spokane this spring. Dr. Bardana was there. He is a doctor from Portland. I think he made the statement there, "Grass smoke is only a political problem; there's no health back of it." And I think he made the statement at that particular symposium that you had better take a look at the real issue which is inside pollution because grass smoke is only a political problem. (#1508 --Grower)

- We keep hearing that we are being closed down for health reasons, yet the leading researcher on the issue, Dr. Koenig stood up at the symposium and the first words out of her mouth were that her studies have found no correlation between grass smoke and health!... (#242-- Growers/ Intermountain Grass Growers Association)

- ...Dr. Jane Koenig of the University of Washington stated at the March hearing that she found no evidence of major health issues related to grass burning... (#1317 --Citizen)

- Health studies from Oregon show that grass smoke is not a major health threat. This is from the Willamette Valley, where occasionally more acres are burned in one day than all the acres of Kentucky Bluegrass grown in Eastern Washington. You won’t even listen to this information. Dr. Koenig stood up at the DOE symposium and stated that her extensive research has found no correlation between grass smoke and health. The DOE has never admitted that they have no quantitative data on grass smoke to back up their poor decision (and) policy making. (#1011 --Intermountain Grass Growers Association)

- ...We are not aware of harmful health effects as a result of the burning... (#11 --Grower)

- The decisions of Ecology should be controlled by measurable standards of air quality... Evaluation of SCAPCA data at the Crown Z site shows that the contribution of grass field burning has been on the order of 1% of the annual PM_{10} arithmetic mean in years when there has been a noticeable intrusion... Targeting grass field smoke as a major cause of health effects in the Spokane area is simply not justified. (#1 --Citizen)

- ...The Indians used to have sweat huts. They burned grass straw in these sweat huts to help respiratory infections and other infections. The hut would get hot with coals; they would take grass and burn it on the coals to improve the breathing, not to stop it. If that didn't work, they would have been expiring quite rapidly because that's what they did for their health... (#224 --Citizen) (Attachment)

Response:

No exceedances have occurred at SCAPCA monitoring locations. No completed study specifically addresses grass

smoke. Conflicting studies can be found on the health impact of smoke. Ecology agrees that there are multiple sources of air pollution and it is difficult to pinpoint a single site specific air pollution source as the singular cause of a particular health effect. Grass burning contributes to the air pollution problem. Grass smoke contains fine particulates. It is known that these particulates do have adverse health effects. Sources disagree as to the portion of air pollution problems created by grass burning. Dr. Koenig contends that there is not a completed scientific study which correlates health effects to grass smoke. Grass burning creates intense doses for short periods of time creating difficulties regardless of the overall annual percentage of pollution from this source.

It has failed to be proven that grass smoke is the cause of adverse health effects.

- ...Organizations (which) claim an increase in health problems due to burning, have failed to prove it or provide statistical information to back up their claims... (#1317 --Citizen)

- ...I would like to know how many people the grass industry put in the hospital over the last five years in the Spokane area, a state report that we know how many people that the grass industry has put in... (#1508 --Grower)

- ...Once again, we ask for quantitative data that proves grass smoke is more harmful to one's health than other more prevalent forms of pollution that we live with every day... (#1500 --Citizen)

- Once again we ask for any studies that proves grass smoke is so harmful that it should put 400 farm families in jeopardy, and over a million dollar industry out of business... (#1500 --Citizen)

- ...Due to the lack of scientific data on the true health problems related to grass field burning we feel that job security is more important. (#398 --Dye Seed Ranch Employee)

- If bluegrass can be correlated with significantly increased incidence of respiratory problems in humans, it should be curtailed. The problem is that the needed research has never been conducted. Without it, this issue will be decided politically, which is likely to be detrimental to the people of Eastern Washington in the long run. (#1026 --Robert Dye Seed Ranch Employee)

- ...The opponents of grass burning are sensationalizing the cases of a very small number of individuals, who have extreme respiratory disorders... (Their) claims would be compelling evidence for the elimination of grass field burning if they could be substantiated... Combustion of all types generates particles less than 10 microns in diameter. The relationship between exposure to these fine airborne particulate(s) and respiratory problems is fairly will established in scientific and medical literature but it is highly concentration dependent. Peak concentrations of bluegrass generated particulate have never been measured and background levels have not been established for different areas. I found no research that related any agricultural field burning to higher incidence of respiratory problems... (#1026 --Robert Dye Seed Ranch Employee)

- Instead of our state making a significant contribution toward the research done at our land grant schools, what we have here is an arbitrary and capricious action by regulatory fiat from the Department of Ecology. The only justification offered is a petition signed by doctors from the Spokane medical community, a petition that points out the dangers of small particulate matter (PM_{10}) air pollution... (#1066 --Farm Supplier)

- Growers are frustrated because this decision was done on the pretext of health concerns even though there is no solid scientific evidence to back up this decision... (#1599 --Washington State Farm Bureau)

- I am in favor of the farmers raising their Bluegrass until I see scientific facts that say that their little bit of grass burning is polluting our air up to a detrimental point, I don’t want to see the farmers (the little guy),

knocked out of business because some radicals complaining that burning is polluting our air and causing all kinds of health problems... (#1452 --Citizen)

- Objectively evaluate and prioritize the above sources of air pollution and potential health problems and tackle the most serious contributors first. Establish a more scientific and comprehensive data base over an appropriate time period to document all the above mentioned sources. Attempt to scientifically correlate the timing, types and amounts of the various pollutants and irritants with the corresponding incidences of respiratory health problems as opposed to the subjective opinions of a few in the medical profession. Carefully screen the cases treated to assure that the individuals have been in residence and exposed to the local air and not new-comers with respiratory problems who have moved to the area. (#136 --Citizen.) (Exhibit)

- Ecology claims their decision is based on scientific evidence when in fact complete substantiated verifiable evidence is minuscule at best... Point of fact; Mr. Corkill's study lacked scientifically accurate "control" groups to compare his test against... Roe Roberts, Ph.D. summarized her own presentation as "incomplete" and "inconclusive". Incomplete research cannot be characterized as science... The medical profession represented by Dr. Alan Whitehouse and Dr. Michael McCarthy failed to present any type of scientific epidemiological study. Their presentation was characterized by anecdotal references and a handful of petitions... The only information approaching scientific quality came from Jane Koenig, Ph.D. University of Washington. Her studies have shown large increases in emergency room visits by asthma patients in September in both Seattle and Vancouver. Both cities are within non-grass burning regions of this state... This fact might lead someone to investigate reasons other than grass burning as a means for explaining increases in asthma problems in Spokane... (#1264 --Citizen)

- ...I think what they need to do is get a head count out there how many people are affected and have problems. (#1426 --Citizen)

- ...If we have established particulate air pollution as a health risk, have we then determined the amount of smoke produced by burning only 1/3 of the acres we now burn is a safe level? Is there a threshold for $PM_{2.5}$ under which we don't need to be concerned?... (#1063 --Public Health Officer of Whitman, Asotin, Garfield and Columbia Counties)

- ...While no completed scientific studies currently exist on the direct health effects of grass seed field burning, government studies form the USDA Forest Service dating as early as the 1970's exist showing that the burning from grasslands actually cleanses the air... (#1319 --Citizen, former SCAPCA employee)
- ...The decision that this rule is needed to protect the public health is based on unscientific, biased evidence presented by the opposition and the Department of Ecology and the state of Washington. There has been no scientific data to date that indicates that airsheds in Washington State will pose a public (health) problem due to grass field burning which indicates makes up two percent particulate emissions within the state... (#1555 --Jacklin Seed Company)

- ...The medical evidence referenced in the "Grass Seed Field Burning Emergency Rule Extension" failed to provide any data that correlates this agricultural practice with specific health issues. Scientific evidence may relate PM_{10} levels to aggravation of existing respiratory illness but this report did not provide any data on atmospheric conditions to support this emergency rule. The emissions associated with grass field burning are mostly carbon which are not considered nearly as carcinogenic as PM_{10} emissions from other sources. This rule change should include analysis of atmospheric PM_{10} for the region compared with other areas of the state that have high PM_{10} emission levels. The ruling in this area should be consistent with PM_{10} controls in these other areas... (#400 --Citizen)

Response:

There is documented research on the adverse effects of fine particulate pollution. Grass field burning produces fine particulates. Clean air is a basic right for all as provided in the Washington Clean Air Act. The proposed rule

reduces the amount of acres burned, which will reduce emissions from this source.

There has been no change in health statistical data since the onset of grass burning.

- Statistics on the sufferers of asthma and allergies in Spokane County, 43 years ago are the same as now There weren't any grass growers. Do you suppose maybe this area may have some other problems that make people sick? Grass growers get the blame for all problems in the fall... Can you explain to us why all the growers and their families that have been involved for years, aren't dying or hospitalized during burning season? How many calls come into your office before we start burning and when we aren't burning, complaining that the smoke is coming from grass burning?... (#1315 --Citizen)

- ...Bluegrass has been grown in Washington for more than 40 years. In that time, average life expectancy has increased steadily. You are now telling us that burning bluegrass fields is so dangerous to our health that it must (be) stopped NOW. Get real!... (#1318 --Grower)

Response:

Ecology acknowledges that there are other factors which influence respiratory health. Ecology does not claim that all persons will have health effects as a result of grass smoke. The health impact on an individual varies greatly. There are also many factors which influence life expectancy. When all are considered it is not likely that the health effects of grass burning have a significant impact on life expectancy determinations for the population in general. However, an impact on the life expectancy of affected individuals likely exists. Life expectancy is not the only thing which should be taken into consideration. What occurs during one's life is also important.

There is no documentation to accurately determine the number of misplaced complaints against grass field burning. Some complaints do not specify the type of burning that is taking place. However, there is an increase in the number of complaints made during grass burning periods.

No evidence on the health impact of burning was provided for areas outside of Spokane County.

- There has not been one case of respiratory illness documented from the hospitals as a result of bluegrass burning in the Columbia Basin... (#1265 --Grower)

- ...Was any of the medical evidence gathered by the Department of Ecology for the implementation of this ban on Bluegrass burning obtained in Whitman County? (#1269 --Grower and Producer)

- Until there is some kind of scientific evidence that the farmers in Garfield County are affecting anyone with the grass smoke, it would be premature to eliminate grass burning in our county. (#1013 --Grower)

- ...Bluegrass field burning...does have potential adverse health effects. Exactly what those are in this area is not known. Health and air pollution so far has not been measured in this particular area. We don't have any hard data... (#1614 --Physician, Whitman County Health Department)

Response:

Your comments are noted. Research on particulate pollution which is not site specific is available and applicable. The rule amendment is a state wide action. Smoke travels and does not adhere to political boundaries. The impact of smoke does not necessarily occur at the site of the burn itself.

The implementation of this rule will not impact health.

- I'm not so sure that even the elimination of the grass seed industry will make these people well. By all means - test them first! (#1266 --Citizen)

- ...Allergens are everywhere; bluegrass pollen, too, is a leading allergen, as are thousands of other pollens. Burning of bluegrass evidently does account for 1% of the particulates in our air, but kill that industry and we still have the other 99% to prompt use of our protective technologies. (#1019 --Grower)

- ...Asthma and hay fever and other respiratory problems will occur despite field burning... (#1494 --Grower / Processor)

- ...The elimination of grass field burning is not going to have a major effect on the respiratory difficulties of Washington State residents. It will, however, have detrimental effects on the economy of many of the residents of Garfield County and other Eastern Washington communities. (#988 --Citizen)

Response:
Grass smoke is not the only source of particulate pollution. Ecology does not expect that the absence of grass smoke will eliminate all air pollution related respiratory problems. It will however contribute to cleaner air and reduce the amount of pollution.

High levels of particulate pollution aggravate pediatric respiratory disease.

- We are firmly convinced that both medical observation and scientific data demonstrate a role for high levels of particulate pollution in aggravating pediatric respiratory disease. It is therefore our professional and ethical responsibility to promote reduction of unnecessary particulate pollution in our environment... (#368 --petition by three physicians - American lung Association)

- "We, the undersigned physicians, are specialists in the care of children with respiratory disease in the Inland Empire. Most of our patients are asthmatic, though we also take care of children with cystic fibrosis, recurrent pneumonias, recurrent bronchitis, upper respiratory allergies, and immunodeficiency problems. While not all those children need to be referred to subspecialists, we are the subspecialists for the majority of children in the greater Spokane area who require referral for these problems. We are firmly convinced that both medical observation and scientific data demonstrate a role for high levels of particulate pollution in aggravating pediatric respiratory disease. It is, therefore, our professional and ethical responsibility to promote reduction of unnecessary particulate pollution in our environment... (#368 --Three Spokane Physicians)

- I'm a pediatrician in the Spokane Valley... I help take care of about 10,000 kids and another 20,000 in consultation...Approximately ten percent of those kids have asthma, and it's all our opinion that asthma is really affected by the grass burning here in Spokane, and I think that the measure that you have adopted or are proposing will make a great impact on the health of the children during the months of the grass burning... (#1535 --Physician, Spokane)

Response:
Your comments are noted and appreciated.

I have observed an increase in patients I see with respiratory symptoms when burning is occurring and significant exacerbation's of existing respiratory conditions.

- ...In addition, I am aware of the problems with the increasing respiratory distress that my patients with chest disease have when there is heavy smoke pollution in the air from open burning. (#229 --Physician)

- There is now strong medical evidence that grass smoke is harmful to the health of patients, especially those with lung disease. These findings confirm the observations made by myself and my peers locally. (#227 --Physician)

- The medical literature currently states unequivocally that any form of noxious gas, including grass smoke, is detrimental to those with pulmonary problems, causing increased irritation. I have already experienced, in my patients this year as in past years during the burning season, an increase in those with severe respiratory distress. One of my patients, a young, non-smoking female with very mild asthma who has been extremely well controlled for a number of years, was exposed to smoke and was brought in near arrest from bronchiospasm, obviously precipitated by the inhaled burning grass smoke. (#230 --Physician)

- At least 80% of our patients with asthma and emphysema would attest to the fact that on days that grass fields are burned and the quality of the air is poor due to dense smoke they have significant exacerbation of their lung disease. To deny this would be to totally ignore the complaints of people who know their bodies and their lung disease very well. (#232 --Physician)

- I feel the burning is definitely hazardous to patients of mine. There is no doubt that there is increased difficulty with asthmatic patients and other pulmonary problems this time of year. I also have a daughter who has asthma, who has noticed exacerbation of her asthma, especially on field burning days. (#1358 --Physician)

- I have been a Certified Respiratory Therapist since 1991. Since that time I have seen an increase in asthmatic and COPD patients and hospitalizations when the air quality drops and also during agricultural burning. There is also an increase in the number of people with breathing problems who cannot leave their homes and are held captive because of the smoke... (#1444 --Certified Respiratory Therapist)

- Over the years (I) have seen many episodes of worsening of respiratory disease during the time when grass burning begins each fall. Both patients with upper respiratory illnesses and especially patients with asthma have been having far more symptoms during the period when grass burning is occurring. This would make scientific sense given the high particulate level of grass smoke, with a size that is very irritating to mucous membranes. For reasons of health, I would certainly support the Department of Ecology's grass burning regulation. (#1301 --Physician, Pullman)

- ...I'm a board-certified chest physician practicing in Spokane, Washington, since 1969. I have testified at the symposium before and testified extensively relative to the medical effects of smoke and air pollution. Lung disease is one of the fastest growing diseases in this country. It now affects greater than 30 percent of the people that live in Spokane County. There are at this point in time 14 adult-board-certified chest physicians in this county... One's at the VA; one is no longer in private practice. Of the 12 remaining, I have affidavits that I'm going to give you, Grant, from 11 of these, 11 of the 12, that relates to their opposition to grass field burning... I've heard testimony that it is okay, that the grass smoke is burned in such a way that it does not affect Spokane County, but I guess it doesn't matter as long as it's not your ox that's gored. I have a large number of patients, particularly in the last few weeks, who I've seen because of marked exacerbation of their respiratory disease due to the smoke... (#1523 --Physician, Spokane)

- Ten years ago I moved to Spokane thinking to hopefully get rid of the pollution of the Salt Lake Valley and started to treat patients with respiratory illnesses and was soon introduced to the region's unique air pollution problems, including grass burning. Grass burning and its associated increase in PM_{10} particulates which occur in the urban and rural areas of this area became recognizable to be as a very clear cause of increased morbidity and mortality. I started seeing very clear increases in clinic visits,

medication utilization by patients with respiratory illnesses, and hospitalizations due to respiratory exacerbation. (#1524 --Physician)

- This letter is written in response to a dramatic rise in respiratory symptoms related to the ongoing burning of grass fields. It not only puts my patients in jeopardy, but also extracts a significant cost to the geographic environment containing the grass fields... (#204 --Physician)

- As a physician this is especially important for people with respiratory difficulties. (#122 --Physician)

- The smoke from grass field burning needs to end in order to prevent the deleterious health effects that are occurring in our community and the deleterious effect upon people that have a host of lung diseases, ranging from asthma and emphysema to cystic fibrosis and bronchiectasis. (#234 --Physician)

- ...I am struck by the inordinate worsening disease during the grass burning season. There is undoubtedly, in my practice experience, an increase in the number of patients seen and complaining of shortness of breath, cough, and other respiratory illness during this period. Additionally, I have done extensive research in this area and can testify that there is unequivocal evidence in the scientific literature supporting this contention. (#228 --Physician)

Response:
Your observations are acknowledged and appreciated.

There is no observed correlation between exacerbation of respiratory difficulties and grass field burning.

- In my 17 years as an EMT I have never picked up anyone in the ambulance in respiratory distress that I could attribute to grass burning... (# 989 --Garfield County Fire Chief & Pomeroy Grain Growers Co-op employee)

- ...I have practiced medicine in Pomeroy, WA for almost 26 years. I do not recall having any complaints or treating any patients for health problems related to grass burning in Garfield County. (#983 --Physician)

- While practicing in Garfield County (45 years) I didn't see enough people with respiratory problems that were worsened by burning to see that this ban is necessary... (#998 --Physician)

- I am a Registered Nurse employed at Saint Joseph's Regional Medical Center for 28 years... St. Joseph's is a Level II Trauma Center and is very progressive with patient centered educational classes for patients suffering with chronic obstructive lung disease. The classes comprise mainly asthmatics and patients with emphysema. The instructors and the Emergency Department physicians find no correlation between exacerbation with breathing difficulty and grass field burning... (#980 --Registered nurse)

- During my 10 years with the Garfield County Sheriff's Office I have never received a complaint about grass field burning or had an accident reported due to grass burning. (#982 --Garfield County Sheriff)

- We are the keepers of the records in the county. Most complaints that come into the county come into our office... I do have documented complaints about forest fires, the slash burning and the wood burning during the wintertime, but none relating to grass burning (#1559 --Garfield Co. Sheriff's Department)

- ...My 18 year sold son has been a severe asthmatic his entire life... Not once in all that time have I ever connected his condition or increase in symptoms to grass field burning. Never once has any responsible physician, and there have been many, ever suggested that grass field burning was or is the cause of his problem... (#1314 --Registered Nurse)

Response:

Your observations are acknowledged and appreciated.

The claims of the Spokane Medical Community are not based on credible scientific data from qualified sources.

- ...The mind controls our lives. If we believe smoke will bother us, it will. Dr. Whitehouse will not prescribe vitamins for a patient without a double-blind study on the results. How can Dr. Whitehouse get the grass growing industry shut down without scientific facts. (#1335 --Citizen)

- ...We heard a doctor talk in Spokane last Thursday. He was one of seven doctors that had a patient list of 10,000 people... I (found) out that they only put in nine minutes per patient per year. I found out that most of the treatment is given to the patients through hired nurses. Now I'll give you the benefit of the doubt that they burn 45 days in Spokane. If they do and Spokane has two-and-a-half percent of the pollution, a doctor will increase his patients just 11 seconds... (#1579 --Grower)
- ...I'd like to say on the petitions that the doctors made... It would only be fair for them then to sign all pollution problems... (#1615 --Adams Conservation District)

- ...You stand by a loosely worded petition of local doctors that says they back any efforts to reduce air particulate pollution, including grass smoke. A petition that almost any doctor would sign without reservation. (#242 --Growers/ Intermountain Grass Growers Association)

- This emergency order was enacted because a few people lobbied doctors in the Spokane area for their opinions on grass burning. the statements issued by doctors in Spokane were treated by the D.O.E. (Department of Ecology) as if they were facts instead of opinions. The opinions expressed by these doctors have no scientific data to support them. (#1262 --Grower) (Attachment)

- ...DOE made the decision based simply on a biased petition from the medical community and an outcry from an active group of individuals. (#1599 --Washington State Farm Bureau)

- Dr. Sunderland asked for the evidence these Spokane Doctors had pertaining to when these “at risk” patients were admitted to the three major Spokane hospitals and he was denied that statistical evidence. His contention is that the grass burning does not furnish a rush of lung patients. (#215 --Citizen)

- All the doctors have testified it's the health of their patients. Let's cut a third of their patients; let's cut another third next year and see how they feel. Are they going to testify?... (#1532 --Former grower)

- I would like to go into detail on the statement that Spokane area has more respiratory patients because of bluegrass burning. The doctors have testified that the Spokane area has 11% respiratory patients and the rest of the nation has only 5% of it's population with respiratory problems. Therefore the doctors say that bluegrass burning is causing higher rate of respiratory problems in Spokane area. We all know that 92% of bluegrass fields in Spokane county are in the south county area and that the farmers of south Spokane county only burn when winds will take the smoke to south of that where there is a very small population of people. The communities south of Spokane are Valleyford, Spangle, Cheney, Rockford, Fairfield, Waverly, and Latah. Therefore these are the only communities affected. The combined population of these communities is less than 20,000 people. Spokane county has over 320,000 people in it. Even if every person of south Spokane county had respiratory problems it would only be a little over 6% of

the total population. We know that only 11% of the people of south Spokane County have respiratory problems. So where do the doctors figure that bluegrass is causing all those respiratory problems. (#1334 --Citizen)

- ...The three hundred doctors, I think one thing I'd like to say is run that petition by them again and ask them are you in favor of field burning and then have them answer. Run it by them again and ask them if they are in favor of field burning if they lose their job when they do it. See if the answer changes at all... (#1560 --Grower)

- ...Second, and far more important, the authors of the letters and DOE (Department of Ecology) confuse correlation with causation. The writer's may accurately relate that their patients'' conditions are exacerbated during August and September. With proper research and diagnosis, the writers may be able to state that the observed health effects are the result of smoke... However, without detailed analysis of the constituent smoke, the writers are not justified in attributing smoke related problems to grass field burning... (#1338 --Attorney)

Response:

Most people would expect that any practicing physician would have some professional knowledge of incidence and causes of health problems. The observations and experiences reported by many in the medical community are consistent with conclusions from scientific studies. The Department recognizes the difference between general observations, professional opinions and data from a scientific study.

Not all doctors support the grass burning rule.

- ...Approximately 700 doctors who are members of the Spokane County Medical Society received the petition statement written by Alan C. Whithouse, M.D. Approximately half of the doctors did not return the petition, which demonstrates that the doctors are about equally divided on this issue... (#1320 --Citizen) (Exhibit)

Response:

Ecology acknowledges that there are a variety of medical opinions on the health impact of grass smoke and not all physicians support the grass burning rule. However, it should be noted physicians specializing in respiratory illness (in Spokane and some even in Idaho) unanimously support the petition. The lack of a response to the petition does not indicate a particular position on the issue.

Particulate pollution has multiple sources but grass smoke is one and adversely affects health

- ...While acknowledging that the Inland Empire's particulate pollution has multiple sources, we recognize agricultural grass burning as a significant controllable source in the late summer. Since grass field burning adversely affects our patients, we support state wide efforts to curtail burning and find economically feasible and environmentally acceptable alternatives to this agricultural practice... (#368 --Petition by three physicians - American lung Association)

- It is obvious grass burning is not the only contributor to the poor air quality here in the Spokane region but it is also very clear to me that grass burning clearly exacerbates the problem. (#233 --Physician)

- ...I am certainly aware that there are multiple varied sources of air pollution in the Spokane County/Eastern Washington area. I'm aware of the difficulty in controlling all sources of air pollution, be they caused by natural disaster or caused by conscious decisions by man. As a practicing physician it's unconscionable for me to ignore this any longer, and I plead with this committee and the DOE

(Department of Ecology) to try to limit all sources of air pollution in this county (for health reasons). (#1524 --Physician)

- There are certainly other environmental factors that contribute but I am not aware of other factors so readily controllable as eliminating grass burning for the health of chronic lung patients, as well as the respiratory health of the general public. (#235 --Physician)

Response:

Ecology agrees. There are many sources of particulates which contribute to air pollution. Research indicates that fine particulates, which are found in grass smoke, do have an adverse impact on health.

It is not possible to pinpoint a particular air pollution source as being responsible for adverse health effects.

- ...We produce two percent perhaps of the annual pollution, and the Department of Ecology feels that by reducing that pollution, that two percent, that will affect the health risk caused by all particulates like grass smoke, the wording used in all of the doctor's evidence and even Mr. Pfeifer's evidence to Ms. Riveland says particulate like grass smoke, not just grass smoke. There's no way we can link directly a particulate that floats around and identify it as my grass smoke. So if there is a health risk by particulates like grass smoke, then all particulates should be reduced by one-third for the next two years, then we'd have a significant health impact... (#1594 --Grower)

- ...I also suffer from allergies and asthma, and I have been wondering if all these people that they based this emergency declaration on have been tested for other fall allergens. Have they been tested for ragweed, goldenrod, Russian thistle? How did they determine that it was indeed grass smoke, grass smoke rather than pine tree smoke? How do you determine this? (#1500 --Citizen)

- I'm really concerned with the accuracy, as everyone else is, of the current research performed on health hazards of grass burning. How can this research actually pinpoint that short-period grass burning is the actual cause of the said health problems. I mean, has a large enough portion of doctors in the Spokane area actually been surveyed, or is it just the doctors that oppose grass burning? (#1608 --Grower)

- I have seen and heard evidence that the increase in lung disease is most likely associated with automotive emissions since those emissions are common all over the world in all of the cities studied. Why is Spokane so sure that bluegrass burning is their problem? ...Could the wood stoves and autos be responsible or is bluegrass smoke persistent enough to affect the air in January? (#214 --Citizen)

- ...The bacteria that grows in air conditioners can give a person problems... There’s pollen in the smoke when a grass field is burned, but there’s more pollen in our air during the spring and summer... (#1310 --Grower) (Attachment)

Response:

Ecology understands that there are many sources of particulate air pollution. Under the provisions of the Washington Clean Air Act, all sources have requirements for controlling emission and in most cases reducing emissions. In dealing with air pollution, it is rarely possible to make a site specific causative determination of a particular health incident. It is, however, within the limits of acceptable science to make a categorical determination of the content of emissions by source and determine the health impact of a particular air pollution component such as the $PM_{2.5}$ from grass smoke. Ecology believes that the current studies on particulate pollution form the basis to require this source to reduce emissions. Information from many sources, including physicians and researchers, was considered in Ecology's decision to reduce the number of acres of grass seed field burning.

There is no data which separates the affects of particulates by source.

- ...Asthma and other lung conditions are very complex diseases, with many causes. With increasing frequency, I have read article after article about people who can pinpoint grass seed field burning as the cause of their breathing problems. After 18 years of personal experience with an asthmatic, I find myself doubting the credibility of these people... (#1314 --Registered Nurse)

- I believe that no one will argue that inhaling small particulate matter has a noxious effect on both man and beast, but to what extent is this realized with grass burning, the subject in discussion here tonight. (#1574 --Pomeroy Physician)

Response:
There is data which addresses the effects of pollution by size. It is possible to determine the size and type of pollutants coming from a particular source. Some correlations could then be made regarding that source. There is no data available from the Spokane area in particular. A study focusing on particulate pollution from grass seed field burning is being conducted in Spokane.

There are other causes of respiratory health conditions.

- ...Have they considered any of the weeds that pollinate during the fall of their patients? Does their patients go through a smoke-filled entrance to get to their office where people smoke, which is one of the major pollutants in Spokane? You remove the smokers, and the pollutants would go down... (#1532 --Former grower)

- Another question is--has Hanford ever affected any of the patients?... (#1532 --Former grower)

- ...I had a grandfather that lived to 102 and three aunts that lived past 104. When they grew up their primary source of heat was stoves and open fireplaces, and on the farm they were exposed to a great deal of smoke. So I know a lot of this is genetic, but maybe these other people that are complaining have other problems other than just the smoke. (#1582 --Grower)

- ...The reason for this letter is to follow up on last nights testimony from a lady that said she had to stay in Quincy while the fields were being burned. Number one, that may be an excellent solution. The question I have is, does the smoke at I-90 and Freya during the winter bother her? Does she have trouble any other time of the year? How about during forest fire season, in the spring when the pine trees give off pollen? How about the dust storms and any of hundreds of other pollutants that come into our environment every day? Is it only the little bit of grass smoke we incur each year that bothers her? (#1335 --Citizen)

- ...The health effects based on a fine particulate, I see that everywhere--fine particulates such as grass burning go deep into your lung. People, fine particulates of every type go deep into your lung. It's just not bluegrass... (#1505 --Grower)

- ...There are so many other substances out there that can aggravate medical problems besides the blue grass smoke. (#218 --Grower) (Attachment)

- ...When I moved to Spokane, I found that they burned trash in every yard at the time. There wasn't a whole lot of complaining because everybody could do it. In the fall of the year, you burned your leaves; you smoked up all of Spokane. We didn't have the problems we have today... (#224 --Citizen) (Attachment)

- ...My wife has respiratory problems, and she feels that her health is threatened. What bothers her most is not the rare grass smoke, it is the constant dust. (#1303 --United Food and Commercial Workers)

- Outdoor particulates are not the only factor causing respiratory problems. Other forms of outdoor pollution include not only ozone, carbon monoxide, and sulfur dioxide, but also nitrous dioxide, lead, and volatile compounds, including not just commercial sources but also residential pesticide uses... Indoor air pollution is also a problem. Whereas outdoor PM_{10} standards are 150 mcg / cubic meter over 24 hours, indoor particulate levels can be much higher than that. Nardini et. al. (1994) found indoor levels as high as 31600 mcg / cubic meter during cooking, as high as 2800 mcg / cubic meter while lighting fireplaces, (etc). In adult asthmatics, Jindal et. al. (1994) found environmental tobacco smoke to increase emergency room visits by 36%, to increase acute episodes of asthma by 120%, to increase absence from work by 20%, and to increase weeks of steroid use by 31%... Interestingly, the county-by-county maps in this paper show Spokane County to be in the lowest quartile for admissions for pneumonia, acute respiratory infections, and asthma; it ranked higher only for admissions for chronic obstructive pulmonary disease. That we achieved this despite our particulate problems illustrates that there are other factors affecting respiratory health is Spokane County. (#362 --Physician) (Attachment)

- I think we need to acknowledge that we do have problems. I can only speak for myself as a clinical physician. I don't have hard data, like I said. I know that living in the Palouse is tough for anybody with chronic lung disease, but so is living in Los Angeles and Spokane and many other areas. (#1614 --Physician, Whitman County Health Department)

- ...Respiratory insults from another source could be erroneously attributed to field burning, or one may selectively remember events occurring at the time of field burning as of greater significance. If in fact the field burning is a significant problem, then that should be objectively demonstrable in some way... Cornwall (1996) has presented maps showing the location of complaints, location of burns and the prevailing winds, which suggest that the field burning taking place that day was probably not the source of the complaint... (#362 --Physician) (Attachment)

- ...Tree pollen, Mt. St. Helens, automobiles, and other industries, and normal dust are causing unhealthy people to have respiratory problems. (#224 --Citizen) (Attachment)

- ...There are a lot of air quality issues that are even more important and there are people who suffer from any number of things and not always somebody is going to have some distress from some chemical or condition from the environment... (#1431 --Citizen)

- It is hard to believe the data from the SOS (Save our Summers), people and the medical profession, as we have had a great many wildfires and forest fires this summer and pollution has been worse than any day of bluegrass burning, but the news media and the others blame all respiratory problems on the grass industry. This seems a little phony and untrue. (#1074 --Retired Grower)

- It is my belief that grass burning has been singled out (to receive) the blame for some peoples (health) problems. (#992 --Citizen)

- ...In the current issue (September, 1996) of McCalls magazine, (there is an article) titled: “Allergies: Fall’s hidden health risk” (attached). It tells about the blooming of ragweed in the late summer and fall, and how it makes life miserable for <u>22 million people</u>. Those who suffer from allergies will react to the fall pollen, blaming the smoke from field burning only because it is more visible to them... (#1309 --Grower) (Attachment)

- ...Now some doctors are trying to say grass growers were the cause of asthma patients lately. That's hogwash. The air was polluted by the wildfires as well as the usual stink created by the freeway and buses. (#336 --Citizen)

- My wife works as a nurse in Spokane in a small general-practice doctor's office. Many days of the year, people come in complaining about the grass farmers and the problems to their lungs when in fact, no grass farms have been burning the fields... (#1502 --Citizen)

- Carol died of a lung infection. She was a mother, 46 years old, two healthy children, exercised regularly, ate right, kept a normal weight, had no respiratory history... There was four other people at this time having the same problem; one of them died also. Now, the common thing to think is that it's a grass farmer. This happened in March. Okay? There was no grass burning at that time. August, there's a lady dies up in Sandpoint. They're saying it's the grass farmer. What's different in that and my sister-in-law?... (#224 --Citizen) (Attachment)

- ...Just a year ago my husband passed away from respiratory arrest at the age of 68. He is part of the statistics that are being used to justify a proposal that the practice of burning of grasslands should be gradually eliminated... He was a victim of emphysema. Probably the (grass burning) smoke did precipitate that he began his last hospital stay and died three days later. However, those who are the grass producers had nothing to do with the fact that he had begun smoking cigarettes as a teenager. Statistics of deaths which occur now in grass burning periods should not be used to destroy an industry which is important to the economy of this area, and also has significant value in reducing erosion for cleaner water and uses carbon dioxide in order to provide oxygen for better air for humans and animals... (#1073 --Citizen)

- ...Do you know what day had the worst air quality since we moved here? The day Airway Heights fire, okay?... Are you guys going after those people that caused, you know, all that problem? And the other day was Mica when they had the forest fire from the train that was going by and caused the sparks. Are you going after those people that caused that fire? And you talk about impacting me as an individual--those two days were the worst days that I've ever had, when they had those two natural fires, okay. Any other time, I see your smoke. What I see is a mushroom cloud way, way up; it doesn't bother me, okay. (#1503 --Citizen)

- ...I do believe that to some of those that would ban burning, it is just an annoyance that they don't want to put up with. It seems though that there are some with a genuine health problem that is aggravated by the smoke. These are the ones that must be considered. (#1336 --Grower)

- Lifestyle plays a big part in health today. Healthy people don’t have health problems during grass season. Tree pollen, Mt. St. Helen’s ash, automobiles, other industries and normal dust cause unhealthy persons to have respiratory problems... I believe the real problem to be the change in nutrition over the last three generations and the huge increase of sugars (soda pop) and fats (hamburgers, potato chips, French fries etc.) in the diet during the same time. (#224 --Citizen) (Attachment)

- ...In the bluegrass growing community, there is a fear that grass burning is being blamed for health issues upon which it has little effect... (#1026 --Dye Seed Ranch Employee)

Response:

Ecology recognizes that there are many causes and contributing factors to respiratory health conditions. Although they are not the only contributors to respiratory ailments, the most significant sources of particulate pollution in Spokane include: wood burning, motor vehicles, windblown dust from unpaved roads and agricultural areas, and open burning. The relative contribution of these sources changes throughout the year. Under the Washington Clean Air Act all of these pollution sources are subject to emission requirements.

Grass field burning is a known contributor to fine particulate pollution. On an individual basis, the health impact of these fine particulates can range from no impact to death. Studies document the relationship between particulate pollution and adverse health effects. Several studies indicate that the health effects of increased particulate levels

most often occur the next day.
Ecology agrees that not all complaints about smoke are from grass burning sources. It is understandable that persons assume the source of the smoke is that which they are most accustomed to experiencing. Most of the complaints received do not indicate the source. Many times the smoke which is the focus of a complaint, has migrated quite a distance from its origin. Ecology has used both information on permitted acres and complaints received, in making this decision.

The Department of Ecology did not consider all of the evidence when making their decision.

- ...Explain why Dr. Bardano from Oregon wasn't invited to speak at the symposium. Was it because his statements would of been on the grass growers side?... Dr. Bardano said automobile, road dust, wood stoves and indoor pollution were worse offenders than grass smoke. It seems as if DOE doesn't want to hear all of the facts... (#1315 --Citizen)

Response:

Ecology has made every effort throughout the rule amendment process to consider all of the available and relevant information regarding the issue at hand. With the assistance of the IGGA (Intermountain Grass Growers Association) and SOS (Save Our Summers) groups Ecology attempted to put together a balanced selection of available experts for the symposium. Dr. Bardano was a key presenter at the Robert F.E. Stier Memorial Lectures in Medicine just two weeks prior to the symposium. According to material prepared for this presentation, his expertise is in indoor air pollution and solutions, not pollution from grass seed field burning. He also participated in a question and answer session coordinated by Dr. Whitehouse.

There is no evidence that particulates from grass burning are worse than those from other sources.

- There is no evidence that particulate from grass seed field burning is qualitatively worse than other particulate sources. In fact, the research on particulates generally does just the opposite; it looks at particulates as classes based on size but does not differentiate between different sources of particulate. It is therefore not possible to distinguish between health effects from particulates emanating from paved roads v. unpaved roads v. vehicle emissions v. wood stove use v. slash burns v. agricultural burning... In the absence of any information that grass field particulates are worse than other particulates, there is no justification for regulating particulates from other sources. (#362 --Physician) (Attachment)

- ...Now we read about the research that shows that the smoke from grass field burning is more harmful than smoke from other types of burning. Didn't research done in the state of Oregon, which grows more grass and burns more fields than this state, show there is no difference? Why the discrepancy in the research?... (#1314 --Registered Nurse)

- ...Let's ask for the research and not settle for someone else's interpretation of the research. Let's read it for ourselves and make informed decisions. After all, can we in good conscience cripple and possibly condemn such a beneficial industry when we haven't been given all the facts? (#1314 --Registered Nurse)

- In Reason #3 DOE (Department of Ecology) states "(t)he smaller and most damaging of these fine particulate come from incomplete combustion processes." This implication that $PM_{2.5}$ from combustion processes is more damaging than $PM_{2.5}$ from non-combustion sources is not supported by the health studies included in the rule making file. DOE (Department of Ecology) is correct that the health studies establish a link between health effects and fine particulate. However, the studies consistently conclude that the relationship between observed health effects and levels of fine particulate is a casual connection not due to any confounders. See (literature cited)...The evidence suggests that there is no observable difference between combustion created $PM_{2.5}$ and non-combustion created $PM_{2.5}$. This is important

because the likely effect of this rule will be to increase $PM_{2.5}$ emissions from acres not burned. (#1338 --Attorney)

Response:
Conflicting research on the impact of particulates from grass burning certainly exists. Ecology's decision is not based on the premise that fine particulates from grass smoke have a more severe health impact than the same substance from other emission sources. Emission standards and many studies analyze particulates by size and not source. This data can be used to make correlations and design further studies relevant to particular sources. (Please see the response to " It is not possible to pinpoint a particular air pollution source as being responsible for adverse health effects.")

Grass smoke contains carcinogenic elements.

- ...Remember, sooty particulates from smoke (not dust) are carcinogenic and remain permanently inside the lungs. (#86 --Citizen)

Response:
Your comments are noted and appreciated. Preliminary results from Dr. Jeff Corkhill's study on the subject appear to confirm this conclusion.

I, a member of my family, or my patient was hospitalized because of the smoke from grass burning.

- ...Two weeks ago, you recall the air quality was pretty poor. I noticed it because I was on vacation, and I wanted to play out in the lakes and so forth. And when I came back to practice, I noticed that many of my patients were beginning to file in with their chronic respiratory problems, now exacerbated by the air pollution problems. I currently have two patients in the hospital who are being treated for respiratory problems which I feel are directly related to air burning. That's not the sum total of my patients in the hospital; I have probably over 20 patients in the hospital right now, but it clearly points out that this is a direct cause of hospitalization. (#1524 --Physician)

- First of all I'd like to give you a sample of what we were breathing today (exhibit)...My four-year-old daughter has cystic fibrosis. Alexandria was hospitalized for 17 days last summer--it was probably one of the most terrifying 17 days of her life-- with respiratory distress, and has either been hospitalized or put on high doses of steroids every summer during field burning, August and September. I don't need to be a scientist, and I don't need to be a doctor to tell you guys what's happening here. It's obvious. (#1544 --Citizen) (Exhibit)

- ...She usually ends up in the hospital every fall, but took an extended trip this year. (#1032 --Citizen)

- Agricultural burning is life threatening to me... I have taken steroids for the past 25 years because of my asthma and I have tried many times to get off them but have been unable to do so. The last time I went outside during the burning time, I was hospitalized. (#1339 --Citizen)

- I want the grass seed burning rule enforced to protect the health of the community. I have a two year old son who was hospitalized last year due to the burning. (#1365 --Citizen)

- Every time the grass burns, my granddaughter goes into the hospital for asthma. I am starting some bronchial trouble myself. (#1373 --Citizen)

- We have been residents of Spokane for 40 years. We have four children, two of our children are greatly impacted by grass burning. I have a daughter who has been in the hospital every August for the last 6 years as a result of grass burning. This August, she is staying out of the hospital at great risk. The risk is that she must take 40 milligrams of Prednisone to breathe, because of the dirty air in August... (#1383 --Citizen)

- ...I have inhalers and nebulizer and have been in the Emergency room two times since the grass burning began. Medicine just didn't help. (#1391 --Citizen)

- My wife and I both have asthma. Burning of fields is very uncomfortable for both of us. I have gone to the hospital four times for breathing problems in the past... (#1393 --Citizen)

- My husband and I are REALLY against it (grass burning).… Our son just went to the ER (a three year old) Sunday night with breathing difficulties. He may be developing asthma, and it's really scary. (#1461 --Citizen)

Response:
Your comments are noted and appreciated.

Hospital admissions for respiratory ailments are lower during grass burning season.

- There are no scientific studies or proof that grass field burning is responsible for any increases in hospital admissions. Quite the contrary; hospital admissions are lowest for respiratory problems during the August and September season. (#216 --Grower)

- ...I do feel that the large pharmacy's in Spokane can tell you that during the month's of August and September, are the low month's for filling prescriptions to aid in the lung and allergy problems... (#1310 --Grower) (Attachment)

- ...Hospital admissions for lung related problems in Eastern Washington and Northern Idaho are lower during the grass burning season than during the rest of the year... (#1015 --Grower)

- ...An unbiased survey of the hospitals in that area (Spokane) during the grass burning months indicated that hospital admissions for lung related problems were, lower than at other times of the year... (#1028 --Grower)

- According to the data we have collected the highest rates of hospitalization due to breathing problems are in December and January. Banning bluegrass burning will not help these people. (#1268 --Grower and Producer)

- The information I found comes right from the records provided by the Washington State Department of Health and Health Statistics Division. The information represents the total hospital visits from a five-year period. That would be (1990 - '94) in Whitman, Stevens, and Spokane Counties, major diagnosis with any diagnosis of admittance having to do with bronchitis or any other asthmatic conditions... The number of hospital stays for bronchitis and asthma for this period were 6,192 and involved 5,151 people. That was again in that five-year period. For the three-quarters of the year...during the time when no bluegrass field burning occurred, was 5,191 of the 6,192, or in percentage that would be 83.8 percent. Now for the quarter that bluegrass did occur, the burning did occur, ...the number of the hospital stays was 1,001, or 16.2 percent of the total. So I found that to be startling... That's contradictory to what I've heard (from the media) and quite frankly again, what I hear from the DOE (Department of Ecology) and the opposition... (#1604 --Grower)

- We believe that if the public looked at the admission rates for respiratory problems in Spokane hospitals, they would find that during the months that grass burning occurs, the admissions are at their lowest... (#1599 --Washington State Farm Bureau)

- ...Another way to measure health effects of field burning would be to look for demonstrable increase in patients accessing health care during the burn season... The first, by Sonneland (1996) is a simple graph of admissions to Sacred Heart and Deaconess by month during 1995... It shows the summer months to be the lowest in admissions for COPD, the opposite of what would be expected if field burning was having a major adverse effect on patients with this illness... (#362 --Physician) (Attachment)

- My nursing staff and myself have spent time examining and comparing the cases of Upper Respiratory Infections, Asthma, and any diagnosis of dyspnea from 1984 to present. We used the Emergency Room records as our criteria. Without a doubt, the majority of infections and shortness of breath have occurred during the winter months. We cannot see any correlation between the month of grass burning and an increase in Respiratory distress. (#1030 --Director of Nursing, Garfield Co. Hospital District)

- ...I, like the emergency room physicians and the other nurses who work ER, never find increased respiratory distress patients with grass field burning. In fact in any other controlled fires... We had a huge fire...over Labor Day weekend, two-and-a-half days of fire. There were no emissions to ER with respiratory distress... (#1565 --Registered Nurse)

- Does the claim morbidity and mortality are being increased by grass burning, looking at the hospital emissions for 1995, that data is not supported. In 1995, hospital admissions were looked at from Spokane all the way down to Walla Walla. Hospitals looked at were St. Joseph's, Tri-State, Waitsburg Hospital, Colfax, Deaconess Hospital and Sacred Heart Hospital, and Walla Walla Mercy Hospital. At that time the average hospital admissions for the year were 29.3 admissions per year. In the months of July, August, and September, the number of admissions were 20.66; that's down 22 percent. In the months of November, December, and January the hospital admissions were 40; that is a much more higher increase. I would like to say that those are the highest months of wood burning and the highest months that are normal for cardiopulmonary diseases. We just don't have the data to prove that grass field burning is actually causing a problem with our clientele here. (#1574 --Pomeroy Physician)

Response:

There are many causes and contributing factors to hospital admissions for respiratory ailments. (Please see the response to “There are other causes of respiratory health conditions.”) The study by Dr. Joel Schwartz, carried out in Spokane, shows an association between particulate levels and hospital admissions.

Admissions for respiratory symptoms could be coming from outside the state.

- ...The second by Schwartz (1996) is a review of all hospital admissions in Spokane for persons 65 and older, correlating those then with PM_{10} and ozone levels... The author did not mention that allergens were included in the smoother function, and Bardana, an allergist, has commented (1996) that this study did not include pollens, which omission would falsely elevate the respiratory disease attributed to particulates and ozone. Schwartz also did not specifically address carbon monoxide, nitrous dioxide, or other air toxins in his study. He unknowingly criticized his own study, and showed his lack of familiarity with Spokane, by commenting that "Spokane has no medical school and is located on the edge of a desert. Hence, admission of persons residing in other counties is likely to have been negligible." In fact, Spokane is a referral center for E. Washington, N.E. Oregon, N. Idaho, and W. Montana. This means that the admissions might have come from out of this county and so have nothing to do with PM_{10} or ozone levels here. (#362 --Physician) (Attachment)

Response:

Residence of patients certainly is a factor which needs to be considered when analyzing hospital admissions information.

Fatalities occur due to grass smoke.

- I lost a good friend to asthma the evening of the first grass burning in Idaho. Please help to abate this practice. The smoke knows no state boundaries. (#311 --Citizen)

- …I believe smoke is harmful to our health. We believe we lost a Sandpoint resident recently because of the smoke, and we are very concerned about other people's safety... (#1390 --Citizen)

- I have a friend with asthma who must miss work and stay inside her home during the burning period. she has no health coverage at work, so this is time without pay. Her asthma greatly worsens during this time and her doctor has warned her that a bad asthma episode could lead to her death. (#7 --Citizen)

- …I think more deaths are caused by it, and my husband is a farmer and I know you don't need to burn the grass. (#1403 --Citizen)

- ...I understand people are becoming extremely sick and even dying from this… (#1439 --Citizen)

- I notice there is going to be a meeting tonight in Colfax. Who is going to attend? One of our friends and neighbors? The burning killed him last year! He had emphysema. The smoke from either Rathdrum Prairie or Spokane Valley was in the sky, the wind blew it our way and then we had an inversion and (he) could not handle it. They sent him to the hospital to be de-smoked, and he died Sunday morning. Yes, he would have died eventually, but that grass smoke killed him. (#1451 --Citizen)

- These people are killing people! (#1283 --Citizen)

- To the thousands of us who have asthma and/or other problems in breathing the smoke is life threatening. (#364 --Citizen)

- Mine is not a scientific testimony. On the afternoon of Thursday, August 15th of this year, my friend went boating on a clear day on Lake Pend Oreille. She also went hiking...She had no breathing problems... She returned to her home west of Sandpoint and proceeded to sleep outside with her two children in a tent. The wind shifted during that time, and an inversion system ensued. There was grass burning that day. About midnight she came into her home with breathing difficulties from her asthma. She managed to get some medicine from her inhaler. Her husband put her in the car, and it took about ten to fifteen minutes to get to the hospital in Sandpoint. She was dead by the time they got there... She wasn't sickly. She wasn't weak as has been portrayed by the press releases of the grass growers. She was a real person. (#1541 --Citizen)

- ...This (grass smoke) does cause health problems, and people have died, and we'll never know the exact number, and so what you have to do, you have to weigh public health against profit. (#1603 --Citizen)

- ...You see, my son has asthma, and smoke is a definite trigger to his asthma. Asthma as you probably are aware of is a life-threatening illness. It killed a young man in Pullman in September of 1994. He died of respiratory failure an hour after an acute asthma attack... (#1587 --Palouse Preservation League)

Response:

Ecology is aware of studies that show there are fatalities which can be attributed to particulate pollution.

Grass smoke causes, triggers or increases the frequency or severity of asthmatic incidents for me or a family member.

- ...One of my children is an asthmatic and we certainly don't need to exacerbate his condition. (#28 --Citizen)

- My husband and daughter have asthma that is usually very mild until the grass burning season starts... (#88 --Citizen)

- My wife suffers from asthma only during burn season... (#86 --Citizen)

- We here in Spokane have enough trouble with the "natural" burning that goes on. The natural or man-made fires that occur in Oregon and Washington do more than enough for our pollution situation. My 11-year-old son is an asthmatic. Every year in August and September he has more health problems as a result of smoke in the air than any other time of the year. (#128 --Citizen)

- On August 10, 1996 I drove from Spokane to my lake home on Cd'A Lake with my grandson. Smoke was burning in Post Falls. My grandson was swimming for 1/2 hr. when he jumped out of the water--had an acute asthmatic attack. Our trip to the lake was ruined, and also we had to leave for Cd'A hospital. He was visiting from Boise. The rest of us felt the smoke, but for him it was magnified. (#244 --Citizen)

- This burning should have been stopped years ago. My health and my family's health is worse off because of the burning. I am now in my fifties and suffer from asthma as does most of my family. (#287--Citizen)

- I have asthma myself and I know that it creates a burden for folks who have a breathing problem. (#1354 --Citizen)

- I'm a disabled person due to asthma. The grass burning hurts my ability to breath properly all the way up here in Cusick WA, Pend Oreille County. (#326 --Citizen)

- In 1991, the grass field burning in the Spokane area changed my life when I ended up in a doctor's office with shortness of breath. An x-ray showed I have asthma. I had no previous history of asthma or any respiratory problems. Each burning season since 1991, my lungs have deteriorated. In the 1995 burning season, I had to stay inside my house, living on medications and inhalers around the clock. I still could not breathe normally and had to sleep in a sitting position at night... (#1344 --Citizen)

- ...I do have asthma. During the time at least last year, and years previously, when the smoke would filter in the Cheney area. I would have to stay in the house and get on my asthmatic medications. It is very difficult to breathe... (#1345 --Citizen)

- I have severe asthma and when they burn grass it gets very, very bad. I have read in the paper about the days they burn grass, and very often I get sick those days... (#1348 --Citizen)

- …It is obvious that grass burning is harmful to individuals. Over 300 local physicians have identified grass smoke as harmful. I also have a son who has asthma who is affected by this every time they start the burning process... (#1351 --Citizen)

- …My son has asthma. He is out growing it somewhat, but when he was smaller, there was a clear delineation on the days there was grass burning, and when there was not... (#1361 --Citizen)

- ...I have asthma now and I didn't have it three years ago... (#1391 --Citizen)

- ...It is one of the worst things that can happen to an asthmatic child, is to be around this grass burning, and I would like to see it banned. (#1411 --Citizen)

- …I have asthma very bad and we live near a wheat field and it gets pretty bad sometimes. (#1416 --Citizen)

- …I am an asthmatic who suffers terribly when the grass burning happens… It is harming so many people in the area. (#1421 --Citizen)

- I had asthma as a child, and it is coming back a little bit as a 46 year old adult, but when the grass is being burned I definitely have problems… (#1439 --Citizen)

- (Grass burning) has affected our lungs terribly. My son has had asthma and we can't breathe. (#1440 --Citizen)

- …It is very difficult for people with asthma as you already know… (#1448 --Citizen)

- Our son has mild asthma, and he suffers terribly during the burn season. (#1458 --Citizen)

- Its time to stop! My twin sons have asthma. Please protect us! (#1276 --Citizen)

- My son has asthma and he suffers during burning. I work outdoors and it hurts my lungs. (#1271 --Citizen)

- ...I have become an asthmatic adult I think in the last six years. I have a family, and every year that the smoke comes in before anyone else can smell the smoke, I can feel it. My airways start to tighten and close when the toxins take over. I've been on hydrosteroids, and I guess I just don't want to become a statistic like some of the other people have... Last year I chose to stay in Spokane, and I went to the doctor daily for hydrosteroid shots. I'm still seeing some of the residual bruising effects that I had from before... (#1602 --Citizen)

- I am affected with refractory asthma. The byproducts of the grass burns have a huge negative effect on my health. (Also on my daily life and in my responsibility to my family / children). (#1626 --Citizen)

- ...I have Bronchial Asthma and you can imagine what it was like here when the burning grass starts!.. I'm still coughing! (#1634 --Citizen) (Exhibit)

- ...My son...just turned seven... He has suffered chronic asthma his entire life. Approximately two weeks ago he had a friend of his spend the night at our house, so we gave them a treat and let them sleep on the hide-a-bed in the basement. At around 6:15 in the morning, he suffered a chronic asthma attack. I have some asthma, and I can tell you that suffering an asthma attack is the rough equivalent of having someone come up and plug your nose and squeeze your throat. He keeps asthma medicine with him at all times, and he had an asthma puffer on the edge of the hide-a-bed. Being in an unfamiliar location and given the time of morning, he didn't recognize that. He was able to get himself to the main floor of our house... That's all the farther he could get... Unfortunately, my wife, his mother, was asleep upstairs... He managed to lean up against a wall and bang on it four or five times. That awakened my wife who went downstairs and was able to administer some emergency asthma medication. Had she not been able to do that, I strongly believe that his life was in jeopardy. (#1538 --Citizen)

- I have heard the testimony of several medical doctors tonight that they believe that the smoke is a factor in contributing to asthmatic problems. My son's doctor was one of the signers on the letter that you read earlier. I have not heard any medical doctors testify that smoke is not a problem. The

preponderance of the evidence seems to be overwhelming that it is a problem, so I strongly support this proposed ban. (#1538 --Citizen)

- I have asthma and smoke is extremely hard on me. (#1044 --Citizen)

- The reason (to implement the regulation) is that I am asthmatic. This condition was not caused by grass growers. It was caused by severe bronchitis 5 years ago. Since that time smoke in the air can bring on an attack... (#1052 --Citizen)

- (We) watch our asthmatic daughter suffer each fall. (#374 --Citizen)

- We moved up to Spokane from Los Angeles 2 years ago because my daughter suffers from severe allergies and asthma. We were shocked by the grass burning the first summer we were here and have watched her go from bad to worse... (#1357 --Citizen)

- ...Asthma has put my son in the hospital many times in his short life. Most of those times his asthma was brought on by smoke from field burning. (#1587 --Palouse Preservation League)

- ...My younger daughter also experiences severe respiratory symptoms because of the smoke during grass burning season. The rest of my family experience minor symptoms, runny nose, itchy eyes and scratchy throat. We all live with the fear of the long term health effects of breathing the tiny smoke particles that lodge in our lungs and cannot by removed by sneezing or coughing. (#390 --Citizen)

Response:
Ecology agrees that the pollution emitted from grass field burning adversely affects health, particularly those with existing respiratory problems such as asthma.

Smoke from field burning increases the frequency or severity of existing respiratory difficulties.

- …It is (grass burning) making it an untenable situation for anyone who lives in Spokane who has any kind of lung problem to live here during the summer and our summers are short anyway… (#1386 --Citizen)

- …I have had tuberculosis and my lungs are badly scarred and I find it very hard to breathe when they are burning the grass. My daughter lives in Hayden, WA. and she comes here every year to spend her vacation and she is sick all the while they are burning in Idaho and she has asthma and possibly lung problems… (#1403 --Citizen)

- I have a lung disorder and when you folks do the burning, I am absolutely devastated… (#1414 --Citizen)

- …I have systemic lupus, and it has created asthma, and it is a horrible condition to experience the grass burning and every year my illness is worse because of the grass burning... My husband also has severe asthma and we can't call in sick when we have our farm chores to do, we have to be outside during the grass burning… (#1427 --Citizen)

- …Not only do I have breathing problems when it occurs, and I'm young with no history of asthma or anything, but my mother who lives with us has severe problems when it occurs, and she has asthma and emphysema problems, and has never smoked a day in her life... (#1438 --Citizen)

- …Some people have respiratory problems that are made worse when they breathe smoke laden air. I have heard that a substantial number of physicians are opposing grass burning because they have the good of

their patients in mind... (#1471 --Citizen)

- We are also bothered by the grass burning with emphysema, and the condition has gotten much worse with the grass burning. (#1474 --Citizen)

- …Our son was diagnosed at birth with Cystic Fibrosis and Chronic Sinusitis. The news was devastating and painful. The life expectancy at the time was 18 years of age. My husband and I decided to give our son the best life we could which meant numerous breathing treatments, numerous medications, and sometimes painful chest percussion to break up the thick, sticky mucous which he would eventually suffocate in… This school year, like the last three, he has started school with breathing problems due to lung infections and poor breathing because of burning… They (growers) speak of hardship… THIS is hardship. He is on 20 different medications presently and 6 breathing treatments 3 water picks treatments and 3 chest percussion treatments a day… The side effects of these drugs are deadly… (#1479 --Citizen)

- ...I live in Idaho and I suffer from respiratory problems when the fields are burned. I have a pre-existing respiratory problem and to add this intentionally directed smoke to it causes me very difficult breathing problems. (#1050 --Citizen)

- (I am a) Mother of 2 sons with muscular dystrophy. My sons have difficulty breathing after grass burning. (#1258 --Citizen)

- I have emphysema and (grass burning) is very hard on me. (#383 --Citizen)

- I have asthma and heart problems. I am on oxygen 24 hours a day and use nebulizer and cannot go out any more, and because of the air quality in Spokane, especially during the burning season, it chokes me off to where I cannot breathe... (#1367 --Citizen)

Response:

Ecology understands that the health impact of grass smoke is more frequent and often more severe for those with chronic respiratory diseases.

Grass smoke has not impacted pre-existing conditions.

- ...My grandpa...is asthmatic, and it's my belief that he has never been affected by grass burning... (#1608 --Grower)

- ...I'm an asthma person, too, and grow bluegrass, but it don't bother me any more than other things do. (#1615 --Adams Conservation District)

- ...My oldest son, Gregg, has been a severe asthmatic since he was an infant. He's 22 years old now, played football here at Freeman two days during the grass burning season, and I'm aware of how individual allergens are and how individual asthma is. He did not have any negative impact on his asthma during the grass growing season. The mold of the spring and the fall are what gets him (#1514 --Superintendent, Freeman School District)

- We have a grandson that lives in Spokane and has asthma, and the bluegrass smoke has never adversely affected him. (#1061 --Grass seed producers)

- I have asthma... My husband is a grass farmer... Like most farm wives, I help on the farm when needed... The reason I can help is that I take my medication. My asthma is no worse on grass burning days than on any other day of the year. Nor does it improve if I am able to leave the area during burning... (#218 --Grower) (Attachment)

- (In a) letter to the Spokesman-Review in 1990 a lady with cystic fibrosis suffered no ill effects from grass burning. She claims grass burning curbs are unfair to farmers. (#990 --Grower)

- As a long time allergy suffer(er) I find NO difference in my ability to breathe whether at a high or low altitude, whether blowing dust, or blowing smoke or any change of seasons. (#981 --Citizen)

- The thing that I don't understand is why they don't have more problems when we are burning our fields, in fact, my son helps with the burning. His breathing problems are more severe in the fall than they are during the burning season. All of us have health problems of some sort or other, but we do the best with what we can do at that time. (#1611 --Grower)

- ...I also respond to the ambulance response assisting them in any needs that they might have, and to this date I have never responded to a grass burning situation where somebody has had an asthma attack or any problems like that... (#1559 --Garfield Co. Sheriff's Department)

- I am a bronchial asthmatic (and) a runner. I have never had to stop (running) because of smoke from field burning (but) I have in the winter when the air is cold and smoke from wood burning is heavy. Field burning in Garfield has not had a negative affect on my health. (#1027 --President, Pomeroy Chamber of Commerce & Grocer)

Response:

There are many substances which act as allergens or contributors to asthmatic episodes. Individual reactions are varied.

Grass smoke causes respiratory problems which are otherwise non-existent.

- …I have discovered that every time we burn in this area I have trouble with breathing and I have headaches… I noticed that all through my home there is a black dust on my furniture and I wonder what my lungs must look like, if this black dust that is covering my yard and my house, is on the inside of my body and everywhere… (#1397 --Citizen)

- …I have problems which occur only during the grass burning season. That is the only time of the year I have bronchial asthma. I am on inhalers and have to stay out of doors. (#1405 --Citizen)

- …The smoke form the forest fires does not affect our health as much as the chemicals in the grass burning smoke. I get deathly sick and my grandsons have asthma… (#1406 --Citizen)

- …I'm 52 and going to be tested for breathing problems soon, and I know a big part of it is just the amount of smoke there is around here, not just from grass burning, but also the burning of the fields… (#1455 --Citizen)

- We live just below the 3,000 ft. level north of town. My wife is affected by the smoke and we live up relatively high compared to others… (#1458 --Citizen)

- …I moved over here in 1984 from Missoula, MT., and about the last four to five years every time the grass burning is going on, I have had trouble breathing and this is something that previously I'd had no trouble with whatsoever and I know it is related directly to the grass burning… (#1464 --Citizen)

- I have lived in the Spokane area for one year. I have never had sinus or allergy problems in the past. Now I do! (#391 --Citizen)

- My daughter is frequently ill during grass-burning time. She gets dizzy and disoriented, has trouble breathing, and passes out. Please don't allow this to continue. (#345 --Citizen)

- Every year my daughter gets serious breathing problems when the smoke comes into Spokane and I get headaches. (#1039 --Citizen)

Response:
Thank you for your comments.

Those with respiratory ailments have alternatives which can reduce the impact of burning on their health.

- (A) very simple, inexpensive, readily available, and very effective filter can be worn by anyone affected by air borne particulates from any source. (Enclosed mask.) (#136 --Citizen) (Exhibit)

- The newspaper this morning said something about, headlines were that a child was having problems, and there's no choices. There's really good air purifiers out there today. I think we all have choices. Farmers have choices, too. You're creating some for them... (#1612 --Citizen)

- ...And to avoid the larger patients loads in hospitals during grass-burning periods, our medical providers might assist in getting the word out for those with handicapped breathing to avoid the smoky areas. (#1073 --Citizen)

- I believe in free enterprise. If (people are having) great difficulty breathing {like asthma} I suggest (they) live somewhere else or do (their) best to plan vacation or be in (an) air conditioned house. This is an agricultural community. (#107 --Citizen)

- ...You can get one of these clean air machines, stick it in your house and it wil help you out. They sell them in Spokane, so there are alternatives. You don't have to look to government for all your problems. (#1540 --Grower)

- ...I take medication for asthma and when I am in a bad situation I also wear a mask. It is my choice to live this way and more regulation is not going to help the fact that I have asthma... My problem is not the result of any one source but from many sources... (#1313 --Grower)

- ...(There are) new protective filtering devices and new medications... Our allergies can’t be escaped simply by moving out of these agricultural surroundings not by obliterating the surroundings. (There are) protective technologies available to us, which many of us farmers and their families, too, have to use... (#1019 --Grower)

- I have allergies to barley dust, that if I do not take care of myself, leads to pneumonia. I have had two doctors tell me to change my lifestyle. I choose to live here and will not form a group to go out and ask barley growers to quit growing barley because it is detrimental to my allergies and is detrimental and could be life threatening. If a person cannot handle the smoke in an ag(riculture) area like Whitman County, they can move. They have that choice, but if they stay, these people must accept the consequences. (#1584 --Citizen)

- Our compassion for the allergy sufferer is genuine and (their) allergies shared, but there are protections available... (#1019 --Grower)

- ...There are air purifiers that claim to do a good job of cleaning the air in your home. If I had a health problem, a breathing problem, I would own one of those things. Now it seems to me that the people that have made such a point of being so opposed to farmers wanting to keep in business, I would just like for those people to by one of those air purifiers and stop (complaining)... (#1596 --Grower)

- My doctor informed me that my allergies were so severe they could escalate to asthma. I stayed in the house May and June every year. Did I ask all the farmers to quit growing their crops. No! Did I ask every one in Spokane to cut down their trees and shrubs. No! I learned to live with my infirmity. The bluegrass growers burned nine days last fall. Nine days is a lot less than two months. People can learn to live with their infirmities just as I did. (#1332 --Citizen)

- I sent my wife to Spokane today and (she came) back with a little thing that's a health and home air cleaner. We (have) been looking for alternatives, and I think we just found one for people that have kind of had a problem with breathing during the smoky season, a little bit of personal responsibility during that season. You go buy one of those things, and you should be able to have a little less health effects,...at one time you mentioned the severe adverse environmental consequences... (#1513 --Grower)
- ...I remember raising a son who developed asthma at two-and-a-half, learning to give his desensitization shots, and taking the responsibility for his health care. He grew up in the midst of bluegrass fields on our farm and now is a bluegrass grower in his own right... (#1507 --Grower)

Response:

Ecology is trying to balance the needs of the agricultural community with the Department's mission to protect air quality for the benefit of all of its citizens. According to the Washington Clean Air Act (RCW 70.94.011) it is the duty of the state to secure and maintain levels of air quality that protect human health and safety, including the most sensitive members of the population. The intent is also to prevent air pollution problems that interfere with the enjoyment of life.

Smoke from field burning aggravates my allergies and causes sinus infections.

- ...I myself have allergies and get very sick each year when the smoke fills the air. The grass farmers should be denied the right to pollute our air and injure my family's health. (#208 --Citizen)

- Every fall my husband and I notice a huge difference in how our allergies make us feel. I know that lately my eyes burn and itch terribly and it has affected my vision. My husband is on 3 inhalers right now and we believe it is aggravated by the burning. (#1346 --Citizen)

- …I am very allergic. I have chronic bronchitis and (am) unable to go out because I have been quite ill and haven't gone out at all this summer because I don't feel safe the days I felt like going... (#1387 --Citizen)

- …The other thing is that I get sick. I don't have asthma, I don't go to the hospital, but I have a sensitivity to irritants, and I've been to allergists and there is nothing that can be done… (#1409 --Citizen)

- …I, and my children, have many, many allergies and this (grass burning) is very detrimental to our health. (#1424 --Citizen)

- …I am allergic to smoke and dust. It is clearly unhealthy. What's not good for some people is not good for other people. (#1446 --Citizen)

- …My wife has suffered and is really allergic to the smoke. She breaks out with sinus conditions every time they burn. (#1459 --Citizen)

- …My allergies are far worse during the grass burning time. My eyes burn and itch and are red and nothing I can take from a prescription standpoint alleviates this. (#1433 --Citizen)

- ...As an allergy sufferer living in the Tri-Cities, I am severely affected every year by the field burning which takes place in our area... (#1295 --Citizen)

- ...I am allergic to smoke, any kind of smoke. My eyes burn and sting and become swollen. My left eye is still swollen from Tuesday. My throat closes up, becomes sore, and I get laryngitis... (#1534 --Citizen) (Exhibit)

- My daughter who is 11 has asthma. She is a perfectly, normal, healthy little girl except that she's allergic to dogs, cats, and she's sensitive to smoke. And it's not just grass smoke, I'll agree. It's the forest fires; it's cigarette smoke, but it is also grass smoke. Grass smoke can be controlled. (#1545 --Citizen)

- ...I am extremely allergic to grass. I receive allergy shots for this every two weeks. Late summertime every year, I can expect a sever sinus infection, always following the first burning dates... (#330 --Citizen)

- Grass burning creates a major concern to me and my wife since we often get sinus infections because of smoke irritation… (#1394 --Citizen)

- My wife and I both, during the burn season, have a tremendous sinus condition, and we don't go to the doctor, we just live through it. But there are thousands of people in Spokane that don't go to the doctor but that have a sinus condition each year… (#1401 --Citizen)

- …I was out 30 minutes a couple of days ago when the smoke was so thick it was like driving through a forest fire, and now I have a sinus infection and my son has very very light allergies, really, hardly anything, but every year when this grass burning starts, he starts coughing at night, and has been coughing at night for about 2 weeks, and then I get sinus infections. (#1481 --Citizen)

- I am tired of the sinus infections year after year when they burn the grass fields! It happens every time! (#1624 --Citizen)

- I have many times had to seek medical help because of inflamed and infected sinuses due to smoke in the air caused by grass burning. I have many times told my husband I should forward these bills to the grass growers... It's hard to imagine that these few individuals can cling to the past and continue with their moronic attitudes in regard to burning grass, while thousands more are confined to their homes with bursting lungs and tearing eyes. (#26 --Citizen)

Response:
Thank you for your comments.

Grass smoke causes allergic reactions.

- Since moving to Coeur d'Alene I have developed allergies and asthma... (#205 --Citizen)

- I am allergic to it (grass smoke). I have a lot of medical bills this season and my doctor says it is from the grass burning. (#1399 --Citizen)

- I am calling to add my complaint about the grass burning in this area because it causes me severe allergies every year. (#1467 --Citizen)

Response:
Your comments are noted and appreciated.

Grass field burning causes me or a family member eye irritation, headaches, coughing, congestion and sore throats.

- I have an artificial eye and during the burn season I experience a lot of discomfort and even infection of the socket. (#63 --Citizen)

- This year, for example, my 1 1/2 year old baby girls were coughing and could not sleep at night... (#208 --Citizen)

- I cannot breath! Choke (throat) nose dry & or sinus. Eyes red, burn & headaches. Makes me sick and ruins our summers. (#300 --Citizen)

- …My son comes home from school on days when burning has occurred and he has complained of headaches, nausea, and physical activity at school is very difficult for him. He can hardly breathe in it. He has nose congestion - it's truly a health issue here… (#1392 --Citizen)

- ...It (grass smoke in Walla Walla county) causes a lot of health problems for me and my family. We have problems with our eyes burning, chests hurting and all kinds of things… (#1407 --Citizen)

- It causes my husband and myself - makes our nose run, brings on coughing and asthma, which lead to other respiratory problems. (#1412 --Citizen)

- …Every time this grass smoke comes, I have a cough, my eyes are irritated, not like there is smoke right in them, but they are bloodshot and irritated and scratchy feeling… (#1426 --Citizen)

- …My nose is plugged up, and I have a headache, and my doctor says it is just this (grass smoke)… (#1456 --Citizen)

- ...It (grass smoke) burns my eyes and burns my throat... (#1484 --Citizen)

- ...Every member of my family suffers from congestion, swollen eyes and itching skin during the "burning" season... Please act to clean up the air in the Central Basin now. (#1295 --Citizen)

- I am a healthy woman, I exercise regularly and I really enjoy the outdoors but when the smoke from the grass burning begins I stay inside as much as possible. If I am outside for a short period of time, my eyes burn and become red and swollen, I begin to cough and experience some congestion. This does not happen to me any other time of the year. I would appreciate anything you can do to continue to enforce the Grass Seed Field Burning Rule to protect the health of all of us in this great community. (#389 --Citizen)

- I'm one of those people who suffer headaches and nausea, and I get sore throats, and I get very upset and irritated... (#1522 --Citizen)

- We never considered field burning a problem until about three years ago when one of our children came home with a dry cough and complained that the air in and around the Colton school was smoky all day... I found it hard to believe that a farmer would burn a field so close to the school during school hours. (#1067 --Citizen)

- We live northeast of the grass fields and for 14 years we had to put up with the "Ideal Burn." Our symptoms, as a result of grass burning included severe headaches, sore eyes and throat and mental anguish! What next? Hospitalization? (#1257 --Citizen)

- During burning season, I get a sore throat and become very congested. The smoke in the air causes a lot of problems for residents in the area, ranging from mild congestion to severely aggravating conditions such as asthma. (#4 --Citizen)

- I've suffered with burning eyes and lungs during the absurd grass burning experience... (#367 --Citizen)

- Though we do not have active health repercussions now, we know this smoke is bad for our health. We can feel a heaviness in our lungs if we are outside too long in the smoke. (#20 --Citizen)

- We are opposed to any grass burning because it affects our health. My wife and I both feel it in our lungs and have difficulty breathing and have heart problems… (#1355 --Citizen)

Response:
Ecology is aware that studies show that fine particulate matter, which is in grass smoke, has an impact on health. Thank you for your comments

Grass smoke chemicals are hazardous to the health of the chemically sensitive.

- I am speaking for those whose chemical detoxification systems no longer function for a variety of reasons, and therefore can no longer handle most chemical exposures... There are about forty organic chemicals in grass smoke, including benzene, toluene, carbon monoxide, and formaldehyde. Many of which are carcinogens or can cause neurological damage. Some of these chemicals are known to affect personality, can cause inappropriate responses, panic, depression, confusion, memory lapses, and inability to think clearly or "brain fog." They may also be responsible for potential reproductive problems, fatigue, muscle pain or weakness, headache, nausea, eye and throat irritation and insomnia. (#1049 --Citizen)

- I am disabled with Multiple Chemical Sensitivities (MCS). Summertime is my best season--until the burning starts. From the chemicals in smoke from grass burning, I experience severe fatigue, confusion, emotional liability, increased muscle pain and weakness, headaches, dizziness, nausea, etc. I have air filters and ozone machines in my home as well as oxygen, but they don't completely protect me during grass burning. I'm miserable. (#294 --Citizen)

- I suffer from both asthma and vascular headaches. Chemical irritants, including grass smoke, are the primary cause of my symptoms in both conditions. (#27 --Citizen)

Response:
Your comments are noted and appreciated.

The health effects of grass smoke are similar to those of second hand tobacco smoke.

- ...The facts of the health impact have been clearly set forth by the medical community. It is vital to note that our children are a group at greatest risk in the smoke trespass over our communities. The small particles in the grass smoke are the product of low temperature combustion and can be equated to second-hand cigarette smoke in the impact on our lungs. The lungs have no defense against these small particles and the results are cumulative. (#329 --Sandpoint Clean Air Coalition)

- …I strongly feel it (grass burning) is similar to the second hand cigarette smoke where I have the choice to stand up for myself and not accept something that someone else is trying to pass off as something that is not affecting my health, when in fact I think it is. (#1415 --Citizen)

Response:
Your comments are noted and appreciated.

We must increase doses of medication during periods of grass field burning.

- We are sick and tired of the smoke that takes our summer away. I am asthmatic and have had as much as 100 mg prednisone to control breathing. Our home is for sale partly due to the smoke. (#43 --Citizen)

- Today's smoke caused me to plug up so I can't breathe without the use of antihistamines and the ONLY decongestant that still works on me, Afrin. My daughter is also on medication. Please stop! (#252 --Citizen)

- (Our) son who has asthma, suffers every year when the grass burning takes place. We are required to use stronger medication ,steroids, ...(which) causes discomfort for him... (#388 --Citizen)

- ...We have two of those machines (air cleaners). We have electronic filters on our furnace, but she still requires more medication when there's smoke in the air, and I want to say as a mother that it's really agonizing to watch your child go off to school, and then you're watching the sky all day, and you see those grass plumes coming up, and what do you do?... (#1545 --Citizen)

- I have asthma and have nothing but extra trouble when they are burning and I have to use more medications... (#1347 --Citizen)

- I am calling because of the difficulties I have experienced the last few years whenever the grass burning has been taking place in the Spokane area. This year has become a major problem, in the sense that I have been on two medications, both inhalers… I cannot describe to you the pain one feels in their chest when they are unable to get clear oxygen to their lungs. (#1408 --Citizen)

- ...We know of parents with young children who've required medication and/or hospitalization for severe asthma attacks... (#1291 --Citizen) (Attachment)

- Every year the grass farmers burn I get sick from the fine smoke particulates. My asthma flares and I endure high dose steroid shots and I have been hospitalized. Can anyone understand how serious the health risks are for people like myself, our families and neighbors? (#363 --Citizen)

- ...I have had to increase my use of inhalers, antihistamines of shots as well as suck on copious quantities of mint cough drops to help me breathe. (#367 --Citizen)

- I am asthmatic and cannot leave my home during grass burning. I must also increase medication. (#1625 --Citizen)

- I am a laryngectome and when they burn I can't breath. I have had to get shots and then more prednisone to make me breath somewhat better. (#1326 --Citizen)

- ...On one occasion during the burning season he suffered an asthma attack that requir(ed) us to take him to (the) emergency room... (#388 --Citizen)

Response:

Your comments are noted and appreciated.

Emotional distress occurs as a result of the health implications of grass smoke.

- ...This deep hacking cough they have scares me as my babies have experienced excellent health until the burning season... (#208 --Citizen)

- ...You think, oh, my goodness. Is she going to get to her inhaler on time, or isn't she? Is she going to go out to PE and collapse, or is she going to make sure she gets her inhaler on time? When she goes to her friend's house, does she have her inhaler. Doesn't she have her inhaler? It's a problem not only from a medical cost because, yes, you pay for these extra medications, but from an emotional cost. (#1545 --Citizen)

- I have two grandchildren with breathing problems living in this area and I hate to see them suffer every single summer when they should be having their most fun… (#1350 --Citizen)

- ...We got caught in a huge field burn at Ritzville. There was no way we could protect ourselves from the choking smoke. For someone with asthma that is a dangerous and frightening encounter... (#1297 --Citizen)

- ...They are held hostage, watching the suffering of their children, due to agriculture's chokehold on our communities... (#1291 --Citizen) (Attachment)

- ...I have a son that is ten years old. He was born diagnosed with cystic fibrosis and asthma. In the last ten years every time this season, my son has suffered five to six weeks, sometimes minimally two to three weeks, of IV antibiotics. If we're lucky we can do inhaled Topramyicine and other oral antibiotics, but most of the time, it's IV antibiotics which is painful to explain to a child that's ten years old, I'm sorry, you've have to go in. It's tough. He's a fourth grader right now in a Spokane Valley school, and he wants more than anything to be a normal, typical ten-year-old boy. He doesn't have that opportunity. He can't go out for recess because he's forced to stay in and sit in the nurse's office, so he's not able to be with his peers, socialize with his peers... He can't play sports because he can't breathe when this is going on in the fall... He spends a good percentage of his time in and out of the doctor's office, hospitals, the lab, the pharmacy, and all of this because of burning. And sure there's other elements, other variables that come into play, but a big part of it is burning. For example--this last Monday, he went to school, came home--3:15, in tears, devastated because he couldn't breathe on the playground, and came home, ended up doing six breathing treatments a day for the next two to three weeks. He's on 20 different medications. He's doing water pik to keep his sinuses clear. You know, we're not talking about a livelihood--we're talking about a child's life... There's nothing I ask for, and nothing I would ever give to someone else as a heartache, watching your child suffer. (#1533 --Citizen)

- ...Several of our members suffered severe health hazard affects from the agricultural burning that occurs in our area in Pullman and Moscow. I'm going to read testimony from one of our members. She is writing in support of the proposed amendment to the agricultural burning rule and to ask DOE (Department of Ecology) to go even further in its efforts to eliminate all field burning. "This is a major health issue in our area. As I was driving home tonight, I thought about how tired I am and how I would just like to stay home, but what appeared to me was hundreds of stubble fields around my home in flames and smoke colored the sky gray. I was in tears as I reached home with my two-year-old son, strapped in his car seat asleep, thinking about the trip that we would probably be making to the emergency room tonight... (#1587 --Palouse Preservation League)

Response:

Thank you. Comments noted.

Me or my family's normal activities are restricted during grass burning season.

- …My health keeps me out of the area while all of this is going on… (#1465 --Citizen)
- ...There were certain days this last fall that I haven't even been able to go outside and work or anything... (#1484 --Citizen)
- ...During the grass burning season my mother can't be outside for any amount of time, other than going to and from the car... (#1032 --Citizen)
- My husband suffers from bronchial asthma, and because of the grass field burning in Spokane county yesterday, he was confined to our home. We had to cancel our plans to celebrate his daughter's birthday with her. (#1259 --Citizen)
- Grass burning ruined a nice visit. My eyes and nose watered (and I) coughed. (#377 --Citizen)
- I cannot simply retreat into my home with high-tech filters to escape the smoke either. In the first place, I couldn't afford the equipment, and secondly with my family I cannot keep the doors shut at all times to prevent the smoke from entering my home - in short, my family will not be prisoners to the smoke! (#27 --Citizen)
- Our lungs burn, our eyes sting and water and so we must stay indoors... (#28 --Citizen)
- ...Air filters are not a solution. The DOE (Department of Ecology) needs to look at the ways in which grass burning sufferers attempt to mitigate the harm done to their health by their use of air filtering systems, leaving the area, staying indoors, increasing medications and increasing breathing treatments. These methods are not that successful... I don't believe those who suffer from grass burning are given credit for trying to reduce the ill effects to their health... (#1293 --Citizen)
- ...It is dreadful to be trapped inside a hot house with the windows closed... (#86 --Citizen)
- I am unable to attend the hearing regarding the grass burning as I have been forced to leave my lovely home because of the smoke. I have asthma and since they only burn their fields when the wind blows this way I cannot breathe in my own home. We built our home in 1978 on Pend Oreille Lake since they burn the fields my asthma has gotten worse each year to where I must leave or take a chance on becoming their next victim. Since they no longer even have a time limit I have no idea as to when I can return home. Is this fair? I don't think so. There is an alternative for them, I am not given one. (#127 --Citizen)
- ...I have also had to purchase a clean air machine which I carry between my home and the office. Yesterday, September 9, 1996, was the worst day I have ever seen for air pollution. I was concerned if I would even be able to go from the office to my car so that I could drive home to Hayden after work, around 5:00 p.m. (#205 --Citizen)
- My mother has lung disease and she literally becomes a prisoner in her home when burning is going on. (#304 --Citizen)
- My mothers health suffers when the smoke comes our way - She has to stay in the house the whole time! (#309 --Citizen)

- Every year during burning season, I am unable to work due to chronic sinusitis and ear infections... (#1340 --Citizen)

- I have a child who has asthma. He attends Dayton Elementary school in Dayton, WA. Every year we have lived here, for the past 4 years, he has missed school in the spring because of field burning and it has always been a problem for him. (#1343 --Citizen)

- ...You cannot go outdoors and pick up children from school. It is a very difficult situation... (#1345 --Citizen)

- I am 79 years old and I have emphysema and when the fields start burning and the smoke starts coming up I can't go outside, I have to stay inside. I have to keep the doors and windows closed and often use oxygen, so I am definitely against field burning. (#1353 --Citizen)

- …I have severe asthma and when the grass burning goes on, I can hardly leave the house except to dash to my truck. I can't work in the yard or take my daily walks because I can't breathe very well… (#1363 --Citizen)

- ...I am no longer able to go out and sit in the yard when it (the grass field) is burning. I am limited to my home. (#1372 --Citizen)

- I have lung cancer and it looks like I will have to leave the Spokane area and go somewhere where I won't be exposed to this… (#1379 --Citizen)

- …I was diagnosed a year ago with interstitial pneumonitis and I have adult asthma, and I cannot leave the house right now without an air mask on because of the smoke in the air... (#1386 --Citizen)

- …We were gagged and stifled by it several times and my wife has a lung problem and we were about to call a motel 60 miles away to get out of the smoke and suddenly the wind changed and started to clear, so we didn't go… (#1403 --Citizen)

Response:
Your comments are noted and appreciated. The Washington Clean Air Act (RCW 70.94) includes in its intent the prevention of air pollution problems which interfere with the enjoyment of life, property or natural attractions.

Smoke from grass seed field burning has negative health effects.

- …I am hoping this kind of activity (grass burning) has to stop. Our health is at stake, not to mention the beauty of our community. But primarily it is a health issue… (#1375 --Citizen)

- ...Our children should be free to breathe without the fear of illness due to repeated exposure to these deadly particles. (#1047 --Citizen)

- ...I live in Bonner County, Idaho which is one of the targeted areas to receive the smoke from grass field burning in Spokane County and Rathdrum. The smoke which blackens our skies is damaging my lungs and general health and well-being and I want this practice stopped as soon as possible. (#1056 --Citizen) (Attachment)

- I am asthmatic and moved to this region several years ago to live in a clean air environment... My condition is not bad enough where I require medical attention, but I still get sick when I have to breath grass smoke... (#1058 --Citizen)

- In the case of grass burning it would be irresponsible not to realize that there is a smoke pollution problem as evidenced by the medical testimony that has prompted the burning ban. (#1007 --Grower)

- Grass smoke makes me ill. I don't have to go to the hospital. The times I've been stuck in it, trapped in it, I get claustrophobic. I get just, I got to get out of there. I got to get inside of the building. I know it's not good for me. (#1519 --Citizen)

- When visiting friends who live north of Coeur d'Alene, the first week of September, we found the smoke intolerable. I suppose the grass growers would have us believe the smoke is harmless to our health. As harmless as smoking 2-3 packs a day or maybe .2% alcohol on the highway. At least the grass growers don't discriminate! They foul everyone's air. The young, the old, the sick. (#19 --Citizen)

- We also do not want this smoke to be directed toward Idaho! We have health problems as well as the Washington people do. (#126 --Citizen)

- That last burn at the same time as the wildfire smoke was nearly a killer. (#39 --Citizen)

- Burning grass fields after harvest pollutes the air we breathe and endangers our health. (#286 --Citizen)

- This burning belongs in the past and should not be done in the future. I thank the Department of Ecology for taking this position and protecting my family's health. (#288 --Citizen)

- The (burning) has caused me to suffer for years. I am now 45 years old. I was born and raised in the Spokane Valley. This burning of the fields is something that I have never understood, even as a boy. (#295 --Citizen)

- I would like to see that the grass seed field burning rule be implemented because I am an asthmatic. My daughter has breathing difficulties during the fall and summer and I would really like to see the rule be implemented for our health. (#1352 --Citizen)

- My wife and I both have (health) trouble when all the smoke is going on… We don't feel they should be burning the grass… (#1368 --Citizen)

- …The health risks and growing pollution in our area demands that something be done and I am all for reduction and future elimination of burning in our area. (#1369 --Citizen)

- We are in favor for the end of grass burning. My husband is asthmatic and has many problems… (#1377 --Citizen)

- …I believe it affects my health, (and) costs me additional money for treatment and medications. I believe this is detrimental to the health of every person who has to breathe their stinking smoke… (#1378 --Citizen)

- I would like to state my opposition to the burning of grass fields in Eastern Washington. I am 52 years old and I know they have contributed to my asthma over the years… I truly believe this is a significant public health hazard. (#1381 --Citizen)

- I feel that the particulate released into the air due to grass burning is a significant health risk to many people including two members of my family that have asthma. (#1384 --Citizen)

- …Burning is a public hazard and a threat of everyone... (#1391 --Citizen)

- I am totally against grass burning and think it is a health hazard that needs to be eliminated ASAP. (#1398 --Citizen)

  …They should not be burning their fields when there is even the slightest hint of causing either (in)convenience or health damage to citizens in Spokane or the Greater Spokane area. The medical evidence seems to be overwhelming… (#1400 --Citizen)

- …I believe that the Spokane Medical Society, American Lung Association, and the Washington Department of Health, states the grass smoke is a health hazard… (#1402 --Citizen)

- …The smoke has been a tremendous health hazard to our family and I hope the grass growers will stop burning and you will help them see the wisdom of this through your authority. (#1422 --Citizen)

- …I believe it should be discontinued if people are getting sick, and perhaps dying… (#1432 --Citizen)

- ...I know it causes me severe health problems every year and we know many other people. (#1441 --Citizen)

- I am strongly against the burning because of public health. (#1443 --Citizen)

- I am strongly opposed to the grass burners being allowed to burn when it damages the health of so many many people. (#1477 --Citizen)

- ...The data from SCAPCA (Spokane County Air Pollution Control Authority), the Idaho DEQ (Department of Environmental Quality), and the testimony of over 300 Spokane area doctors indicate that people are profoundly suffering... (#1293 --Citizen)

- ...Smoke from burning grass fields contributes to air pollution and has a negative impact on the public in terms of health, aesthetics and nuisance... (#1316 --WSU/Spokane County extension agent, agronomist)

- ...I commend you in your effort to protect your people's health from this harmful practice... (#1294 --Citizen)
- Please stop subjecting us to this grass smoke. This unhealthy practice must come to an end. (#365 --Citizen)

- Three-hundred-and-sixty physicians, the Lung Association, the Washington Thoracic Society, the Spokane Medical Society, and affidavits that will be submitted from local physicians tonight combine to testify to the need to regulate grass smoke to protect public health... (#1518 --American Lung Association)

- ...Having read that asthma is the fastest growing childhood disease, our negligence in numerous areas is sentencing another generation to chronic illnesses and even early deaths... To ignore the suffering is to legitimize chemical trespass on a massive scale. (#1291 --Citizen) (Attachment)

- As a school teacher and mother of a son with asthma I am concerned about the health effects in children's lives because of our reduced air quality. Twenty-plus years ago when I began teaching it was rare to have a student with asthma. Now it is the norm to have several in every class. (#6 --Citizen)

Response:

Ecology is aware that studies show that fine particulate matter, which is in grass smoke, has an impact on health. Thank you for your comments

Grass smoke is responsible for permanent, negative health effects.

- The small particulates (from grass burning) in the air seem to remain there indefinitely causing asthma and heart problems… (#1436 --Citizen)

- ...In September 1982 our previously healthy 21 month old son was hospitalized for three days with very acute asthma when farmers torched their field. They also torched his lungs... He has never been able to play basketball, soccer, football or run. I cannot express the depth of our loathing for the greed that destroyed his health before he had a chance to be a regular kid. (#289 --Citizen)

- I am calling because the smoke has damaged my lungs... (#1372 --Citizen)

Response:
Your comments are noted and appreciated.

Health effects from grass smoke extend beyond the burning season.

- Further, those of us with asthma suffer for months after August and September because it takes us that long to get our breathing back to what it was before the burning. (#254 --Citizen)

- ...After the burn season, it still took my lungs another 3 weeks to heal and breathe without inhalers... (#1344 --Citizen)

- …The last two falls my health has been effected. Last year, I ended up being sick starting the month of September, and I didn't get well until the middle of January. I ended up being seen and treated by three different physicians, two of which were specialists, and had to go on multiple medications and a variety of pills, and also nasal and respiratory inhalers… (#1382 --Citizen)

Response:
Thank you for relaying your experience with medical treatments that extend beyond the grass burning season.

The grass smoke is not bothersome.

- ...I have never, ever been bothered by a burning grass field from Garfield County or any other county... (#1562--Grower)

- You're talking about burning one or two days a year and I personally don't believe it is bothering people as much as the ones who are saying it is. It is not bothering me, so I'm for it. (#1450 --Citizen)

- ...The fall season has always been a smoky hazy sky. It was that way prior to growing blue grass. I do not believe -- there is not one person affected to any great degree from burning of grass stubble… (#1470 --Citizen)

- ...In my seven years...in the Freeman School District, I've yet to receive my first call from a concerned parent in our area or in any other area during grass burning days. (#1514 --Superintendent, Freeman School District)

- ...I live right in the area where a lot of burning goes on and I find it is not a problem to deal with for such a very short time. The advantages far out weigh any of the minor disadvantages. (#1308 --Citizen

- ...When I worked on the farm, I would come in at night completely covered with dust from head to toe. The only place that you could see there was skin was when I removed my goggles. I don't believe that the dust has hurt me at all... (#224 --Citizen) (Attachment)

- ...It (grass) cleans the air as it's growing 364 days of the year, but that one day it's burned, it adds a little bit of particulate matter that usually goes straight up in the air and bothers nobody in this area. I don't think that it bothers anybody in Spokane either... (#1553 --Citizen)

- How can grass burning be the overwhelming cause of lung disease when it contributes such a small percentage of the total PM_{10} particulates? My contention is that the bluegrass burning season does not furnish a rush of lung patients. (#214 --Citizen)

Response:
Ecology understands that the smoke does not adversely affect all people. (Please see the response to "There has been no change in health statistical data since the onset of grass burning.")

People with respiratory ailments support the amendment.

- I only have one lung. (#61 --Citizen)

- I am in favor of the proposed amendment to the agricultural burning rule that would reduce the number of acres of grass fields that can be burned. I can't wait for clean air. I have bronchitis and asthma conditions, and I can't wait for the grass field burning to end forever. (#130 --Citizen)

- I have only one lung so it is very important... (#275 --Citizen)

- Yes-yes-yes - Bonner Co. gets all the grass growers smoke. My wife is 75 years old and I'm 65. I had a heart problem in 1985 and have chronic bronchitis and allergies make it difficult to breath - at best... (#310 --Citizen)

- I have a lung problem and I would like to see the smoke stopped ASAP… (#1371 --Citizen)

- …There are so many people with respiratory ailments, I for one. (#1413 --Citizen)

Response:
Your comments are noted and appreciated.

Grass smoke impacts the health of other organisms.

- Because of the smoke problems, we have literally spent thousands of dollars on medical bills over the years. We operate a small non-profit wildlife shelter, and the animals also get sick every year and need medical attention... (#1389 --Citizen)

- We have animals that have been around the burning and we have had to have the vet come and see them because of respiratory problems after the burning… (#1395 --Citizen)

- Animals often times do not have the luxury of being able to go indoors the way people can. They have to breathe it. (#50 --Citizen)

Response:
It is the intent of the Washington Clean Air Act (RCW 70.94) "to prevent injury to plant (and) animal life."

Comments on the Economic Analysis

Growers should not be allowed to profit at the expense of public health.

- Please stop all field burning for profit... If (grass) is burned to boost crop production and profit margins at the expense of dangerous air pollution, then it is your duty as a government agency to protect all citizens from any type of pollution... Do your job!! (#1041 --Citizen)

- The economic benefit does not outweigh the health effects. (#374 --Citizen)

- I hope you will do all you can to continue to enforce the Grass Seed Field Burning Rule. The health and lives of my loved ones are much more important than the almighty dollar. (#1048 --Citizen)

- It is unconscionable that a few more dollars of profit have been used as a justification for an untold amount of damage to the health and welfare of thousands and thousands of people... (#1056 --Citizen) (Attachment)

- It is my opinion that the farmers avoid using alternatives to burn their fields because the alternatives are more expensive, not because they are unfeasible... (#208 --Citizen)

- ...It seems unconscionable to allow financial profits of so few to hold the rest of us hostage, not only spoiling vacations and the enjoyment of the final sweet days of summer , but more importantly, putting the very lives of citizens in danger. (#7 --Citizen)

- It seems very unfair to me that anybody has to live with the smoke from grass growers' indulgence in a practice that is used to save themselves money at the expense of everybody else. If ever we needed government intervention it is with a crime like this one. (#284 --Citizen)

- The grass growers are getting rich on our health problems. (#310 --Citizen)

- …We don't need to be supporting people who are not really farmers, but are in the business of making money at the expense of the people who have severe respiratory problems. (#1457 --Citizen)

- We shouldn't have to suffer for the few that make money, and it's very few... (#1459 --Citizen)

- I am absolutely against any field burning. It is strictly profit that motivates these people and the Spokane air is terrible... (#1380 --Citizen)

- …This grass burning business is unnecessary, rude and (it) is insensitive of these people to do this and ask our community to suffer like this. It benefits the bank accounts of just a few people and hurts tens of thousands of people in our community... (#1381 --Citizen)

- …Blackened skies are obviously not good in any way for the people of Spokane and the whole area. Health problems and lost tourist bucks are facts, not an apparently endless argument by these 100 or so plus greedy people and their attorneys and political friends, that they are still trying to make their easy bucks… (#1385 --Citizen)

- Why are other people allowed to ruin our lives for money! (#309 --Citizen)

- Money is an issue, of course, for the victims as well, but I think more so than money, let us think about the health and what it is doing to our productivity's as individuals. (#1408 --Citizen)

- ...Nothing could be cheaper and increase their profit margin better than just throwing a match to the fields at the expense of our health. (#208 --Citizen)

Response*:*
Pre-rule burning of grass seed fields allowed growers to produce grass seed without fully accounting for the health and non-health costs imposed on the public. The economic analysis conducted for the rule indicates that there is substantial benefits to reducing smoke but that growers will earn less income after the rule is adopted than before. Rule adoption is not dependent upon the magnitude of profit from their grass acreage in pre-rule conditions but on whether the probable benefits outweigh the probable costs. The economic analysis conducted by WSU indicated a best estimate of probable benefits at 8.4 million dollars per year compared to a best estimate of probable costs at 5.6 million dollars per year. Total probable benefits were estimated between 6.6 and 10.2 million dollars and total probable costs between 3.9 and 7.9 million dollars.

Other businesses are responsible for protecting public welfare, so the growers should also be responsible.

- Individuals and companies in other sectors could increase their profits if they did not have to engage in practices that benefit the general public in terms of health and safety. Why should grass growers be different? (#210 --Citizen)

- ...Growers seem to say that burning is an integral part of their livelihood; that it helps the economy; and that it helps the environment. I could use the same arguments to support starting a new back-yard tire-burning business... Of course my arguments would be preposterous. (#396 --Citizen)

- ...There are other more effective, albeit, perhaps more costly and short-term ways to handle such things. Farmers can afford to burn because they don't pay off-farm costs of their actions like every business, increased health-care expenses, water pollution, declining future productivity, etc. If farmers were assessed a real estate fee for field burning, this practice would come to a halt in the Palouse... (#1587 --Palouse Preservation League)

Response:
Many industries in response to regulations have had to incur additional costs to prevent or clean-up environmental damages. These industries, in terms of economics jargon, are internalizing the cost of their externalities.

Grass burning has a negative economic impact on tourism industries and the economic health of the rest of the community.

- …I think the grass burning severely hampers tourism, trade shows, etc., during the period grass burning commences… (#1360 --Citizen)

- ...(I attended) a national convention this weekend at the Coeur d' Alene Hotel... We had about 200 people there from all over the United States... They were going out to play on the wonderful golf course... It was gorgeous in the morning, and then about 12:30, there were these huge plumes of smoke that came up, and Coeur d' Alene was just enveloped in smoke. From my Coeur d' Alene room, I could not see across the bay. It was awful, and my first thought was, Oh, my goodness, are any of those people going to have respiratory failure out there on the golf course today? You know, is something horrible going to happen, or are they just going to be inconvenienced? Well, I can say that no one died on the golf course that I know of that day, but they came back, and their eyes were watering and itching, and they were coughing, and they were saying, "What is this? What is this?" And I explained what it is. They were astounded. I had comments like, "This doesn't happen in our area of the nation; we have burning regulations. We can't

burn outdoors." They were amazed, and I can tell you, and the executive director will tell you, that they will not be back in the fall certainly to this area... (#1545 --Citizen)

- ...A study by the Sandpoint Chamber of Commerce indicates that the economic losses from the effects of field burning on tourist trade far outweigh any other possible benefits of continued burning. A politician recently said that those affected by smoke should stay indoors or take a vacation. This illustrates the dilemma of a tourist looking for a smoke-free room in our area, only to find upon arrival that it is smokier outdoors than indoors. He has two choices at this point--he can stay indoors, or he can take his vacation to another area. He may well decide that he will not be back the following year. (#1521 --Citizen)

- Our out-of-town company has already wised up and do not visit during the burning times, so it becomes a detriment to the merchants in the area also. It's not only become a health problem, but also a financial burden for the rest of us to bear. (#26 --Citizen)

- …This community is trying very hard to better itself, to have industry come in and have more population move in and this (grass burning) is not helping at all... (#1386 --Citizen)

- ...The grass industry's continuing courtroom and political campaigns to lift all bans on burning can only be determined detrimental to the economic health to the rest of our community. (#1521 --Citizen)

- Sandpoint businesses depend on tourist dollars not grass seed! When the sky is so full of smoke that our visitors cannot see the mountains they don't return. We will gladly pay a little more for grass seed in order to be able to breathe clean air and make an honest living in the state that we love. Keep your smoke in Washington. Don't blow it into Idaho. (#285 --Citizen)

Response:
The presence of smoke in the air is likely to affect tourism. WSU conducted a contingent value survey of 1,561 households in Spokane, other areas of eastern Washington, and Kootenai and Bonner counties of Northern Idaho. This survey directly estimated the value of smoke reduction from the point of view of the average household in the affected areas. It estimated combined health and non-health benefits, including but not limited to, the benefits of enhanced recreational opportunities and aesthetic effects of improved visibility accruing to individuals. The benefit-cost analysis did not include estimated losses to the recreation industry in Northern Idaho.

Grass burning is responsible for lost income.

- ...My effects last long, and after the burning season, and I had to quit my job and stop working, and I'm going to get back there tomorrow... (#1602 --Citizen)

- ...Besides the medical expenses for doctors and antibiotics (I am also highly allergic to most antibiotics so an infection is not simple to cure), I also miss several days of work. By profession I am an artist. This year I had a two week deadline for the designs for a complete line of fabric. During this time the grass fields were burnt in Greenbluff, which is close to my home and work place. In the middle of my project I developed a sever sinus infection, consequently I was 3 days late for my deadline which in turn affected many business people. (#330 --Citizen)

- …If anyone looked at the number of days lost to illness, people having sinus and respiratory problems while the burning is occurring, they would find this is pretty darn expensive for the state in general… (#1442 --Citizen)

- As a singer who performs around the area in the summer, I can personally report that the smoke from field burning has caused me much discomfort, burning my throat and greatly affecting my ability to perform. This takes a toll on my own financial profits, as well as having long-term implications on my vocal cords and ability to sing. (#7 --Citizen)

- I am an asthmatic. I cannot afford to leave my job for 4-6 weeks to stay home during the agricultural season. (#1339 --Citizen)

- …During the burning season, we lose about $100 dollars a day because our facility has to be shut down. (#1389 --Citizen)

- My family suffers financially. I wash windows and customers do not want me to work during burning season due to ash and smoke on windows. (#1271 --Citizen)

- ...Last year I was in bed 2 1/2 to 3 months at the out set of the burning and after that I was up and down and not able to do very much at all. This created a real problem as I lost a lot (of) business and have not been able to recuperate that loss. My entire revenue has gone down and I dare say on a comparison basis I am losing much more than the farmers would if they chose an alternative to burning. (#1631 --Citizen)

- We are all aware this problem is not the only thing causing illness, but it is a big contributor to the never ending problems... Last year I spent nearly three months in bed with respiratory problems which hit me shortly after the burning started. I spent the rest of the winter up and down until I could get a hold of the situation and start a cure. While I was in bed my business suffered greatly and I lost money as I am an independent business woman and depend on myself and my clients for my living. I lost a few clients and was not able to do business. We cannot afford to move away (for many and various reasons). We cannot afford to go away for the two months while they are allowed to burn. (#2 --Citizen)

- ...I am completely fed up and feel if they had to pay the lost wages of everyone and medical bills for everyone they would find a cheaper way to do their fields... (#1340 --Citizen)

Response:

The contingent value survey reflected many of these same lost income impacts. The willingness to pay (WTP) value comprehensively measures a household's value of health and non-health benefits for implementing the proposed rule. Reduced loss of wages due to lost work are included. Households in favor of the rule indicated WTP averages from $49.39 per household in Spokane County to $81.35 per household in northern Idaho to receive the benefits of the rule. Total benefits for the region were estimated at 8.4 million dollars per year.

Growers will find alternatives to offset the economic impact of the rule amendment.

- We support complete elimination of grass seed field burning. Even if this causes grass seed production to fall dramatically, it follows that scarcity of seed will cause prices to rise. Supply-and-demand in a free market society dictates profits... Rather than continuing to harm public health, local growers should contact growers in other states and work toward an agreement to end all burning. (#9 --Citizen)

- …There were tens of thousands of loggers, fisherman, steel workers and down-sizers that managed to make a living some other way and I don't know why hundreds of thousands of people should suffer for a couple hundred farmers. (#1356 --Citizen)

- I see...where the grower industry...is trying to ask our community to help their families and their economic livelihoods. What I see behind every farmer is, I see in my mind...dozens and dozens of families like mine that their health is being impacted, and they're getting sick. There's a lot of changes that we make in our lives economically. I feel the farmers are going to have to do their best to get through this, find an alternative; necessity is the mother of invention... (#1519 --Citizen)

- ...Grass...was not burned before 1958... By 1963 it had jumped to 15,000 acres. In 1953 when bluegrass was statewide, it was 320 acres, and it wasn't burned, but the cost was $2.30 a pound. Compare that with about $0.67 a pound now... (#1512 --Citizen)

Response:
Farmers will most likely adjust their farming practices to minimize the impacts of the rule. This is indicated by the use of a rotational burning in WSU's cost-benefit analysis. Studies show that farmers and the agricultural industry often adapt creatively to new conditions.

Medical costs resulting from the health effects of grass burning have an economic impact on those affected.

- The point I'd like to make is the grass growers are concerned about how much money they will lose it they can't burn their fields, but they are not the least bit concerned about what it is costing us for medications, let alone the control they have of our lives. (#1259 --Citizen)

- …Economic costs increase hospitalization for Medicare patients and the loss of income for the young asthmatic and income loss for those who have died far offsets economic gains by field burners and impacts the rest of us who pay for the bills... (#1444 --Certified Respiratory Therapist)

- ...I think there are some costs involved (with grass burning) and I understand this. I just think we should have the people who utilize the grass seed pay the cost and not the people with the medical condition. (#1466 --Citizen)

- ...I rather doubt that the amount of the bank accounts are increased equally to the medical expenses that the rest of the community has to pay out as a result of this... (#1381 --Citizen)

- I would like the grass burning prohibited because the high cost of medicine for people who have asthma. (#1405 --Citizen)

- I feel I have subsidized the farmers with my medical expenses. The farmers are turning a profit, the insurance company and I (are) paying large amounts of money for drugs and doctor appointment(s) for my existence. (#363 --Citizen)

- I have to go to the doctor again because I can't breathe again and this is ridiculous that I should have medical expense so that other people can make money. (#1485 --Citizen)

- I would suggest a heavy tax on the luxury profits of grass seed. This money could be used to offset the cost of medical expenses for those people medically affected in and around the community. As you know, grass seed feeds neither people nor livestock. In my opinion grass seed is a luxury item. (#363 --Citizen)

- ...I have a son with CF (Cystic Fibrosis). Someone was talking about cost--I took him away for two weeks. We stayed at an international youth hostel which is the cheapest place you could possibly stay. It cost us $1,500, and that is a personal cost, not talking about other issues. (#1517 --Eastern Washington University Professor)

- The economic impact is used when we measure medical costs. Hospitalization these days for respiratory illness may cost over $10,000. The increase in medications is phenomenal, physician visits, ER visits, and not to mention the costs in job loss. (#1524 --Physician)

Response:

The contingent value survey documented many of these health costs and included them in the WTP (Willingness To Pay) figures. n alternative method of estimating benefits also predicted the health costs based upon estimated exposure to increased levels of particulates during the burning season. This is a two-step procedure based on combining epidemiological and economic techniques. First, the potential exposure of the affected population and the resulting probable change in medical and mortality impacts due to the improvements in air quality using the results of epidemiological studies is estimated. There is a large volume of epidemiological literature documenting the health effects of small airborne particles. Particles from combustion processes appear to have larger health impacts than ordinary dust particles. The potential impacts of reduced particles include reduced medical costs, reduced loss of wages due to loss work, reduced "pain and suffering" and, most importantly, reduced mortality. Once the potential improvements are identified, monetary values are estimated. The monetary values for impacts like asthma attacks are obtained from standardized values based on a large number of economic studies. Benefits of between 9 and 18 million dollars were estimated using this two step procedure.

There is a financial cost associated with taking grass out of production.

- ...The problem with grass seed production--they're going to have to plow that under, between the fuel costs, chemical costs, getting rid of that grass, killing it off... (#1558 --Bank Manager, Pomeroy)

- ...I have kept 1/5 of my farmland in bluegrass production which has given me over 1/4 of my net income. When I have rotated the ground out of bluegrass {after 8-10 years} and back into conventional crops, there is an 8 - 10% increase I the yields of the conventional crops. (In the past) if I were taking a field out of bluegrass, I would spray the field with Roundup and plant it with a no-till drill. If there was too much straw to use the drill, permit regulations allowed me to burn the field first. This allowed me to rotate a field out of bluegrass with relatively low expenditures. This year, because of the heavy straw and no burn permit, I have had to plow the sod, disk it 4 times, fertilize, harrow, seed, and pack the ground. The first five operations are very expensive in fuel and time... (#1312 --Grower)

Response:

WSU estimated the additional costs encountered with the elimination of annual burning on two-thirds of the grass seed acreage. This is documented in detail in WSU's "Estimates of Benefits and Costs from Reductions in Grass Seed Field Burning."

Reduction in grass production will adversely affect the economics of other businesses.

- ...We are strongly opposed to WAC 173-430. We cannot accept regulations that threaten to erode the customer base that we are totally dependent on. In the grocery industry in Pomeroy there will be lost jobs if Dye Seed is no longer in operation in Garfield County... The total grocery customer count from Dye Seed Co. (is) 118... (This equates to) $209,088 in lost grocery sales or the loss of 1 full time (grocery) employee plus another 243 hours cut from another... Reductions could be much greater because of cut backs in all the business and service industries in the area. (#1027 --President, Pomeroy Chamber of Commerce & Grocer)

- ...The loss of the millions of dollars that go into growers pockets every year from growing grass, would also reduce money being spent in the state for the purchase of fertilizer, fuel, machinery and other goods. (# 984 --Dye Seed Ranch employee)

- Our cattle operation depends on the availability of low cost, high quality grass screening pellets produced by Dye Seed Ranch... By losing Dye Seed Ranch to a quickly implemented no-burn-policy, we could be forced to sell part of our herd... (#1009 --Citizen)

- ...Local bag suppliers, companies that supply and lease farm machinery and equipment are going to suffer; local pesticide and herbicide companies. The list can go on and on. (#1500 --Citizen)
- ...We, in our cattle business, use the pelleted residue from the Dye Seed plant for cattle feed which is very beneficial to our operation... (#1562 --Grower)

- In Eastern Washington and Northern Idaho, the production of Kentucky bluegrass is a significant part of the agricultural economy. If bluegrass burning is banned, and its alternatives fail, these companies (processors) will be out of business. These firms are all located in relatively small towns, the loss or drastic reduction of a major source of employment could have a fallout of other local businesses failing. (#1026 --Dye Seed Ranch Employee)

- ...These lost jobs will affect each and every retail business. (#1003, #1004, #1005 Garfield County Commissioners Testimony Letter) (Attachment)

Response*:*
WSU used a regional economic impact model to analyze probable community impacts beyond the direct grower and processor impacts. The economic impact estimates were adjusted to account for the rate at which lost jobs and business are made up by economic activity elsewhere.

Income losses to the rest of the economy beyond farm and processor losses were estimated at $324,000 and lost employment losses at $262,000. An additional $93,000 was added to account for emotional costs due to job and business losses. These figures totaling $679,000 were taken from WSU's best estimate of probable costs.

It will be difficult for growers to compete in the grass seed market without burning.

- ...Well, all he (Spokane industrialist) did was pass those costs along to all the consumers or whoever he sold his products to. We can't do that because our prices are set. You know, it's just like the price of wheat; it's set. We can't say how much, or I'm gonna offer you this product if you give it to me; our prices are set... (#1601 --Grower)

- ...Without being able to use one of Mother Nature's tools, we will forfeit this industry to Canada... (#1023 --Grower)

- …You are not addressing this on a regional basis. In Oregon, they continue to burn 100,000 (acres) per year of Kentucky Bluegrass, plus other grasses and so it is not equitable between states or between regions and I don't see where you have addressed that issue. (#1476 --Citizen)

- ...I understand that if our farmers can't grow or can't burn and Idaho farmers can, I can see where the field wouldn't be level. (#1519 --Citizen)

- Idaho and California and Oregon can still burn bluegrass, why not Washington? Herb Heinman, Washington State agriculture economist, says there's no way those who can't burn can compete with those who can... (#1591 --Grower)

- ...The price of the grass seed has gotta be a concern. You know, think about the folks, the lucky grass growers that'll be in nonattained areas, I guess, is that those fortunate folks will make a killing. (#1572 --Grower & Chairperson, Columbia Conservation District)

- ...We understand that DOE (Department of Ecology) did this in order not to give growers, such as myself, in other parts of the state a competitive advantage, but the end result is that you have now placed all grass growers at a competitive disadvantage. Your rule simply gives the advantage to growers in Idaho and across the Canadian border... (#140 --Grower/ Farm Bureau)
- A reduction in acres permitted for burning means a reduction in acres grown. (This) would destroy the grass seed industry in Washington State as other areas will have an economic advantage for (competition). (#992 --Citizen)

- The (Bluegrass seed) industry will move to other regions and we (will) lose (the) many benefits it provides. (#1636 --Rancher, Zahn Ranch)

Response:

Washington State University has conducted a detailed analysis of the farm level impacts of the proposed rule. Just over 60,000 acres of planted bluegrass were used as representative of Washington acreage. Two thirds or about 40,000 acres of the grass production base are affected by the rule. The best estimate of probable costs indicates that about 1/2 of affected acreage (or 1/3 of total acreage) will switch to alternative crops or go to idled land. In addition, the acreage remaining in bluegrass will be innovatively adapted to rotational burning or something equivalent.

Estimated losses for the best estimate of probable costs includes $3,385,000 in lost income and $163,000 in lost farm employment. An additional surcharge of $186,000 was added to account for emotional costs due to job and business losses.

Without burning, grass production is not economical.

- By eliminating the practice of burning bluegrass, I think you probably already know you will eliminate the number of acres which are in bluegrass every year. It is not economically feasible to continue growing bluegrass without the advantages of burning... (#1267 --McGregor Company manager)

- Burning is the only economical method of removing residue and stimulating seed production. (#992 --Citizen)

- ...With the knowledge available today, we cannot grow Kentucky Bluegrass economically if burning of our fields is phased out as proposed. Washington state will lose a crop that has been (a) very positive builder for our environment. (#1263 --Grower)

- Despite what they say, there are no economical or viable alternatives to grass field burning, so it will no longer be economically beneficial to grow this product. (#1268 --Grower and producer)

- Growers do not like to burn. It is an unpleasant task that every grower would like to eliminate, but at the present time it is necessary to maintain production at a level that is economic to them. (#1269 --Grower and Producer)

- To be told by an outsider that we CAN grow bluegrass without yearly burning is ludicrous! Typically, a grass field is in production for 7 - 10 years, and no tillage is done to the field during those years. Without burning the field, the yield will be so substantially less that it would not be economical to keep it in production. It presently takes 16 months to take the first crop off a new field of bluegrass. In the meantime, the farmer has paid huge expense to get this field established and has received no subsidy or other government support for his efforts. (#240 --Grower) (Attachment)

- ...Producers of bluegrass know that you can’t raise adequate poundage of seed to be profitable without burning the fields... (#1318 --Grower)

- Grass burning is a part of nature (and, despite many years of research,) is still the only currently known method for producing an economical grass seed crop. (#1012 --Citizen.)

- ...We have been growing Kentucky Bluegrass seed for approximately 11 years. In this period of time we have had to buy equipment to produce grass. Kentucky Bluegrass is a 6 - 7 year economic commitment on our part. It is not a yearly in and out crop like wheat and barley. (#1263 --Grower)

- ...Bluegrass production cannot be economically viable without burning... (#394 --Whitman County Conservation District)

- At best a ban on grass burning will vastly decrease the number of acres of grass produced in the Pomeroy area because there is no agronomically sound substitute to burning. To suggest that growers not burn, thereby reducing yield, then procuring equipment costing tens of thousands of dollars to remove residue is not economically sound advice... (#1015 --Grower)

- We are committed environmentally and financially to the production of Kentucky bluegrass. To be told by an outsider that we can grow bluegrass without yearly burning is ludicrous. Typically a grass field is in production for seven to ten years, and no tillage is done to the field during these years. Without burning the field, the yield would be so substantially less that it would not be economical to keep it in production. It presently takes 16 months to take the first crop off a new field of bluegrass. In the meantime, the farmer has paid huge expense to get this field established and has received no subsidy or other government support for these efforts. To go through these efforts for a crop or two is not economically possible... (#1542 --Grower)
- ...Carol Mowry Smith, Oregon State University, states the burning ban will increase grass-growing costs $70 per acre along with reduced yields... (#1591 --Grower)

- …Farmers also would like to end grass field seed burning, and the present law provides how that ending can be accomplished without eliminating Kentucky bluegrass as a viable economic crop... (#1320 --Citizen) (Exhibit)

- Sources say that bluegrass can be grown without burning. Well it can, but not economically. For example, take an established bluegrass lawn and don't mow it for one season and see how much grass seed it produces. Then proportion the amount of seed and the land area to one acre, sell the seed and see how much money you make per acre. The money you would receive would not pay the fertilizer costs. (#213 --Citizen)

- If the grass grower is to survive (and he should not be sacrificed at the altar) his operation must be economically viable. It is not that he wants to burn; it is that burning is the most economical way of preparing for next years crop. If there is a more economical way, they would do so even without a law to enforce it... (#16 --Citizen)

- ...I removed the residue mechanically on the remaining acres. I raked, baled, stacked bales, raked again, baled again, retrieved and stacked again, sprayed chemicals (to attempt to stunt the roots to promote seed development) for a total of $97.00 per acre or $30,800.00. I hope to recoup $10,000 from sale of bales. This expense will take away half my net profit on those unburned acres. I can justify this expense on a one third acre scale but would not be able to adjust to 2/3's or more non-burned acres... (#1328 --Grower / Producer) (Attachment)

- (There is the very real impact on growers who will not be able to economically grow blue grass... (#1007 --Grower)

- ...We and some research people have performed many experiments on our farm since our first planting of bluegrass and have found the yield can be maintained for about two years without burning, but after

that time yields dropped dramatically and made the field uneconomical to maintain... (#1074 --Retired Farmer)

Response:
Comments noted. Please see the preceding response.

The economy of small rural communities and their surrounding areas, will be significantly impacted by the implementation of this rule.

- (Economically), Pomeroy is greatly dependent on grass production. To totally appreciate it's importance one must look at the entire spectrum of impact of grass production in Garfield County. Besides the income to the producers themselves, there are numerous jobs created in the cleaning and conditioning, packaging and transportation of grass seed in this area. Full time jobs in the grass seed industry means families buying... Thus contributing greatly to the economy of Pomeroy. Part-time employment during swathing and harvest seasons creates an opportunity for local youth to work and earn money. This translates into higher education opportunities for kids and teaches them work ethics they will use the rest of their lives. There are also numerous "support businesses" including fertilizer companies and equipment dealers who are able to employ additional people due to the added labor and income impact to their businesses that grass provides. (#1015 --Grower)

- ...As grass production acres decrease, the economy of Garfield County will suffer, not only from the direct loss of grass income, but throughout the business community. The potential cost of idle youth during the summer months is a consideration. (#1015 --Grower)

- ...I'd like to address the Department of Ecology as a city council person. One of our county representatives just mentioned the dollar figures for the county. Pomeroy being the largest population base in the Garfield County area, a lot of those dollars that will no longer be here, should the Dye Seed Ranch have to close down, are going to affect our tax base. As a city it's going to force us to tighten the belts and force us to have to raise taxes in some areas. This is an area that we do not want to pursue as a city. It's hard enough raising dollars to fund what needs to be funded in a municipality of our size... (#1558 --Bank Manager, Pomeroy)

- Grass growing is an important industry to our county and it would be a serious economic loss should the growers not be allowed to burn their fields... It would be disastrous to lose one of our main industries due to the ban. I recommend that the ban on grass burning be lifted. (#983 --Physician)

- ...Our farmers are an important part of our economic growth, not only in the smaller "farming communities", but also Spokane, WA... (#1308 --Citizen)

- At this time, 15 of our students have parents or guardians who work at Dye Seed Ranch. The exact financial impact of the loss of these students would depend primarily on the age of the students. Pomeroy School District receives between $3600 and $4500 per student in state apportionment. Therefore, the loss would be between $54,000 and $67,000 in revenue. This represents approximately 2% of our budget. This would certainly necessitate expenditure cuts. (#987 --Superintendent, Pomeroy School District)

- Basically, I want to ask the Department of Ecology to consider all the information that we've had, but also to reemphasize the economic impact that it would have on our county, especially without knowing for sure what the effect would be eventually to the processor in this area who does provide a lot of jobs and opportunity for kids and a multitude of things. (#1572 --Grower & Chairperson, Columbia Conservation District)

- I am very concerned with the burning ban imposed by the Department of Ecology. My employer, (for over 25 years), Dye Seed Ranch Inc. is one of the largest employers in Garfield County. The potential loss of over 50 employees in (this) rural county would have a devastating effect on the economy... (# 984 --Dye Seed Ranch employee)

- ...This will cost our community untold dollars to our fragile economy. (#993 --Grower)

- Dye seed Ranch, as a processor of bluegrass, is the largest private employer in Garfield County. If bluegrass burning is eliminated, Dye Seed Ranch will be forced to eliminate the majority of their work force. This represents a reduction of local salaries, which help support families, schools, taxes and local business... (#1267 --McGregor Company manager)

- ...This represents a loss of eight (8) full-time jobs and 18 seasonal jobs in the first year, and a total of 16 full-time jobs by the start of the second year. This represents a local payroll of approximately $300,000 in year one, $450,000 in year two. These salaries support local families, which in turn support local taxes, local businesses, and local schools. The loss of these salaries will impact all the residents of Garfield County. (#1270 --Pomeroy/Garfield County Community Development Action Team)

- ...We would be forced to buy our pellets in Oregon there by not using local truckers and once again the economic impact is felt in our community. (#1009 --Citizen)

- (The grass seed industry) has helped the economy in the county, (Garfield), by offering more job(s) and improve(d) income... (#991 --Citizen, former extension agent)

- ...This represents a loss of 8 full-time and 18 seasonal jobs in year one and a total of 16 FTE by the start of the second year. This represents a payroll of $300,0000 in year one and $450,000 in year two. The loss of these salaries will impact all the (county's) citizens. (#999 --Garfield County Hospital Administration & #1002-Real Estate Agency)

- The loss of jobs provided by Dye Seed Ranch could reverse the recent increased property values. This burning ban in our agriculturally dependent community could affect local farmers, jobs, homeowners and definitely our Real Estate Business. (#1002 --Real Estate Agency)

- ...I am very concerned about the economic impact loss of grass acres will have on Garfield County and Eastern Washington. (#989 --Garfield County Fire Chief & Pomeroy Grain Growers Co-op employee)

- ...Most of the processors are located in small towns where plant closure is going to devastate the whole entire economy. This is just one of the trickle down effects that will occur... (#1500 --Citizen)

- My concern is if this regulation goes through, you're going to lose this rural community... It's so valuable; I would hate to see people go out of business, and then turn out that everything is developed with houses. 'Cause that's the only way you could then make money is by selling your land, and I hope that doesn't happen. (#1503 --Citizen)
- ...It (emergency ruling) would cut out a lot of money for both the local economy, employers, industry and down the line. (#1482 --Rainier Seed Inc.)

- ...I think that financially you're going to tax a community that is already facing some economically hard times with droughts and things like that over the past few years. We've had a good year this year, and we'd hate to see that all turned around by this burn ban... (#1558 --Bank Manager, Pomeroy)

- The other thing that is involved here in the economics of Dye Seed Company is it's not only the grass that is raised in Garfield County that affects them, it is also the seed that is raised in surrounding counties because they do a large business with those growers also... (#1561 --Port of Garfield County)

- ...I'd like to apologize for these comments because I think in light of what I've heard here tonight, especially in regard to the potential impact that this rule might have on the rural economy, that these comments may seem rather shallow... (#1568 --AGB Technologies)

- ...I would like to see this crop (grass) continued. It adds too much economic benefit to our county and the Palouse... (#1553 --Citizen)

- ...Very soon after that towns like Pomeroy start to suffer since the largest employer there is a grass seed processor... (#1077 --Grower)

Response:

WSU used a regional economic impact model to analyze probable community impacts beyond the direct grower and processor impacts. The economic impact estimates were adjusted to account for the rate at which lost jobs and business are made up by economic activity elsewhere.

Income losses to the rest of the economy beyond farm and processor losses were estimated at $324,000 and lost employment losses at $262,000. An additional surcharge of $93,000 was added to account for emotional costs due to job and business losses. These figures totaling $679,000 were taken from WSU's best estimate of probable costs.

Loss of grass seed production will impact the state's economy.

- ...With an approximate $10 million farm gate value of the bluegrass seed industry, the economic impact would be significant... (#1316 --WSU/Spokane County extension agent, agronomist)

- (Grass) provides increased economic benefits to Washington state in increased jobs (and) tax revenue and reduced highway and waterway maintenance costs. (#1012 --Citizen.)

- The doctors all testify that they have these problems... Doctors don't recognize simple treatments--drugs. It's okay to put the farmer out of business little by little, but $30,000,000 or more, a product that is exported, not used, but exported, will affect this economy greatly. (#1532 --Former grower)

- ...Benefits (from Kentucky Bluegrass) include: 45,000 acres producing over twenty million pounds of high quality Kentucky bluegrass seed which is exporting beauty around the world with a farm gate value of an excess of fifteen million dollars. Growing turf, field, and forage grasses for sod and seed is an industry that has invested nearly a hundred-and-eighty-five million dollars in the Inland Empire. This industry pays federal, state, and local taxes in excess of two point five million dollars annually, and employees 1,200 full and part-time employees in the region... (#1494 --Grower / Processor)

- Forty-five-thousand acres produces over 20 million pounds of high quality KBG (Kentucky Blue Grass)) seed with a farm-gate value in excess of 15 million dollars. Growing turf, field, and forage grasses for sod and seed is an industry that has invested nearly 185 million dollars in the Inland Empire. The industry pays federal, state and local taxes in excess of 2.5 million dollars annually, and employs 1,200 full and part-time employees in the region. (#217 --Grower)

- ...In singling out grass burning as the one particulate source among many that can be readily modified, little appreciation is evident of the importance of bluegrass production to our local economy. A $90 million dollar business, made up of family farmers who produce 50% of the world's grass seed and 90% of U.S. bluegrass, is important to many communities and to farmers and businesses that serve grass growers... (#1066 --Farm supplier)

- ...Cultivated field crops will replace those bluegrass acres (and) the area and the state will be economic losers... (#1318 --Grower)

- ...Now I want to tell you folks that the Department of Ecology with this rule eliminates grass growing in the state of Washington, and I mean that, because no farmer is going to continue to grow it unless he can make some profit on it. You've eliminated it, and if that's what you want to do, you're 100 percent successful. But if that's not what you want to do, and if you realize all the ecological benefits from growing grass, you'll quit listening to the newspapers and the news media...and you'll let the growers go ahead and burn their grass and those poor people whoever they are and how many they are can wear a mask for 24 hours a day while the grass is being burned because it's benefiting everybody else in the state of Washington. (#1571 --Former Grower)

- ...It's (grass growing and processing) also an important industry in Spokane County as it is in the state, and I would certainly hate to see it go away. (#1613 --Citizen)

- Pomeroy as well as Garfield County, experienced a population decline between 1990 and 1992, only one of three counties in the state to do so. Our rural county economy is fragile and can not absorb continued decline in population. (Table 1: Population of Garfield County 1970-1995 from: 1995 Population Trends for Washington State) Although population declined between 1970 and 1990, it has a small gain since 1990. Forty percent live on rural home sites. (Table 2: Civilian Labor Force and Unemployment Rate Garfield County, 1970-1994; from Annual Demographic Information, 1995, WA State Employment Security Dept.) The impact (of) loss of these jobs will trickle through the economy. Net worth is a prime Medicaid placement consideration for Long Term Care. The loss of jobs could impact and reverse a trend in housing pricing affecting the net worth of our seniors. This could lead to greater cost to the state for Long Term Care for county seniors sooner than necessary. (#999 --Garfield County Hospital Administration)

- ...I think it also adds too much for the state to lose... (#1553 --Citizen)

Response:

WSU used a regional economic impact model to analyze probable community impacts beyond the direct grower and processor impacts. The economic impact estimates were adjusted to account for the rate at which lost jobs and business are made up by economic activity elsewhere.

Income losses to the rest of the economy beyond farm and processor losses were estimated at $324,000 and lost employment losses at $262,000. An additional surcharge of $93,000 was added to account for emotional costs due to job and business losses. These figures totaling $679,000 were taken from WSU's best estimate of probable costs. Please see the following response regarding effects on farm level costs.

Growers and processors will be financially impacted by this rule, putting some out of business and creating unemployment.

- As a grower of bluegrass and as an employee of Dye Seed Ranch I am in a unique position; both of my livelihoods are in jeopardy because of this bluegrass ban. (#1268 --Grower and producer)

- ...Rotating to another crop will require the purchase of (different) equipment, which is seldom a cheap expenditure. DOE's approach will mean less food on the table, less money in the bank for the children's college, and some family farms may be forced out of business. Does any of this sound practical or reasonable?... (#1020 --Washington State Farm Bureau)

- Eliminating 30 percent of production from burning each year over the next three years simply steals 30 percent of the family farmer's income each year, income which contributes to the economic base of every

county in which grass is grown. Within three years DOE's rule will have driven many family farms completely out of business because too many of them can't afford to buy new equipment for another crop, and you just can't pack up land and move it to another state. (#1599 --Washington State Farm Bureau)

- ...Agriculture should be a sustainable and profitable business. If you do not make a profit, you cannot stay in business. With this current policy, there's no sustainability for the grass seed industry, no possibility. We'll lose soil, water, and jobs... (#1588 --Grower)

- No economic alternative exists, and DOE's approach simply eliminates 30 percent of every grass farmer's income this year for a period of three years. This will force family farms to grow another crop... If the farmer doesn't own the equipment needed to farm another crop, he'll have to purchase it. Many small family farms may not have the capital to purchase new-and-used equipment. They may be forced to sell the family farm, assuming that someone else wants to farm in this heavily-regulated industry, or a farm may just end up growing homes, something that the general public and the Growth Management Act frown on. It's entirely possible that some families may even face bankruptcy. (#1576 --Washington State Farm Bureau)

- ...SBEIS has finalized and concluded that the proposed regulation would create, *would* create, additional costs for grass seed growers, and processors, and distributors; however, even though the economic impacts are expected, they do not weigh proportionately greater on small business, therefore adjustments to the proposed regulations are not required... (#1601 --Grower)

- ...Let's face it, if the grower cannot make money producing grass they will work with something else... (#1077 --Grower)

- As you may already know, farming, and the income to be made from it, is significantly affected by several factors. These include weather, wide and occasionally frequent commodity price fluctuations, and sometimes unpredictable input costs among other things. One way farmers attempt to offset these largely uncontrollable elements is to diversify their operation by producing several crops. Growing and selling bluegrass seed is but one way of meeting this goal. As an agricultural lender, I am well aware of the difficulties many farmers face in trying to generate enough income to pay their input costs, land payments, and make a living. (#334 --Bank Branch Manager, Bank of Pullman - Uniontown Branch)

- ...The growers have gradually developed a market for their seed and now the bluegrass seed industry is of extreme importance to the families who live in the small towns as well as to the farmers. (#335--Grower)

- In viewing what my alternatives are with this amendment, it runs anywhere from a best-case situation, a very severe economic impact based on the fact that there is no known alternative to bluegrass production without burning, which means I essentially have to annually replant, that a major cost in unknown production levels, to the worst-case scenario where I'm devastated - I will fall somewhere within that category... (#1489 --Grower)

- The impact on my economics obviously are not of any concern, and I understand they don't need to be. I'm at risk, but I think it's very, very unfair that this law, this emergency ruling, went into effect which takes no consideration of how that has an impact on people currently within the industry because basically, it devastates them. (#1489 --Grower)

- ...Without the grass seed Dye Seed Ranch will cease to exist (which) will cost our community untold dollars to our already very fragile economy... (#1029 --Grower)

- ...We cannot, in the grass industry, live with the one-third, one-third phase out and still have a viable industry... If we reduce these acres, which this burning ban will do, we will also have to reduce the processors. We cannot reduce the processors in a short period of time. They will instantly go out, and the farmers will instantly go out of the grass seed production, too. Along with this, if there is an

alternative which is found, there will not be any farmers or processors to take care of the crop. This is why I feel this one-third reduction now, and the one-third reduction next year, and in the future, is an unfair thing to the industry... (#1609 --Grower)

- ...Area seed processors will be hit the hardest and will be forced out of business if this trend continues... (#1494 --Grower / Processor)

- ...As for my processor, Heart Seed, Inc., over 60% of their business comes from Eastern Washington. If bluegrass production continues to be limited in Washington, they are effectively out of business. This will also mean a big loss for our small town of Fairfield... (#1312 --Grower)

- Without the grass seed Dye Seed Ranch will cease to exist... (#993 --Grower)

- ...Very soon after that the processors don't have a product to work with... (#1077 --Grower)

- ...It will impact processors and others associated with the industry... (#1007 --Grower)

- ...Disallowing (burning) will create an adverse effect on the Eastern Washington farming operation. (#11--Grower)

- ...We feel that you've shown little regard for the farmers, yet they're playing by your rules. They bale the excess straw in the fields at their cost; they've plowed out grass seed acres, and they've reduced the number of new seedlings drastically. One processor reported of the farmers that they work with that they would see about 1,800 new grass seed acres each year. This year there was 180. Their plants are only equipped to clean grass seed. Without enough grass seed, they will be forced out of business, causing hundreds to lose jobs, and all of their machinery to sit idle and rust... (#1500 --Citizen)

- ...Garfield County is a(n) agri-based area. Farming is about all that is here regardless of the efforts to try to bring other industries into the area... If Dye Seed Company closes their doors. These people will be unemployed, and they will have to leave the area. (#1561 --Port of Garfield County)

- Dye Seed Ranch which is located in Garfield County is a processor of Blue Grass seed, and is the largest private employer in Garfield County. They have indicated that implementation of WAC 173-430, as written, will reduce their work force by one third for the next two years... (#1270 –Pomeroy/Garfield County Community Development Action Team)

- Our farm (employs) five people during the busy season and two full time. Under the proposed amendment we could not provide jobs for even two employees. (#995 --Grower)

- ...Two men presently employed on the family farm...could lose their jobs if we are forced to reduce our herd... (#1009 --Citizen)

- Dye Seed Ranch, a processor of Bluegrass, is the largest private employer in Garfield County. DSR has indicated they will reduce their work force 1/3 each of the next two years... (#999 --Garfield County Hospital Administration & #1002-Real Estate Agency)

- I vote yes for grass burning. It’s a good thing. It keeps jobs. (#1453 --Citizen)

- Dye Seed Ranch is the largest private employer in Garfield County (where) there are limited job opportunities. We have house and vehicle payments, families to support and college funds for children. We wish for our children to continue school here (Pomeroy) and not have to relocate due to loss of jobs... (#398 --Dye Seed Ranch Employee)

- If blue grass burning is totally eliminated Dye Seed Ranch will be forced to reduce its staff by 2/3...22 people. (This) equals a payroll loss of $536,000 and a direct negative financial impact on the community of $ 1,172,500. These lost jobs will also mean a loss of 39 jobs in the county and 42 in the state... (#1003, #1004, #1005 Garfield County Commissioners Testimony Letter) (Attachment)

- ...There will be many valuable jobs lost. (#1007 --Grower)

Response:

Estimation of costs to growers and processors was based on two technical studies conducted by WSU agricultural economists. One estimated changes in farm level costs and returns and environmental costs (Painter), and the other study estimated the impacts that reduced farm production and spending would have on the rest of the economy, particularly the seed processing industry. These studies are described in detail in the appendices of WSU's cost-benefits study.

Farm level costs include estimated annual income losses of $3,385,000 and $163,000 in lost farm employment. An additional surcharge of $93,000 was added to account for emotional costs due to job and business losses. Direct processing income losses total $194,000 and $175,000 in lost processor employment. An additional $28,000 was added to account for emotional costs due to job and business losses. All these figures are based upon a best estimate of probable costs resulting from the rule.

The economic analysis indicates that 58 percent of current grass field acreage will remain in production. Thus, the industry will not be eliminated.

Without grass in production, the cost of erosion abatement activities will increase.

- ...(tape change) agents and drainage clean up was nearly $400,000 to $500,000 of our budget spent annually to remove debris from our drainage ditches to preserve the transportation issue on roads. Bluegrass ground provides basically zero erosion debris in the DNR (Department of Natural Resources) drainage system. We spend, in some cases, nearly $3,000 a mile in moving material and trucking it somewhere it can placed. Bluegrass ground affords us basically no maintenance. (#1583 --Whitman County Public Works)

- The cost to clean a mile of roadside ditch varies greatly due to several factors, i.e.: rainfall & wind whether the field is exposed or covered with vegetation, depth and width of the ditch, how close the ditch is to the roadway, length of haul for spoils. We can spend between $5,000 and $9,000 per mile to maintain a roadside ditch. (#1064 --Washington State Department of Transportation)

Response:

WSU estimated the value of erosion control at $5 per ton of erosion, a value on the high end of those found in the literature. Based on an average of three tons per acre of erosion from dryland wheat, environmental costs of $15 per acre were calculated.

In irrigated areas, wind erosion is the major farm level environmental concern. In the absence of any specific information on wind erosion quantities or values WSU used the same $15 per acre for environmental losses in the irrigated areas as were used in the dryland areas.

WSU's best estimate of probable grower impacts indicated a production loss of 18,000 acres of bluegrass, out of a total 60,000 plus, for a cost of $270,000 per year, for erosion control.

The SBEIS should consider the effects on unemployment.

- Has an impact study been done on jobs lost?... (#981 --Citizen)

Response:

The Cost/benefit analysis estimated this impact. The purpose of the SBEIS is indicated below and is not intended to estimate the total impact on the number of jobs lost. The Regulatory Fairness Act (RFA) (Chapter 19.85 RCW) requires that rules promulgated by state agencies under the Administrative Procedures Act be examined for their impact on small businesses. The purpose of the Regulatory Fairness Act is to ensure that proposed rules do not place a disproportionally high burden on small businesses relative to the burden it places on large businesses. Note that the purpose of the Regulatory Fairness Act is not to ensure that a proposed rule does not place any burden on industry, but rather, focuses on whether the burden is disproportionate with regard to its magnitude.

A SBEIS is required by law to be finalized when a rule is proposed. Additional economic analysis described as the cost-benefit analysis determines whether probable benefits are greater than probable costs if the proposed rule is adopted. This analysis must be conducted and finalized if and when a rule is adopted.

The impact on other business should be considered in the SBEIS.

- The small business economic impact that I have thought of all week is we will have a reduction of at least 25 percent of machinery sales, and this is my own honest opinion of what I thought for four stores to give you an idea of what to figure per town. I know I have had sales hanging on the thread of what to do on the bluegrass burning regulation, and I am totally for bluegrass burning and raising in Garfield County. We have to have this industry to survive. It pays taxes;...the legislature; ...the government;...the schools; it builds everything. It is a valuable part of our store and our business. If we lose it we will vote everybody out of Olympia, and move the capital over here. (#1557 --Agriculture Implement Dealer)

- ...We are, our business community is directly affected by the operation of our seed processor, so when the economic impact is made I would like all the considerations to the peripheral businesses taken into consideration, too, especially for our counties. (#1573 --Pomeroy Business Owner)

- The complete economic impact of reducing grass burning and limiting grass growing by area farmers has not truly been evaluated before concerning such drastic measures. Not only will grass farmers suffer from lower and lost revenues, but Washington State, and specifically our area counties in the Spokane area, will also suffer from less revenue. There will be fewer taxes collected from less revenue, and as a result, less money flowing into governmental departments such as the DOE (Department of Ecology)... (#1608 --Grower)

Response:

The cost/benefit analysis estimated this impact. The SBEIS estimated only the distributional impact upon businesses directly impacted by the proposed rule

The economic impact of this rule on communities should be taken into consideration.

- Garfield County is an agriculture based community with few other opportunities for employment. The Port has worked very hard over the years to attempt to attract other industries or businesses to Garfield County with very little success. The Port District, with assistance of federal grant moneys, has remodeled a facility in Pomeroy to attract businesses... The Dye Seed Co. approached the Port District about leasing the premises. With the burning ban looming in the background, only a two year deal could be agreed to. This puts the Port District in a poor position for long term leasing. If the burning ban is continued and grass seed acreage reduced or eliminated, the Port will again have a vacant building (in) two years.

The permanent burning ban would undoubtfully put the Dye Seed Company out of business which would cripple the economy of Garfield County. Dye Seed Company employs over 50 people, 27 are full time. There are no other jobs in Garfield County for these people to go to as there are no business opportunities in the foreseeable future. The reduction in this many jobs would cause a ripple effect in Pomeroy and Garfield County that would be devastating. Those affected would be agri-business, retail businesses, housing, schools as well as the farmers. The emergency rule and the permanent rule concerning grass burning need to be immediately rescinded pending a complete economic impact study for each county and for the state as a whole. I think the proven economic impacts will far outweigh the unproved health hazards claimed by some. A (October 1994) demographic study of Garfield County (attached) shows (it) already has serious economic problems. If the bluegrass industry is lost, our county will suffer even further. (#1018 --Garfield County Port District) (Attachment)

- The economic impact statement that, the way I understand it, has been done for small businesses, and I assume that includes growers as well as the grass seed industry. I don't think that it mentioned the ripple impacts of a community like Pomeroy in Garfield County where losing that many jobs in this county will seriously affect all other businesses, our schools, everything involved would suffer from that situation. (#1561 --Port of Garfield County)

- ...The ES states it should be recognized that these costs include the anticipated loss of at least one large processor from the grass seed market by 1998. Since Dye Seed Ranch relies disproportionately on dryland production from the state of Washington, I assume DOE's (Department of Ecology's) ES has targeted Dye Seed Ranch as a processor that is likely to be eliminated. Ask someone from DOE to explain to the citizens of Garfield County why there will be fewer businesses in town, why the real estate values will be depressed, why unemployment will be increased, and where the revenues will come from to support the school system. (#1554 --Dye Seed Ranch, General Manager)

Response*:*
WSU used a regional economic impact model to analyze probable community impacts beyond the direct grower and processor impacts. The economic impact estimates were adjusted to account for the rate at which lost jobs and business are made up by economic activity elsewhere.

Income losses to the rest of the economy beyond farm and processor losses were estimated at $324,000 and lost employment losses at $262,000. An additional surcharge of $93,000 was added to account for emotional costs due to job and business losses. These figures totaling $679,000 were taken from WSU's best estimate of probable costs.

The SBEIS contains information which is flawed, inaccurate and not based on science.

- ...We provide a lot of the lines of credit, farm loans of that sort and nature to this community. I feel that forcing the farmers to have to either change their farming practices, or getting out of grass seed entirely, or forcing them to adapt to these noncertified processes that haven't been researched and studied yet is going to be costly. They're going to have (to) borrow some more money; therefore, they're going to be forced to go into a greater debt in order to try to make a crop that may not even produce as well... I don't think the economic impact has been studied properly. (#1558 --Bank Manager, Pomeroy)

- ...I think there's also a serious concern about the controversial, if not totally questionable, small business impact assessment, and I think that without review by other independent sources that that document will continue to be highly questionable... (#1568 --AGB Technologies)

- The DOE (Department of Ecology) is going to eliminate a significant industry in the state of Washington, and they're going to accomplish this with no scientific evidence and an economic study distorted with half truths. The DOE contracted Huckell / Weinman Associates to produce a Small Business Economic Impact Statement that I will subsequently refer to as an economic study (ES). The ES is required by a

regulatory agency whose purpose it is to ensure that a proposed rule is not disproportionate between small and large growers, and to ensure that a proposed rule does not place any burden on industry. The only way that the ES could accomplish this task is to skew the facts. Jacklin Seed was not included in the ES because it is considered an Idaho company. Only after eliminating Jacklin Seed could a self-serving definition be used to show there is no disproportionate effect on small business... (#1554 --Dye Seed Ranch, General Manager)

- In regards to the small business economic impact statement prepared by Huckell/Weinman and Associates for this proposed rule. As a fifth generation farmer, farming land that was homesteaded by my great grandfather in the 1880's, I was taken aback when I read on of the conclusions put forth in this study, "that to the extent growers may move their grass seed production out of Washington, they may eventually find it more cost effective to permanently reside out of state". The idea that an agency supported by our tax dollars has the audacity to suggest that we can just pick up our land and move somewhere else is insane. The report has many other flaws of which I will point out a few. It concludes that small grass seed growers will not incur any expenses in 1996 because of the reduction in acres burned. On 26 of the acres I cannot burn this fall, I have removed the bulk residue behind the combine for a cost of $40.00/acre. I have also shredded the remaining stubble, for an additional cost of $12.00/acre. Out of pocket costs of over $1350.00. All of this with no guarantee of production next year! Another glaring mistake is the price at which the cost/benefit analysis was run. The statistics used showed bluegrass price at $.90/lb. net to the grower. While in the past there have been times I have received such a good price, it is not there this year and any study that assumes such a price over several years will be flawed. The price this year will be closer to $.55/lb. net to the grower... (#1072 --Grower)

Response:

The idea of moving production out of state was mentioned by growers living near the Washington-Idaho border as a possibility. The SBEIS analysis assumed only a small percentage of farmers have that flexibility. The SBEIS further comments that based upon discussions with grass seed growers and processors, it is not anticipated that this impact would be widespread. We should note that Ecology is not dictating or directing growers to move to another state. We are only reflecting some of the responses made in the grower survey.

The SBEIS analysis, again based upon responses to grower and processor responses, did not anticipate substantial costs in the 1996 season since the seed yield was not affected.

The price assumed on the University of Idaho budgets is .90 per lb. gross including about .15 per lb. for bags, tags, etc. The net to the farmer is .75 per lb. WSU in their cost-benefit analysis assumes .80 per lb. for common Kentucky bluegrass and .85 per lb. for propriety seed varieties. Of course, the higher the bluegrass price used in the economic impact analysis the higher the potential impact is from reducing yields or acreage.

Please also see the following response.

The SBEIS contains information which is flawed, inaccurate and not based on science (continued).

- The economic impact statement written in support of the emergency order started with a conclusion and them manipulated and massaged the numbers to fit the pre-stated conclusion. (#1265 --Grower)

- The economic study done this summer was, in my case, not accurate at all... (It) stated that small grass growers could just switch to wheat or peas... Our rainfall is not conducive to peas and...growing wheat year after year will cause disease and insect problems (#1013 --Grower)

- ...The Economic Impact Statement, therefore, was a very poor job done by the Department of Ecology and the contracting individual they had do that statement. In fact, the Economic Impact Statement was

nothing more than outright lies about what would happen to the businesses of Eastern Washington and was not at all inclusive of both the numbers that the businesses generate and the outcomes or the alternatives available to these businesses and the businesses what they own... (#1482 --Rainier Seed Inc.)

- ...Your Small Business Economics Impact Statement sure didn't show a very true picture. It didn't take into consideration all the costs of baling off straw that are required to replace burning. None of us know for sure what the reduction in seed production will be... The financial picture will be very dismal... The burning ban will cause considerable financial problems for employees, seed plants, equipment dealers, and all people connected to farming and otherwise... There will be less money to spend in Spokane and Spokane Valley... We wish that we farmers were as rich as we are portrayed, and could (absorb) the (loss) of 1/3 of our income one year and in two years another 2/3. How would all the people that think we are greedy react to this situation? (#1315 --Citizen)

- A company from Kirkland, who has probably never been to Eastern Washington (did) an economic report that is just a joke. (It) states that farmers would not accrue any extra costs in 1996. Who do you think paid for the costs of gathering the excess straw, baling it and carting (it) off the farms? This report puts a small farm at .5 employees and a larger farm 1.5 and does not factor other family members' time and then says that a loss of $20,380 would not devastate a farm. Take $20,000 out of your salary and see if it effects you! And you don't have large overhead costs, changing crop prices, federal and state regulations and the fear of bad weather to contend with! The researchers of this report, funded by DOE, did not even call IGGA which has boxes of research, data and information but they used information from two members of the SOS group who have no farming or economic background and whose only goal is to shut down the industry? How objective could their information be? But this is a report that; (A) stated, "growers may move their grass seed production out of Washington."; (B)...only surveyed 20 growers, (excluding) the largest bluegrass seed processor in the area; (C)...wrongly stated that there are no bluegrass seed distributors in Washington; A report where the Intermountain Grass Growers Association questions its data sources and disregard for socioeconomic and environmental factors. It is no surprise that the DOE or the company did not respond to our questions or concerns. Who can we voice our complaints with? We sent a personal letter to the Governor and Joe Williams of DOE responds! (His) advice? "Grow another crop." That just shows that nobody is validating that our concerns with your agency (DOE) needs to be seriously reviewed and investigated. The DOE and the governor may not be listening but...the farming community will be letting their elected officials know how they feel and the injustices they have (dealt) with by your organization. (#1011 --Intermountain Grass Growers Association)

Response:

Estimates of full-time equivalent workers (FTEs) for grass farms are employment estimates directly related to grass production activities (including all persons who work on the farm).

A SBEIS does not seek to determine whether a loss would "devastate" a farm or simply be an additional cost that could be handled by a grower. The SBEIS determines whether the rule would place a disproportionate economic burden on Washington small businesses, including growers, as opposed to large businesses.

Every attempt was made to obtain representative information and document the sources of information used in the SBEIS. A cross section of growers were interviewed with different sized farms. Agricultural and economic experts were consulted.

Socioeconomic costs and benefits were analyzed and discussed by WSU in their cost-benefit analysis.

Please see the preceding and following responses as well.

The SBEIS contains information which is flawed, inaccurate and not based on science

(continued).

- I feel that the ban on grass burning was made in error, with (a) poor economic impact study and non-scientifically sound reasoning. I therefore, respectfully request that the Department of Ecology reconsider the grass field burning regulation and lift the grass burning ban. (#1015 --Grower)

- DOE (Department of Ecology) has issued an erroneous and inadequate Small Business Economic Statement (SBEIS). In preparing the SBEIS, the DOE (or its agent) used fallacious logic... DOE determined that no Washington grower, seed processor, or wholesaler qualified as a large business under the statute. DOE asserted that there were no large business, there could be no differential impact on small business. The fallacy of this reasoning is apparent. If all the burdens of the proposed rule weigh on small businesses, and none weigh on large businesses, the rule clearly places a disproportionate impact on small business... The proposed rule places heavy burdens on small businesses. It places no burdens on large businesses... DOE was not satisfied with this result. IT therefore, ignored the statutory definition of small business and classified growers as large or small based on acreage, and processors as large or small based on clean seed throughput. Neither of these approaches is contemplated or authorized by the statute. DOE's analysis is founded on incorrect statutory interpretation... Another erroneous assumption is that every farmer rotates bluegrass with other crops over a 10 year cycle, with the bluegrass crop spanning 7 years of that cycle. Many farmers who grow bluegrass leave the grass field in production 15 years or more. The SBEIS numbers for Harvest Returns for dryland production of grass do not appear to be reasonable. DOE represents the current Harvest Returns to be $293.40 per acre. Nowhere does DOE explain the derivation of this number. Because DOE averaged the costs and returns over a ten-year period, we cannot calculate their derivation. However, based on the same yield studies relied on in the SBEIS yields would decrease by 40%. The SBEIS, at page D-24, projects a yield decrease of 14.5%. The 1994-1995 Kentucky Bluegrass Post-harvest Residue Management indicated a yield reduction of 53.5%; the 1993-1994 Project indicated a yield reduction of 36.1%. The SBEIS, however, only projects a return reduction of 4.1% for dryland grass production. If DOE is relying on some projected price increase for grass seed there should be a discussion of the price elasticity of demand... (#1338 --Attorney)

- According to the SBEIS, flawed though it is, growers will bear increased costs of over $3,000.000 per year, and processors will bear increased annual costs of over $1,300,000.00. The benefits of the proposed rule are projected to be lower medically related expenses and lower mortality due to reduced PM_{10} and $PM_{2.5}$ emissions. However, because the actual result of the proposed rule will be increased PM_{10} and $PM_{2.5}$ emissions there will be no benefits. There will probably be increased medically related expenses and higher mortality. (#1338 --Attorney)

Response:

The Regulatory Fairness Act (RFA) (Chapter 19.85 RCW) requires that rules promulgated by state agencies under the Administrative Procedures Act be examined for their impact on small businesses. The purpose of the Regulatory Fairness Act is to ensure that proposed rules do not place a disproportionally high burden on small businesses relative to the burden it places on large businesses. Note that the purpose of the Regulatory Fairness Act is not to ensure that a proposed rule does not place any burden on industry, but rather, focuses on whether the burden is disproportionate with regard to its magnitude.

A SBEIS is required by law to be finalized when a rule is proposed. Additional economic analysis described as the cost-benefit analysis determines whether probable benefits are greater than probable costs if the proposed rule is adopted. This analysis must be conducted and finalized if and when a rule is adopted.

Huckell/Weinman and Associates contacted the Business Assistance Center for guidance on the definition of small business and how acreage and seed throughput could be used to define small and large businesses for the SBEIS.

A representative ten year rotation with bluegrass in six years was used to represent bluegrass growing conditions.

This average rotation length was based upon University of Idaho Northern Idaho crop budgets. There is variability across both dryland and irrigated growing and market conditions, as with any farm rotation.

The SBEIS clearly indicates the dryland rotation is based on one establishment year for grass, five years of bluegrass seed production, two years of wheat, and two years of dry peas or lentils. Budgets for each crop with expected returns are listed in Appendix D of the SBEIS and can easily be used to calculate a weighted annual return of $293.40 per acre.

Based upon discussions with Herb Hinman and other experts, no yields penalties were assumed for crewcut vacuum in the first three years of seed production, but yields were adjusted downward to 90 percent in year four and 80 percent in year five. Prices for bluegrass seed were assumed to remain constant for the rule impacts.

The SBEIS is missing important information.

- ...Restriction on crop alternatives reduces the value of farmland. Implementation of this rule will have an impact on the value of my investment in farmland both on an annual return and market value. (This) should be included in the Economic Impact Statement... Take into consideration that grain crops normally use summer fallow I the Garfield County grass growing region as part of the rotation. This means that there will be years when there will be farming costs with no income. One reason the grass seed crop was developed is to provide an economic rotation crop with wheat. (It also) helps control diseases in the soil that can cause severe economic damage. It is important that a farmer avoids the risk of a farm operation with a single crop. This rule change will eliminate that option for any growers without a 1996 crop and reduce the capability of current growers to continue at the current level. (#400 --Citizen)

- ...A small business was defined as a company that has a throughput of 577,000 pounds of cleaned seed in 1995. It isn't stated that these small companies process bluegrass as a sideline to the rest of their business. Nobody can make a living processing 577,000 pounds of bluegrass, that's $57,000 income. A large business was defined as a company who processes 11.6 million pounds of seed. None of the companies processed that much seed in 1995 and at least two of the four large processors never have. During the last 15 years, we, meaning Dye Seed, has only processed that much seed once. Although none of the labeled large companies process that much seed, this is the number used throughout the ES to compute the economic impact. This ES does not show the lost jobs and wages of 27 full-time people. It does not show the lost jobs and wages of seasonal employees including $50,000 paid to (high) school and college students this summer... (#1554 --Dye Seed Ranch, General Manager)

- As I read the documents (the SBEIS prepared by Huckell / Weinman Associates) it became very scary that a government agency was going to make a very important decision based on this report. In my opinion this report is worthless. Where is the information pertaining to wages paid to employees? (In excess of $400,000 per year.) Where is the information pertaining to what is spent locally? (In excess of $150,000 per year.) Where is information regarding business and property taxes? (In excess of $22,000 per year.) Where is the information pertaining to all of the other processors/wholesalers? (#220 --Processor/Wholesaler) (Attachment)

- Your economic analysis lacks a lot of desired hard economic data. First, it was pointed out in the seminars that it would cost $60 -$100 an acre additional for grass growers to use alternative methods and no where in this economic study does it address the economic costs... (#1476 --Citizen)

Response:

Huckell/Weinman contacted processing firms from a list of seed processors provided by the Washington Department of Agriculture. A good representation of large, medium and small firms based upon seed throughput were contacted and provided information.

Processing throughput was based on both seed from Washington farms and seed imported from other locations. Lost income and employment are estimated for both processors and the general economy in Washington State University cost-benefit analysis.

Please see the previous response for an explanation of the purpose of the SBEIS and cost analysis.

The survey used to complete the benefit analysis was biased.

- ...I was one of the people, one of the 1,600 respondents to a survey on a cost-benefit study, and I think that was administered to me by the University of Idaho. The questions I believe were all biased against the bluegrass industry. I don't believe that they represented economic questions; I think that they were politically directed. I resent the method and the content of the survey. A typical question was what do you believe is worse for your health--dust on the gravel roads or smoke from bluegrass fields? Or to paraphrase another question, what do you think is worse for your health--smoke from cars and buses or smoke from bluegrass fields? I don't consider that survey has a place in this decision. I think that whole survey, I think was put together at WSU, I think is wrong for this question or this study here. I guess in closing I would say I live up wind from most of the bluegrass fields in this state, and I really don't know why the called me for the survey. (#1575 --Grower)

Response:
Contingent value surveys are a standard economic technique used to measure the value of an environmental good. In the contingent valuation method households are asked how much they would be willing to pay (WTP) for implementation of the rule to reduce smoke from bluegrass seed field burning. To get reliable estimates survey respondents were asked to imagine they were voting in a referendum about whether to approve and pay for the smoke reduction program - the proposed rule. The willingness to pay estimate for the sample is then extrapolated to the overall population of the area.

Agricultural economists at WSU designed and managed the survey and analyzed the results. Great care was taken to design and implement the questionnaire in an unbiased way according to the latest knowledge of economic and survey methods. Care was taken to remind respondents of concerns about the rule and benefits of the rule, and to remind them that any money spent on the rule would leave less for other purposes. Those who opposed the rule were given an opportunity to explain why and to indicate the economic value of their opposition. Some information on costs to farmers and others who might oppose the rule was also collected, but this was a secondary objective of the survey. In the survey farmers were surveyed in proportion to their presence in the population, the same as any other resident. Residents were randomly selected from households in grass growing counties of eastern Washington and the smoke impacted counties of Kootenai and Bonner counties in Northern Idaho.

Members of affected communities and businesses should be involved in drafting the SBEIS.

- We, as a community have seen the economic impact when a vital industry no longer exists. It takes years to adapt to the losses of business and families. That is why we respectfully ask that you consider these factors and vote to delay the implementation of this WAC until (its) impact is reconsidered and members of Garfield County be part of that impact statement. (#999 --Garfield County Hospital Administration)

- We respectfully ask that you delay the implementation of the WAC until (its) impact is reconsidered and members of Garfield County be a part of that impact statement. (#1002 --Real Estate Agent)
- ...The third thing, is under economic analysis, what other industry has mandated changes on without working with them or using cost share programs. (#1476 --Citizen)

Response:

WSU used a regional economic impact model to analyze probable community impacts beyond the direct grower and processor impacts. The economic impact estimates were adjusted to account for the rate at which lost jobs and business are made up by economic activity elsewhere.

Income losses to the rest of the economy beyond farm and processor losses were estimated at $324,000 and lost employment losses at $262,000. An additional $93,000 was added to account for emotional costs due to job and business losses. These figures totaling $679,000 were taken from WSU's best estimate of probable costs.

Every attempt was made to obtain representative information and document the sources of information used in the SBEIS. A cross section of growers were interviewed with different sized farms. Agricultural and economic experts were consulted. Huckell/Weinman contacted processing firms from a list of seed processors provided by the Washington Department of Agriculture. A good representation of large, medium and small firms based upon seed throughput were contacted and provided information.

The SBEIS is difficult to understand and requires clarification.

- Now in reference to the Small Business Economic Impact Statement, please define the difference between a .41 cost multiplier and a .04 cost multiplier. If one or two seed processors, which would be considered large businesses, went out of business, would this mean anything to the DOE regulation? Then if ten small grass growers and one seed processor went out of business, and no large growers and no large processors went out of business at the same time, how would the DOE look at this, and who would make the decision?... (#1529 --Cenex Supply and Marketing)

- Please define the difference between a 0.41 cost multiplier and a 0.04 cost multiplier. If one or two (large business) seed processors went out of business, would this mean anything to the DOE or the regulation? If ten small grass growers and one small seed processor went out of business and no large growers and no large processors went out of business at the same time, how would the DOE look at this and who would make the decision? (#239 --Processor/ Wholesaler)

- Our industry received a copy of the draft late on the afternoon of July 11 and a response had to be made by Tuesday (A.M.) July 16. I read the approximate 50 pages and could not make sense out of what I was reading. Maybe in the halls of government this is what you hang your hat on. Then to be classed as a .04 multiplier is meaningless. Who dreams up these benign descriptions of people and industries? A new informative study should be conducted. (#220 --Processor/Wholesaler) (Attachment)

Response:

A .41 multiplier is calculated by dividing the annual cost per employee for a typical small grower by the annual cost per employee for a typical large grower. A ratio of greater than one would indicate a disproportionate impact on smaller growers in complying with the rule. A parallel calculation for processors resulted in a .04 calculation determined by dividing the annual cost per employee for a typical small processor by the annual cost per employee for a typical large processor. A ratio of greater than one would indicate a disproportionate impact on smaller processors in complying with the rule.

The cost-benefit study conducted by WSU provides estimates of the probable costs of the rule including costs incurred by growers, processors, and the general economy.

The costs of the resulting environmental degradation are not considered in the SBEIS.

- I just would like you to make sure that when your economic impact is done...to me it's down the line of what we want to do as far as our air, water, and soil quality, but it's something I think is important for us realistically to consider for our area... (#1573 --Pomeroy Business Owner)

- ...The study does not take into account any of the environmental benefits of growing bluegrass, the increase in PM_{10}'s from the straw removal systems and increased tillage with no burning, or the additional cost to the state and county road departments for ditch cleaning due to the increase in soil erosion. Until a study is done that has credible evidence, gained from the growers and processors, the implementation of this permanent rule should be delayed. (#1072 --Grower)

- ...Second, your economic analysis does not (look) at the cost of soil savings or the loss of soil versus (difficult to understand). It does not look at the soil erosion or water quality protection and economic trade-offs between that and somewhere I think you need to address those economic issues that relate to soil erosion to water quality and those type of issues... (#1476 --Citizen)

- Another factor not discussed but needing to be addressed is the county's increased costs for roadside maintenance when 25,000 acres of grass are eliminated, i.e., cleaning of drainage ditches, replacing plugged culverts, rebuilding washed out roads and or road shoulders. (#225 --Grower) (Attachment)

- ...If you think that you have got problems with smoke, then let's talk about weeds. It costs approximately $20,000,000 a year just in Spokane County to put down enough herbicide and enough insecticide to control those problems. Now if you take that 26,000 acres out of grass seed production and put it into some other production, then you're talking about several million dollars. If you're talking about importing grass seed, for every one percent below a hundred, it'll cost Spokane County $10,000,000 in herbicides to combat the weeds that you plant... (#1520 --Former Member/Spokane Co. Noxious Weed Board)

Response:
Environmental impacts from soil erosion were covered in the benefits-costs analysis conducted by WSU. See response to "Without grass in production, the cost of erosion abatement activities will increase."

Information from Idaho should not be used for a SBEIS based in Washington.

- ...Under the cost benefits portion of the research study, why with Washington tax payer's money, is north Idaho included in the benefits part of that? And I would like a written explanation of how another activist group in north Idaho got included in a determination for Washington... (#1505 --Grower)

Response:
Smoke impacts from Washington bluegrass fields are not confined within Washington's geographical borders. Many residents from Kootenai and Bonner counties of Idaho have complained to the Department of Ecology and SCAPCA of smoke intrusions from Washington. The contingent value survey indicated that Idaho residents in support of the rule indicated a value of over $81 per household to reduce burning by 2/3 on Washington acreage. This Idaho value does not include an additional unknown value that Idaho residents would place upon reducing grass seed smoke from Idaho acreage.

Comments on Ecology's Determination of Nonsignificance Under the State Environmental Policy Act

Ecology's DNS was appropriate and based on accurate information.

- I wanted to comment on your SEPA checklist. I think it was well done and well thought out. I have underlined some things that I've checked. When you do a SEPA checklist, you have to address air, water, land; all these impacts are interconnected. I agree with the DNS. You had three options you could

have done--a MDNS, DNS, or a DS on this project. I don't find there's any mitigating things we need to look at because the impacts of reducing the smoke by a one-third reduction over three years will vastly outweigh the alternatives that they could be doing as far as the dust. I find that the dust emissions would be ten to 13 times less than the present smoke emissions... I am going to submit the things from the fugitive emissions WAC as far as fine particulates... I totally agree with your composition of the grass smoke as the other people have testified that the dirt particles that would be produced from a tillage operation are larger, tend to settle out more. Seventy-eight percent of the dust emissions are larger than PM_{10}; ninety percent are larger than 2.5. You have all the scientific data to back this up. The impact on the water quality that's been alluded to many times as far as conservation measures would be one-half of one percent difference. (#1526 --Citizen) (attachment)

Response:
Your support of Ecology's evaluation is appreciated.

The benefits of grass production compensate for the problems created by a few days of burning.

- I thought that it was presented quite well last night (Colfax hearing) that grass seed growing was a very ecological endeavor and with the exception of one day per year was highly beneficial to all society. (#1336 --Grower)

- ...The benefits of growing bluegrass 364 days out of the year, we're producing clean oxygen, and the benefits of that outweigh the small time that we are making a little, some smoke that goes into the air... (#1611 --Grower)

- ...Think about what them grass fields are doing most of the year which is scrubbing the air, actually reversing what we're trying to get rid of... They're releasing oxygen and taking out some of these substances that we don't need in our bodies, and over a broad scope of a lot of people, this would have to weigh against the asthmatic situations... (#1615 --Adams Conservation District)

- Burning bluegrass, which only lasts about five hours per year, seems to be the only environmental problem with my farm. The other 364 days and 19 hours the bluegrass is definitely doing society a tremendous amount of good... (#995 --Grower)

- Our environment is made up of soil, water and air, I believe the DOE is acting irresponsible by only focusing on the burning of grass which is the only negative event each year. The rest of the year grass can only be considered an asset to our environment. (#1000 --Grower) (Attachment)

- The negative emphasis put upon the effects of grass field burning is far out of proportion with the positive factors surrounding the grass industry... (#988 --Citizen)

- I understand the concern of highly populated areas such as Spokane County (during) the burning period, for the other 49 weeks of the year grass crops do more for air quality than any other crop... (#989 --Garfield County Fire Chief & Pomeroy Grain Growers Co-op employee)

- ...(I) feel the benefits of grass production far outweigh the down side arguments... (#989 --Garfield County Fire Chief & Pomeroy Grain Growers Co-op employee)

- This burning only lasts about five hours per year. The other 364 days and 19 hours the bluegrass is definitely doing society a tremendous amount of good... (#18 --Grower)

- Grass fields are net contributors to a better environment, not a pollution source as the DOE would want everyone to believe. If DOE was truly concerned with making the environment better they would concentrate their efforts on growth management with special emphasis on population centers. (#216 --Grower)

- If we are forced out of growing bluegrass it will effect us and hundreds of others 365 days of the year --not just the 10 or so days of burning that might bother the "sensitive few." We will be forced into farming practices that are antiquated and not environmentally friendly. We will be taking a giant step BACKWARD relating to soil conservation, water quality, and yes, air quality. (#240 --Grower) (Attachment)

- ...The positive aspects of Kentucky bluegrass far out-weigh a few hours of smoke. Soil conservation and water quality must be considered also, as well as all the oxygen produced from bluegrass plants for all of us to breathe. It is imperative that we keep bluegrass as a crop rotation. (#1309 --grower) (Attachment)

- ...The grass seed industry is so important for clean air and water and that is only a small portion of the advantages of grass fields... Burning of the grass fields is really a very small inconvenience considering all the great things it brings to our lives... (#1308 --Citizen)

- ...We mistrust the ethics of a government agency's destruction of an industry which has one negative aspect but such overwhelmingly-positive aspects... (#1019 --Grower)

- ...(I) believe that the reduction in blowing dust during about a five month period is of greater benefit to people with asthma or emphysema than the short period of grass burning is detrimental . A scientific study should be made of this relationship. (#1022 --Grower)

- ...Don't you think that a few hours of burning is worth the positive benefits that bluegrass gives us?... (#1311 --Grower)

- ...Grass field burning takes place for one month of the year under strict regulations. It is far less annoying and harmful than the smoke in the air the other eleven months, ...smoke from forest fires and wildfires, burning leaves and our neighbors' wood stoves... At least in the case of grass fields we also reap the ecological benefits they provide, from saving our farmland from erosion to producing oxygen for us to breathe... (#1314 --Registered Nurse)

- If we are forced out of the bluegrass business, it will affect us and hundreds of others 365 days of the year, not just the ten or so days of burning, that might bother the sensitive few. We will be forced into farming practices that are antiquated and not environmentally friendly. We will be taking a giant step backward relating to soil conservation, water quality, and yes, air quality. (#1542 --Citizen)

- ...I live in the middle of grass farms. I enjoy beautiful scenery as I drive home 364 days of the year. I'm willing to put up with one day that field burns. I think that the fields have more than enough compensation environmentally... (#1502 --Citizen)

- Our farmland is located south of Freeman and is highly erodable soil... All of the positive reasons for raising blue grass seed surely outweigh the negative--one. (#138 --Grower)

- ...Virtually no erosion occurs during the time a field is grass, with the exception of a few hours (of) smoke, the rest of the year it is keeping down dust that would be stirred up if growing grain or oil crops, and is providing oxygen for the surroundings... (#1028 --Grower)

  ...The big picture is conservation benefits of bluegrass, and the fact, at least as I see it, it's if we ban the burning, the particulate level will probably actually increase. Of course we won't know that until it's

banned, but I think if you look at the numbers, and I assume you will continue to study it, to see that that is the fact. (#1530 --Grower)

- ...I would much rather see the grass and see the smoke once a year than to have the erosion and the dust year round. (#1499 --Washington Cattlemen's Association)

- ...Environmentally, it makes no sense trading a slight reduction of air particulate for a huge increase in soil erosion, therefore, water degradation... (#1556 --Optometric Physician)

- The adverse health effects of stopping field burning must be considered. There is a positive side to grass growing. The environmental impacts of the proposed alternatives, which create dust, already the major source of PM_{10} in Eastern Washington, need to be considered... (#362 --Physician) (Attachment)

- ...Therefore, the net effect of a ban on field burning might be to increase pollution, not reduce it. (#362 --Physician) (Attachment)

- ...The advantages of grass to the total system far outweigh the disadvantages. (#1025 --Grower)

- ...Statistically, scientifically, and agriculturally, grass growing is an environmentally friendly practice and now it's considered a crime by the Department of Ecology. (#1591 --Grower)

- ...I know that flume smoke from a field being burnt is an unwanted sight for some of our local residents but from an environmental standpoint it has many more positive contributions to our community... (#1062 --Inland Empire Chapter Soil and Water Conservation Society)

- ...If you take these fields out, and you force these guys out of business, you will have lots of soil erosion in the Spokane River, in the Palouse River, in the Snake River, in the Columbia River, and you better get your road graders out, and you better get your dredges out because it's coming down the hill. And you'll notice that you had a little smoke in the air for a short period of time versus the amount of damage that soil erosion can do. I've experienced this firsthand. (#1588 --Grower)

Response:

The Department of Ecology recognizes the many benefits of grass production, particularly as compared to growing non-grass crops. These benefits include but are not limited to: reduction of soil erosion, wind blown dust and chemical use; improvements in soil character and water quality; and air cleaning abilities. In addition to the environmental benefits, grass also provides an economically viable crop. The economic analysis of the rule amendment indicates that 58 percent of current acreage will remain in production and continue to provide all of the above benefits. It is agreed that most days of the year grass production is beneficial. However, to obtain a true picture of the environmental impact of the implementation of this rule a complete analysis of the effects is necessary.

In making the Determination of Non-Significance, it was concluded that there are effects associated with this rule, including an increase in soil erosion, wind blown dust potential and chemical use and a degradation of water quality. The potential environmental impacts come principally from the expected shift of grass production to alternative crops. Farming these likely alternative crops has generally greater environmental consequences than does farming grass (as discussed in more detailed responses following).

All of the estimated environmental effects of implementing this rule are within the extent of the variations which already occur from year to year.

It is not the intent of the Department to destroy the grass seed industry. According to the economic analysis of the rule, this will not occur. The provisions for permit trading, five percent exemption, certification of alternatives and potential changes in methods of measuring emissions are all intended to lessen the impact on the grass growing industry.

Ecology acknowledges that there are other sources of smoke emissions. These pollutant sources are already subject to emission requirements.

The nature of some of these comments seems to be calling for a choice among alternatives, each with environmental consequences. The Department of Ecology is charged with the responsibility of administering the Washington Clean Air Act. The law (Chapter 70.94 of the Revised Code of Washington) embodies the policy decisions or choices made by the legislature. One of those choices concerns grass field burning. In lay terminology, grass burning is allowed, subject to conditions, if the amount of smoke (or emissions) created is acceptable. If the amount of smoke is unacceptable then the amount of burning which is allowed may be reduced (the law says, in part: "...In order to effectively control emissions from this source." See RCW 70.94.656(4).) . Ecology has made a determination that the emissions from grass field burning are not effectively controlled based on the health effects of the smoke. The choice to protect public health is embodied in the clean air law and following such a finding, the Department's job is to carry out the law. The proposed reductions in burning are intended to carry out this portion of the law.

Please see response in following section.

Grass production has economic and/or environmental benefits but its health risks cannot be ignored.

- The economic benefit of a few should not out weigh the health risks of hundreds of thousands in our community. (#21 --Physician)

- ...It would seem to me the argument is whether the wealth of a limited number of grass field owners is more or less important than the medical health and well-being of the multitude of individuals affected by the grass burning. (#204 --Physician)

- ...Respiratory disease is the second largest disease process in the United States outside of cardiovascular disease. It affects over 40% of our population and these people are extremely sensitive to the pollutant issues of our air... I whole heartedly support the banning of grass burning in our area, as it is a financial gain to a limited number of people and a significant medical problem for a large segment of the population. (#231 --Physician)

Response:

Ecology agrees. The Agency is working to balance the needs of the agricultural community and the citizen concerns about having clean and healthy air. Under the provisions of the Washington Clean Air Act (RCW 70.94), levels of air quality that protect human health and safety are to be secured and maintained.

The Department of Ecology needs to consider the impact of this rule on all natural resources not the air alone.

- ...The environmental benefits of bluegrass have not been given consideration by the DOE (Department of Ecology). (#1061 --Grass seed producers)

- ...The Department of Ecology is charged with the responsibility of protecting all aspects of our environment. I am very concerned about the focus of this proposal on only one section of our environment--being the air. I believe that decisions as important as these proposals need to look at the big picture... (#1531 --Washington State Farm Bureau)

- (Grass growing) is given no credit for the benefits it provides: cuts soil erosion, prevents blowing dust, produces oxygen etc... (#992 --Citizen)

- ...Looking at the air quality situation as a whole, I think we need to consider other species and long range effects and look at the airshed, a more comprehensive view. I'd like to see environmental and water quality issues being dealt with on a watershed basis. (#1431 --Citizen)

- ...We recommend that WDOE(Washington State Department of Ecology), both the Air Quality Division and the Water Quality Division, work cooperatively with the grass growers, the NRCS, Conservation Districts, WSU Cooperative Extension, researchers, and other conservation partners, to develop feasible alternatives and actions that take into consideration all natural resources, including soil, water, plants, animals, and air, as well as economic and social concerns. (exhibit: Water quality Benefits of Grass in Rotation in Whitman County) (#1305 --USDA Natural Resources Conservation Service, District Conservationist, Colfax) (Attachment)

- ...If the proposed reductions are enforced bluegrass production will no longer be an economically viable option for producers. We would like to encourage WDOE (Washington State Department of Ecology) (to) cooperatively utilize a task force that includes NRCS and Conservation District personnel, as well as local producers to develop proposed actions that take into consideration soil, water, air, plant and animal resources as well as economic and social resources. (#393 --Asotin County Conservation District Board of Supervisors)

- ...It's Department of Ecology's responsibility to find the total environment. Today I called up the Department of Ecology. I talked to Grant about soil conservation, and I found out that it has not been too large an area that has been checked on the soil conservation. It's been Spokane County, but there's other counties also. I also called up the water quality department and found out that Nancy Wells said we have not been contacted. We have not been given any reports, we have not been asked for any input on the phase down. The Department of Ecology is required to give a full report of all the environmental impacts. We are only looking at one thing. Are we doing good, or are we doing bad? This is a question I ask the Department of Ecology to answer. What's the long-term effect? (#1609 --Grower)

- I feel that the DOE (Department of Ecology) is making this decision based solely on costs of air pollution with absolute blindness to environmental benefits of the bluegrass industry... (#1539 --Citizen)

- We demand that the environmental benefits are taken into consideration... (#1500 --Citizen)
- The proposed amendment to the permanent rule developed with help from an advisory committee made up of growers, clean air activists, legislators, and local government officials, in my professional opinion and after much review by qualified technicians in my office of the resource issues in the entire Hangman-Latah watershed, only addressed air quality. The impact on water quality by reducing grass field acres by 67 percent over a year period was not even considered. (#1506 --Spokane County Conservation District)

- Ecology should be concerned about soil erosion just as much as they're concerned about grass smoke in September... (#1588 --Grower)

- ...How can DOE look at only one of our natural resources and ignore the other four?... (#1025 --Grower)

- The proposed amendment does not address the issue of what is the best use for our farmlands in the long run. The short-term gain is a small reduction in the smoke particulates to the south of Spokane. The

long-term result would be an unknown increase in small particulates from dust and an increase in soil erosion from wind and water. (#1527 --Citizen)

- ...If the DOE fairly judges this issue and studies air quality AND water quality AND soil conservation, as suggested by their name, "Ecology", there can be only one determination: KEEP GROWING AND BURNING KENTUCKY BLUEGRASS FIELDS!! (#1311 --Grower)

- ...Look at the benefits that bluegrass provides for our environment for our soils and not strictly base this on the negative aspects of burning. (#1567 --Chemical Retailer)

Response:

Ecology has taken into consideration the many benefits of grass production and the resulting impact on natural resources when grass production is reduced. (Please see the previous and following responses for details.)

The Department of Ecology made an evaluation of the probable environmental consequences of the proposal to reduce grass burning. The potential environmental impacts come principally from the expected shift of grass production to alternative crops. Farming these likely alternative crops has generally greater environmental consequences than does farming grass (as discussed in more detailed responses following). The process involved completing an environmental checklist summarizing probable consequences of the proposal. Key areas in that evaluation included: the air quality effects of reducing burning of grass fields; the dust from straw handling on grass fields not burned; the dust from tilling replacement crops; the emissions from burning replacement crop fields; the potential for emissions from dust storms; the exhaust from equipment used in farming the replacement crops; the sheet & rill, concentrated flow and wind borne soil erosion from replacement crops; the water quality effects of soil erosion off replacement crop fields; and the use of chemicals on replacement crop fields. Based on the analysis and checklist, Ecology made a determination of non-significance (DNS). This is based on the conclusion that there will be no probable significant adverse environmental impacts from the proposal. The DNS was subject to public review and comment during the summer (1996). Many comments were received on the subject of environmental consequences, often expressed in terms of the environmental benefits of grass production. After receiving these timely comments, the Department of Ecology carefully considered the comments. Included in the consideration was a thorough review of the analysis which formed the basis of the environmental checklist. The impacts of the proposal on the environment have been considered. In addition, an evaluation of economic consequences of the proposal were evaluated (see other documents associated with this rule development process).

Please see previous section and also refer to specific discussion of environmental aspects in this section of the concise explanatory statement.

The Determination of Nonsignificance is based on flawed or incomplete information.

- ...I find that the data provided in the EIS (Environmental Impact Statement) is extremely flawed... (#1531 --Washington State Farm Bureau)

- ...The Department (of Ecology) has issued a Determination of Nonsignificance under 197-11-340(2); declaring that completion of an Environmental Impact Statement is not necessary under RCW 43.21C.030(2)(c). The Determination of Nonsignificance is based on flawed assumptions and includes analysis conducted by staff personnel lacking expertise on the subject of soil science... The analysis of increases in soil erosion was completed by Grant Pfeifer, who has no background education in soil science. His assumption of 90,000 marginal tons of soil erosion is not accurate... Federal Department of Agriculture staff members at the local Natural Resource Conservation Service conveyed to me that typical annual soil erosion rates for the Palouse region averages 10 tons per acre. (#1264 --Citizen)

- Mr. Pfeifer's assumption that only 20,000 acres will be converted from grass to annual cropping production is erroneous. Given the adverse results of the Economic Impact Statement it is far more

likely that greater than 20,000 acres of grass production will switch to annual cropping rotations... The department should have included a range of soil loss estimates based on the potential for a total burning ban by 1998. This range of assumptions should include an estimate of marginal increases in soil erosion resulting from a total conversion to annual cropping patterns. Using the permitted burned acreage figure of 41,000 acres results in 410,000 more tons of annual erosion using NRCS erosion rates... (#1264 --Citizen)

- Residue information presented at (the) symposium is misleading. Irrigated varieties produce more seed and less straw residue per acre than dryland varieties. This year's baled acreage from our 1/3 no burn fields produced 2,800 lbs. baled straw per acre, not 7,000 lbs. shown on page 5. Assuming PM_{10} = 16 lb. per ton then Columbia Basin grower(s) produce 22.4 pounds of PM_{10} per acre not the 56 pounds per acre assumed on page five of (the) memo. The department's residue estimate is based on erroneous assumptions and requires correction. (#1264 --Citizen)

- ...I think it behooves Ecology to pull the blinders off and start this process over, identify a base line, define a program, and get back on track with reality. All of the major components in the study that have led Ecology to this decision are flawed--Determination of Nonsignificance, phooey! (#1505 --Grower)

- Whoever determined that the matter of bluegrass field burning was of Nonsignificance in regard to doing an Environmental Impact Statement has based that decision on personal opinion rather than scientific facts and data. (#1542 --Grower)

- DOE (Department of Ecology) has erroneously made a Determination of Nonsignificance (DNS). DOE's environmental analysis overstates the beneficial effect of the proposed rule and understates the detrimental effects. DOE states that the proposed rule will decrease PM_{10} emissions by an amount between 846 tons and 915 tons. DOE calculated these figures using the following figures:

  Acres burned before proposed rule - 49,000
  Acres burned after proposed rule - 16,333 - 18,783
  Tons residue per acre - 3.5
  Pounds PM_{10} per ton residue - 16

  As support of the 3.5 ton per acre of residue DOE cites personal notes and presentation materials from the 1996 Grass Burning Symposium. In other words, DOE has pulled this figure from thin air with no empirical support. The inherent weakness of this figure is readily apparent when one considers that DOE did not distinguish between irrigated and dryland acres, and that nearly all of the Kentucky bluegrass raised in Washington is dryland. Farmers who have baled grass residue from dryland Kentucky bluegrass fields in 1996 have been getting between 2.0 and 2.4 tons per acre. In 1996, residue was heavier than in most years because of the unusually wet spring; residue would normally be much less. Average residue on a dryland field would be 1.9 tons. According to the rule making file, at page 195, the residue on irrigated no burn plots was approximately 2.75 tons per acre. Residue will always be greater on irrigated fields than on dry land fields, all other things being equal. Since .25 tons of residue per acre remain after burning, only an average of 1.65 tons per dryland acre (or less) are burned. Using a 1.75 tons per acre figure, and DOE's formula, the predicted reduction in PM_{10} emissions from 2/3 reduction is only 423 to 457 tons per acre. By using an artificially high per acre residue figure, DOE has grossly overstated the beneficial effect of the proposed rule. DOE understates the detrimental effects of burning of replacement crops, by understating the effect of increased tillage operations on acres that are devoted to different crops, by understating the effect of water and wind erosion, and by ignoring the effect of increased pesticide and fertilizer usage. Furthermore DOE's acreage figures utilized in estimating the detrimental effects of the rule do not add up. DOE estimates current grass field burning to be 49,000 acres. DOE estimates that in the future 18,783 acres will be burned, 22,814 acres will be shifted to other crops, and 7,105 acres will be devoted to grass production but not burned. Since DOE claims that 1/7 of current grass acres are not burned in any given year, over 8,400 acres have disappeared from the calculations. DOE has understated the effect of burning of replacement crops by understating the acres that will be burned and by using

an inappropriate emissions factor from EPA AP-42. DOE estimates that the new burning of the acres shifted to other crops would be 2.17% of the acres that are shifted to wheat. This is the percentage of wheat acres that are currently burned according to DOE. This ignores the realities of the situation. Many of the dryland grass acres are on highly erodible ground. Farmers are required by USDA to comply with conservation plans. Compliance requires a high amount of residue. the only efficient method for farmers to comply will be to utilize no-till techniques. No-till techniques require the burning of stubble for ground as productive as that in Eastern Washington. Many more than DOE's estimate of the 416 acres of replacement crops will be burned. DOE used an inappropriate emission factor in calculating the PM_{10} emissions from replacement crop burning. AP-42 presents two emission factors for wheat burning, 13 pounds per ton for backfire burning and 22 pounds per ton for headfire burning. When farmers burn wheat stubble they use headfire burning, not backfire burning. For every acre shifted to wheat that is burned PM_{10} emissions will increase by at least 10%. DOE understated the PM_{10} and $PM_{2.5}$ emissions that will result from tillage of acres shifted from grass to other crops. First, DOE used a formula from the 1983 version of AP-42. This formula is not published in the current AP-42. The current publication only says "(Work in Progress)". AP-42 9.1-1 (1/95). Second, even if the old formula is accurate, DOE misapplied it. The formula for pounds per acre for each tillage operation is E=k(4.80)(s).6 where:

E is emissions
k is particle size multiplier
s is % of soil which passes through 200 mesh
For PM_{10}, K = .21; for $PM_{2.5}$ k = .10

In estimating the detrimental effect of the proposed rule, DOE used artificially low values for s and for the number of tillage operations. DOE assumed s to be 18. Examination of USDA soil survey maps for areas in which grass is grown readily demonstrates that this is in error. In Valhalla Land Company's fields, s is between 85 and 100 (Mr. Rasmussen is a partner in Valhalla Land Co.). In other grass fields we have examined s is between 80 and 100. DOE (Department of Ecology) assumed figure is erroneous. DOE also assumed an unreasonably low value for the number of tillage operations. The minimum number of tillage operations involved in the production of replacement crops is 4; the maximum is 8. DOE assumed an average of 3! If the actual number of tillage operations is 6, then every acre that is shifted from grass production to replacement crops will generate more PM_{10} emissions if s is 24 or greater and more $PM_{2.5}$ emissions of s is 44 or greater. Every shifted acre will generate more P_{M10} and more $PM_{2.5}$ just from tillage operations (i.e., without even factoring in the increased emissions from mechanical residue removal in the unlikely event this option is selected), and the increase will be substantial. DOE, rather than examining realities, made assumptions to yield the desired results. DOE understated the effect of increased water and wind erosion. DOE hides the actual impacts behind percentage calculations. Water erosion has been calculated at 200 pounds per acre per year for an established grass stand. Water erosion is significantly greater in areas devoted to annual crops. For fields with a slope length of 150 feet and slope steepness of 25%, water erosion amounts to between 26,000 and 40,000 pounds per acre per year depending upon tillage practices. This is an average dryland grass field. If DOE's estimate of 22,814 is correct for the number of acres shifted to alternative crops, and if the mean acre is similar to that described above, then additional water erosion will be between 588,600,000 and 907,990,000 pounds. This is a significant detrimental environmental impact, no matter how much is currently taking place. Water quality will be gravely deteriorated. Likewise, DOE hides the impact of wind erosion. Based on DOE's estimates, this is a minimum of 45,628,000 pounds. If wind blown dust consists of the same relative particle size as tillage created dust, then the resulting wind erosion will include 2,280 tons of additional $PM_{2.5}$, nearly 3 times more than the amount DOE claims will be reduced. This is certainly a significant adverse environmental impact on air quality. (#1338 --Attorney)

- Finally, DOE (Department of Ecology) ignored the impacts of increased pesticide and chemical use for replacement crops. Both of these may result in significant impacts on water quality. (#1338 --Attorney)

Response:

The Department of Ecology made an evaluation of the probable environmental consequences of the proposal to reduce grass burning. The potential environmental impacts come principally from the expected shift of grass production to alternative crops. Farming these likely alternative crops generally has greater environmental consequences than does farming grass (as discussed in more detailed responses following). The process involved completing an environmental checklist summarizing probable consequences of the proposal. Key areas in that evaluation included: the air quality effects of reducing burning of grass fields; the dust from straw handling on grass fields not burned; the dust from tilling replacement crops; the emissions from burning replacement crop fields; the potential for emissions from dust storms; the exhaust from equipment used in farming the replacement crops; the sheet & rill, concentrated flow and wind borne soil erosion from replacement crops; the water quality effects of soil erosion off replacement crop fields; and the use of chemicals on replacement crop fields. Based on the analysis and checklist, Ecology made a determination of non-significance (DNS). This is based on the conclusion that there will no be probable significant adverse environmental impacts from the proposal. The DNS was subject to public review and comment during the summer (1996). Many comments were received on the subject of environmental consequences, often expressed in terms of the environmental benefits of grass production. After receiving these timely comments, the Department of Ecology carefully considered the comments. Included in the consideration was a thorough review of the analysis which formed the basis of the environmental checklist.

The review included (among other topics) a re-evaluation of the following elements of the environmental analysis based on comments and additional information received by Ecology: estimates of soil erosion rates including rates provided by additional sources; estimates of the number of acres shifting to replacement crops, going to idle ground, staying in grass, staying in grass without burning; estimates of the amount of residue burned on both dryland grass and irrigated grass; increased estimates of the replacement crop acreage which is likely to be burned based on more detailed information from the Ag Burning Task Force reflecting actual farm management systems (including conservation residue requirements); an increased emission factor for burning replacement crops based on headfire burning (22#/ton); increased estimates of surface silt content in soils in calculating emission during tillage; increased estimates of number of tillage operations (including a high and low range); and, estimates of the differing rates of chemical use between grass and replacement crops.

The results of the re-evaluation include these potential estimates relative to pre-proposal conditions: A shift of 22,342 acres from grass to replacement crops, 2,740 acres of grass being idled and 35,138 acres remaining in grass. A potential increase in PM emissions from straw handling on grass fields of one to 95 tons. An increase of less than one-half percent to one and one-half percent in dust from tillage. An increase of less than one percent in PM emissions, CO emissions, and VOC emissions due to burning of replacement crops. An increase of less than one percent in replacement crop blowing dust potential. An increase of 229 to 496 tons of PM emissions from tillage. An increase of 52 tons of PM emissions from replacement crop burning. A decrease of 62 percent to 67 percent in PM, CO, and VOC emissions from grass field burning. A decrease of 1,077 tons of PM emissions from grass field burning. A decrease of 6,797 tons of CO emissions from grass field burning. A decrease of 1,010 tons of VOC emissions from grass field burning. An increase in soil erosion of less than one-half percent to less than two percent from shifting crops. An increase of 67,000 tons to 313,000 tons of soil erosion from shifting crops. A decrease in water quality of less than one-half percent based on an increase of 6,839 to 20,244 tons of soil erosion contributed to ditches, waterways, and streams. An increase in chemical use (fertilizers and pesticides) of about one percent.

The re-evaluation also includes the following general summary of potential environmental consequences: the potential adverse environmental impacts resulting from the proposal are related to changes in farming practices in the region where grass seed is now grown; the principal changes are expected to be a shift or switch from grass seed production to other crops which are common to the region and removing grass residue without burning on some grass fields.

Different crop types call for different farm operations and different environmental consequences. In general, the increase in effect (relative to current or pre-proposal conditions) is closely related to, and on the same order as, the increase in production of the "replacement" non-grass crop types. The estimate of acreage shifting (indirectly due

to the proposal) represents an increase of less than one percent in the acreage of the typical non-grass, "replacement" crops currently in the region where grass seed is grown. Less than five percent of the typical annual fluctuation in wheat production (one of the principle "replacement" crops). Less than three percent of the greatest two-year fluctuation in wheat acreage (over the last ten years). More specifically, slight increases in dust may come from changes in farming practices indirectly due to the proposal. These increases are well within the variation one sees in farming practices from year to year. Significant reductions in smoke and other combustion air pollutants will result from the proposal. Slight increases in soil erosion may come from changes in farming practices indirectly due to the proposal. Slight decreases in water quality may come from the increases in soil erosion. Again, both conditions are well within the variations expected from year to year.

The impacts of the proposal on the environment have been considered. Please see later discussion about environmental impact statement. In addition, an evaluation of economic consequences of the proposal was completed (see other documents associated with this rule development process).

An Environmental Impact Statement should be completed before this rule is adopted.

- ...We insist that an Environmental Impact Statement be done, and then you would see that the amendment should be thrown out... (#1542 --Grower)

- The regulatory agencies, SCAPCA and DOE, should perform an environmental analysis taking this into account before promulgating rules which, despite their intent, may make things worse, not better. (#362 --Physician) (Attachment)

- ...It is absolutely essential that you prepare an environmental impact statement before you even consider putting an end to a complete industry which will disrupt many lives. (#335 --Grower)

- The DNS (Determination of Nonsignificance) fails to include an adequate explanation as to wildlife impacts resulting from conversion to annual cropping rotations from perennial cropping of grass seed. The department's evaluation of impacts to fish habitat should come in the form of a complete Environmental Impact Statement and should consider the impact of marginally greater soil erosion on endangered species such as salmon and steelhead as well as non-listed species of fish, waterfowl and wetland dependent mammals... (#1264 --Citizen)

- ...Ecology is advised to conduct a thorough investigation, analyzing smoke quantities from grass seed field burning relative to smoke from forest and range fires in the Pacific Northwest and provide this information in the form of an environmental impact statement as a means of justifying the need for a permanent rule. (#1264 --Citizen)

- We insist that an environmental impact statement be done--then you would see that the amendment should be thrown out. (# 240 --Grower)

- To determine the total effects of the burning ban on soil erosion and the environment, an environmental impact statement needs to be completed. The economic and environmental ramifications of the burning ban must be studied before an entire industry is lost in our State. (#1018 --Garfield County Port District) (Attachment)

Response:

Comments noted. Please see previous discussion about comments on DNS. An EIS (Environmental Impact Statement) is required only on a determination of significance regarding probable adverse environmental consequences. Ecology has not made such a determination. Ecology made a determination of nonsignificance (DNS), therefore, an EIS is neither required nor appropriate. An economic analysis has been completed and considered.

One of the consequences expected from the proposal is an increase in other crops as farmers shift some acreage out of grass. This increase represents only a fraction of the yearly fluctuations or shifts in acreage. These changes or crop rotations do not require environmental impact statements.

This rule conflicts with the recommendations of other agencies to plant grass as a conservation practice.

- ...This decision might even counter a USDA Soil Conservation Service recommendation to grow grass in order to cut down on wind-and-rain erosion... (#1576 --Washington State Farm Bureau)

- I am responsible for insuring that a substantial percentage of the nation's bluegrass seed production meet (state, federal and consumer) standards. One department of the government (tells me) to meet these requirements while (another) demand(s) that I give up my most valuable management tool, simple, thermal field sanitation. (#985 --Dye Seed Ranch)

- ...We aren't allowed to use the method endorsed by the Soil Conservation District without giving up precious burning acres... (#1542 --Grower)
- Part 4-b of the Amendatory Section of WAC 173-430-040 was passed by the legislature which determined that burning was the best management practice for the near future, until better methods could be researched to replace burning, in bluegrass management. (#1265 --Growers)

- ...If bluegrass is taken away from us as a rotation crop, the negative effects toward the environment will be staggering! Are you ready to accept the blame for this? Several government agencies recommend the growing of Kentucky bluegrass. How can another government agency step in and tell us to stop?... (#1311 --Grower)

- We have considerable Highly Erodible Land (HEL) designated by the FSA government agency, (formerly known as ASCS). We have to get approved plans and get approval for operations on HEL ground from the Soil Conservation Service. Kentucky bluegrass in crop, and ground taken out of production meets ASC guidelines easily... (#1263 --Grower)

- ...Since 1992 we have met and updated our farm conservation plan with county soil people. Compliance with this multi-year plan enabled farmers to participate in the federal farm programs which today are an economic necessity. Part of our farm plan was to grass waterways, grass hillsides, and to grass natural water ditches through our ground. This was done for erosion control... So through the services of the soil conservation and Jacklin Seed Company, a seven-year plan was enacted to meet these federal-farm-program specifics. This was done earlier. Then in 1996 the state Department of Ecology bans the enactment of the rest of these plans. With the burning ban, conservation and wildlife programs immediately stop. Erosion will take over and wildlife habitat will be lost. (#1605 --Grower)

- ...Farmers believe that DOE and the public, don’t understand the full environmental impact of removing fields around Eastern Washington from grass to an annual crop. Many of these fields are on rolling hills and the Conservation Districts have encouraged that they be planted into a crop which did not require tilling on an annual basis... (#1020 --Washington State Farm Bureau)

- ...Producers who participate in this enterprise are providing many (more) advantageous benefits to the environment than risks. Benefits such as: Stabilization of soil, and the near 100 percent reduction in soil erosion. The State rule may force producers to destroy the grass, which is in direct conflict with the Federal compliance regulations pertaining to control of soil erosion... (#1304 --Grower & Director, USDA Farm Service Agency)

Response:

It is agreed that grass production in rotation is a valuable conservation tool as is recommended by several agencies. The erosion and dust control properties of grass as well as its effects on soil character and content are quite evident. These conservation qualities certainly exceed those of the alternative non-grass crops. It has been determined in the economic analysis that 58 percent of current grass production will be maintained and will continue to contribute to conservation efforts. The rule amendment requires a reduction in the acres of grass which are burned, not a reduction in the number of acres in production. Grass is still available as a conservation tool, but at a likely reduced profit margin.

It is common for agencies to have conflicting interests as each is trying to forward its unique mission. Although departments work cooperatively, they do not always come to agreement. In the Washington Clean Air Act (RCW 70.94) the legislature has indicated the importance of maintaining healthy air quality. The Washington Clean Air Act (RCW 70.94.656 (4)) authorizes the Department of Ecology to implement the provisions of the rule, including limiting the number of acres burned.

Grass Production is considered a Best Management Practice.

- ...All the farmers in the nation have a conservation plan that encourages the use of grass to hold the soil and make the water and air cleaner... (#1024 --Growers)

- ...Grass has been utilized and approved by the USDA in best management practices for soil building, erosion control and clean water. (#1012 --Citizen.)

- The USDA Natural Resources Conservation Service (NRCS) is charged with assisting land users on private lands with the management of all natural resources. In this effort, NRCS recommends installing proven best management practices (BMP) as part of their resource management planning process. The use of grasses in rotation with other commodity crops is an essential BMP which has been promoted by NRCS and conservation districts for well over 60 years... (#141 --Natural Resource Conservation Service) (Attachment)

Response:

Ecology acknowledges that grass production is considered a conservation practice. (Please see the preceding response)

Bluegrass is beneficial to the environment

- ...Sustainable agriculture is broadly defined as the ability to produce adequate food from farming practices that can be continued well into the future without compromising the underlying resource base. A bluegrass-wheat-barley, lentil, pea rotation fits this definition like a glove... (#335 --Grower)

- ...The present proposed amendment would (reduce) the amount of bluegrass we raise to about 1/3 of (the present amount). We do not want to lose this many acres of a(n) environmental protecting crop. (#995 --Grower)

- ...In some cases, the best alternative to protect natural resources and preserve economic viability for producers involves the incorporation of perennial grasses into their farm rotations... (#1305 --USDA Natural Resources Conservation Service, District Conservationist, Colfax) (Attachment)

- ... (Bluegrass) is a wonderful crop, good for the land, good for the environment, and good for our overall farming operation... (#1306 --Grower)

- ...Grass fields provide beauty, habitat, recreation, air temperature cooling in summer and less ground freezing in winter... (#1012 --Citizen.)

- I urge you not to adopt this amendment as it will be degrading our environment. Let's get together and work up a more acceptable amendment to the Agricultural Burning Rule that will keep our environment clean and healthy. (#995 --Grower)

- (Bluegrass) has long paid off in both assets to our family, county, and more importantly to the soil that we so arduously try to preserve. (#1030 --Director of Nursing, Garfield Co. Hospital District)

- ... To deny the farmer the ability to enhance the tilth and health of soil as well as to improve the water quality seems a mission out of the ordinary bounds of the Department of Ecology. It would make consummate sense to maintain grass burning as a tool for the grass growers. Once all the facts are filtered from the anecdotal information, we feel that your agency will make the correct and informed choice and will allow grass growers to continue to go about their business. (#394 --Whitman County Conservation District)
- ...Looking at the Department of Ecology's action, I'm reminded of an ancient Chinese curse, may you get what you wish for. The Department of Ecology has decided they will eliminate grass growing to justify their own dictatorship, and in doing so all they're going to do is make air quality worse, water quality worse, and soil quality worse. I know you're not going to listen to any of the testimony because you've already got your mind made up what your going to do. So I think you should look at your actions and see what the results of them is. (#1638 --Grower)

- ...I have lived my adult life on a bluegrass farm and seen the many benefits that growing grass has brought to our farm and the other farms in the entire area and the boost it has given to the economy of this whole region. (#1507 --Grower)

Response:

In many of the previous responses you see that Ecology concurs with the contention that grass production is advantageous to the environment in many ways. In addition, the Department understands that grown in rotation, it is beneficial to the annual food crops included in the rotation.

Growing grass improves the organic condition of the soil.

- ...We have an ideal climate for grass seed production and it fits into a crop rotation by supplying humus to the soil over a number of years then to be plowed down and grain crops grown... (#335 --Grower)

- ...I think it's ironic that the Department of Ecology,as that's supposed to be your title, wants to eliminate grass field burning and have you seed that to alternate crops. The grass seed that is grown around the counties here is the only crop that's produced that the farmers grow that can build the soil organic matter. The tillage practices that would be replacing it to grow your alternate crops would actually be lowering organic matter in the soil, and that would seem to go against the better judgment... You're looking at just grass smoke and not taking into account all the positive aspects that is used in the grass industry, and I think that this law should be reversed so that we can continue on with our best management practices. (#1564 --Columbia County Conservation District Board Member & Grower)

- ...I see the good, positive effects of growing grass like the increase of the organic matter in the soil after you raise grass, and the soil erosion it stops by allowing more water to run into the ground and get into our water table... (#1553 --Citizen)

- ...Grasses in rotation provide several benefits which include... Improving soil quality by improving soil tilth and increasing organic matter... (#141 --Natural Resource Conservation Service) (Attachment)

- We have been visited by Sally M. Schneider, Systems Engineering of Nematology of the USDA Agricultural Research Service, who has examined our fields for the amount of humus that is being built up by bluegrass. She has stated that the inclusion of bluegrass in our rotation is a great move to the obtainment of sustainable agriculture. (#1265 --Grower)

- ...And now the DOE (Department of Ecology) proposes to make farmers plow up bluegrass, the only crop in this region which actually builds soil, reproducing by both seed and rhizome... (#1019 --Grower)

- ...Grasses translocate 50% of their photosynthate below ground which helps distribute organic matter through the fine roots {9}. Grass could restore organic matter levels even above those in a native condition {2}. Grass in rotation was generally effective in actually increasing soil organic matter levels, as were rotations with legume green manure crops {3,4}. Most other rotations experienced a net loss of organic matter over time. Green manure crops would have no cash value for the year they are in production. A study of adjacent fields in Columbia County, WA found that the field with a history of grass in rotation had higher organic carbon levels and from 8" to 12" more topsoil than the field in a long-term wheat-pea rotation. These differences were found on summit and north slope positions...but not on the south slope {5}... {references cited} (#1010 --Citizen.)

- We raise bluegrass primarily because it improves our soil. It adds (humus) and improves tilth resulting in less erosion. Our income from bluegrass is small...(but) the grain crops following have increased yields and heavier crop residue which helps control erosion... (#1022 --Grower)

Response:

One of the many benefits of grass production is its improvement of soil content, which is depleted by annual tillage crops. This makes it valuable as part of a crop rotation system. It is expected, based on the economic analysis, that 58 percent of current levels of grass production will be maintained and available for its soil improvement properties.

Production of grass is a soil conservation tool.

- ...Grass is undeniably the most potent tool we have for soil conservation, and from the district's standpoint, we will continue to promote that. (#1572 --Grower & Chairperson, Columbia Conservation District)

- ...The availability of grass seed is a help to our environment... Raising grass helps conserve our nation's soil. (#1007 --Grower)

- I have observed (25 years) the development and growth of the grass seed industry in (Garfield County). It is the most effective soil conservation practice in the area... (#991 --Citizen, former extension agent)

- ...Grass is a great conservation crop in highly erodable areas and a great crop to rotate with wheat and barely... (# 989 --Garfield County Fire Chief & Pomeroy Grain Growers Co-op employee)

- ...Look at the big picture, the benefits, long-term agronomically to the soil from raising grass on the perennial crops on farmland. (#1549 --Grower)

- Bluegrass has many positive factors in relation to the environment... (It) is an excellent soil conservation crop when used in rotation with wheat, barley, lentils, peas and canola... (#994 --Dye Seed Ranch)

- ...The loss of grass production in these fragile but rich soils of the dryland Eastern Washington will be a tremendous loss for the environment of the region... (#1023 --Grower)

Response:
Ecology agrees. Please see the preceding and following response for details.

Grass production reduces soil erosion.

- You have failed to recognize the great good the grass growing has had on the erosion problem. (#993 --Grower)

- ...The NRCS estimates 265,000 tons of soil is saved each year by farming bluegrass (based on an estimated 30,000 acres of bluegrass in Spokane County and a total of 60,000 cropland acres) as opposed to growing a crop other than grass. (The cost to remove sediment from roadside ditches was $5.00 per ton in 1985, and would probably be closer to $10.00 in 1996)... (#1071 --Palouse Conservation District)

- ...Most important it provides protection from wind and water erosion. (#18 --Grower)

- ...We have some fields that will become very erodible without (bluegrass) cover to hold our top layer of earth, so it doesn't wash very deep ditches... (#1310 --Grower) (Attachment)

- In Garfield County we have more slope per acre than any other county in the state. Bluegrass prevents the soil from breaking loose more than any other crop. Bluegrass produces more than 20 tons of root material in the top 6 inches of an acre of soil... (#1023 --Grower)

- ...If grass seed production is eliminated, soil erosion will be increased. When land is in bluegrass production, the annual erosion is essentially zero. Farmland in wheat and barely rotations erodes at different rates... When farmers follow an approved conservation system, soil erodes at about 5 tons/acre/year, (which) is considered a tolerable level. This equates to an additional 5 tons from an average of 3500 acres in Garfield County or 17,500 tons of soil in our rivers and streams each year. Just think of the amount of soil loss for all of Eastern Washington. (#1018 --Garfield County Port District) (Attachment)

- ...Grasses in rotation provide several benefits which include: reducing surface water soil erosion from crop fields by over 50 percent; (and) reducing wind erosion by protecting the soil surface... (#141 --Natural Resource Conservation Service) (Attachment)

- Some of the positive aspects of growing grass for seed have been documented extensively through research (at) Pacific NW universities. The Palouse Region (has) some of the most productive soils in the world. It is also some of the steepest terrain. One of the largest problems is that of soil erosion. (Producers) have been in a constant search of management practices conducive to this monumental task of saving their precious top soil... The growing of perennial grasses has to be of the greatest value when the long-term effects are considered. (Grass) provides a permanent ground cover, decreasing the frequency of mechanical movement of soil downhill (which) is a problem of significant magnitude in the Palouse Hills {1}... {references cited} (#1010 --Citizen.)

- ...You have failed to recognize the great good the grass growing has had on the erosion problem. (#1029 --Grower)

- ...We need bluegrass in our crop rotation to preserve and build top soil so we can grow food crops for our growing population... During testimony we've heard about ditches and fields deep enough to stand in and of horrendous dust storms before grass was introduced to our area. (#1542 --Grower)

- I am not a bluegrass grower... We do not or never have burned stubble on the farm... Bluegrass seed

production is most beneficial for soil erosion. In my opinion, the consequences of forcing the Bluegrass acreage back into yearly crop production are enormous. A high percentage are marginal acreage... (#1635 --Farmer) (Attachment)

- ...I well remember the bluegrass industry from its very beginnings on our farm in 1949 and the salvation it has been to the soil. Soil erosion control was the reason the grass seed industry came about, and it is impossible to separate one from the other. This industry was developed by individual farmers who saw its importance in saving their top soil... (#1507 --Grower)

- We are losing valuable farmland every year due to erosion... We feel with bluegrass in our rotation it was the best soil builder we could use and still keep the land for our future generations. (#996 --Grower)

- (We have been) growing grasses for seed and to help manage the soil for root growth and weed control. Last year wheat had been planted. Winter storms and runoff caused ditches...all over the field. The loss of soil was tremendous. Blue grass was (sown) there this past year to save the field's soil... We need to be able to sow these commercially valuable grasses to save our soil. (#990 --Grower)

- ...Good soil structure...improves water infiltration, reduces the tillage power requirement and lessens the erosion hazard. The formation of stable soil aggregates helps to develop good structure, and perhaps there is no management condition better than perennial grass to promote aggregate stability {1,9}. In grass sod, ideal conditions for aggregate formation and stabilization occur simultaneously... Annual cereal crops (are) similar to perennials in increasing water-soluble aggregates during the growing season, but perennials were superior in maintaining aggregation. A grass-legume mixture was the best at maintaining soil aggregation while annual cereals and root crops are the least effective {9}. (In Australia), both soil organic matter and water-stable aggregation increased as the cropping system moves from crop-fallow to the inclusion of several years of pasture {6}. A study compared three pairs of farms of similar characteristics. On the grass legume farms, wheat and pea production was 17% higher, net income per acre was 38% greater and soil erosion losses were less than 1/3 compared to the wheat-pea farms {7}. Benefits from grass or grass-legume mix increase with the number of times they are grown. Grass can also help to restore the yield potential of eroded hilltops and slopes by improving the physical condition of the soil. {references cited} (#1010 --Citizen.)

- The cultivation of Kentucky Blue Grass is one of the best cultural methods in saving the fertile, productive soils of the steep Palouse terrain... (#1010 --Citizen)

- Last year on our home eighty acres fall wheat had been planted. The winter storms and runoff caused ditches three and four feet deep all over the field. After harvest the field had to be graded to fill the ditches. The loss of soil was tremendous. With the monitored burning now the smoke dissipates in a very few hours. We need to be able to sow these commercially valuable grasses to save our soil. (#137 --Grower) (Attachment)

- Grass is the most environmentally-sound crop you can grow. It eliminates wind-and-water erosion. No soil is lost through wind and water on these fields... (#1597 --Jacklin Seed Company Employee)

- ...When using bluegrass in a cropping rotation, producers can reduce soil erosion from crop fields by 50% or more, by reducing sheet and rill erosion and concentrated flow erosion {gullying}, which are major contributing factors of sedimentation problems in fields, roadside drainages, and adjacent streams and water bodies... (#1305 --USDA Natural Resources Conservation Service, District Conservationist, Colfax) (Attachment)

- ...The recent rains have caused some erosion on these fields that would not have happened if the fields were left in grass... (#1062 --Inland Empire Chapter Soil and Water Conservation Society)

- ...If thousands of acres are plowed out than the fields are vulnerable to both wind and water erosion... (#1062 --Inland Empire Chapter Soil and Water Conservation Society)

- I must voice my objections to the grass field burning ban imposed by the DOE (Department of Ecology). There are great ecological benefits to the area by raising bluegrass. The SCS, now the NRCS (Natural Resources Conservation Service), has encouraged the seeding of grass on highly erodible slopes for several decades and we have incorporated the raising of blue grass in rotation with other crops on the steep slopes of our farm since 1965... (#1074 --Retired Grower)

- …The bluegrass is much better for the soil than cultivation. It keeps it from eroding, blowing and dust… (#1450 --Citizen)

- ...Bluegrass is recognized by the Soil Conservation Service as one of the best methods of soil erosion control. Soil erosion by water and wind is reduced to almost nothing. Even after the field is plowed up and used for other crop production, there is still a major reduction in soil erosion by water because of the large amount of humus, grass roots, etc., still in the soil... (#1312 --Grower)

- The proposed amendment does not address the needs of individual farms. Some of the bluegrass is raised on extremely steep slopes. Even the five percent allowance does not account for the steepness of some of the farms in the area. A crop such as bluegrass is the very best for these fragile areas. When bluegrass is raised, the soil is not exposed each year to wind and water erosion. The steepness of the slopes also makes it difficult to use any method other than burning to create the conditions necessary to have a profitable crop. (#1527 --Citizen)

- ...I remember dust storms, and that was before grass was planted... I can remember going out during the spring and seeing gullies down the hillside that were hip deep. That was because of the rain and the erosion. They subsequently planted grass to control the erosion, and where the hills were so steep, they planted grass because of the sliding hills. (#1499 --Washington Cattlemen's Association)

- ...The fine, fibrous root system of the grass plants are very effective in holding down erosion problems on the steep hills of the Palouse Empire... Bluegrass...is building and holding the fragile top soils of the Palouse Empire and saving it for future generations... (#994 --Dye Seed Ranch)

- It is impossible to separate the soil erosion issue from that of growing bluegrass. Bluegrass was the answer to much of the soil erosion of the 1940's and it is still the answer to maintain the fertility of our soil and provide protection for the soil while we grow food crops... (#335-- Grower)

- ...Most importantly, (bluegrass provides) protection from wind and water erosion... (#995 --Grower)

- ...Grass fields significantly reduce soil erosion and water runoff... (#1012 --Citizen)

- ...(We) had to reclaim our farmland which was eroding badly... I remember the first bluegrass crop and the promise it held to hold the soil in place... (#1507 --Grower)

- ...We have found bluegrass to be of tremendous value in our long-term effort to control soil erosion and to rebuild the soil resource... The benefits of bluegrass far outweigh the detriments. (#1563 --Grower)

Response:

Reduction of soil erosion is one of the benefits of growing grass. Ecology has carefully examined the impact of this rule on soil erosion. Based on the amount of grass, the effect of the proposal and projections of the economic analysis, it is estimated that 22,342 acres will be converted to non-grass crops. Potential increase in soil erosion is estimated to be 67,000 to 313,000 tons, which represents an increase of less than one-half percent to less than two

percent relative to pre-proposal conditions. This estimate is based on the range of estimates for differences in soil erosion rates for grass and alternative crops. A potential for an increase in soil erosion does exist, however, the amount is within the variations expected from year to year.

Grass in rotation helps control weeds and disease.

- ...I work for Pomeroy Grain Growers, a co-op that deals in Wheat and Barley production. We understand the importance of crop rotation to break disease and pest cycles that invade wheat and barley... (# 989 -- Garfield County Fire Chief & Pomeroy Grain Growers Co-op employee)

- He started (growing grass) to control erosion, and help protect against disease and weeds (which it) has proven to do more effectively than any practice we have tried. (It) also help(s) control weeds and disease by rotat(ing) with wheat and barley. Soil building characteristics of grass can improve wheat and barley (production) by 10 Bu. or more. (#1006 --Grower)

- ...Idle pieces usually become infested with weeds and insects. Bluegrass fields are kept weed free and the burning kills thousands of insects thus keeping the nearby cities free of many insects that they would have to contend with otherwise. (#18--Grower)

- I have used blue grass on my farm for approximately twelve years. It has several benefits as a rotation crop. (It) builds up the soil, therefore our cereal crop (wheat, barley) yields are increased. It also helps control soil born diseases and soil erosion is reduced. (#986 --Grower)

- ...It stops disease-and-insect cycles to make our food of a higher quality... (#1597 --Jacklin Seed Company Employee)

Response:
One of the commonly understood benefits of crop rotation is reduced invasion by weeds and pests. Grass in rotation has these benefits. For the 58 percent of current grass acreage expected to remain in grass production these benefits will remain. (Please note previous responses regarding other benefits of grass production)

Growing grass / burning improves soil fertility.

- The ash puts nutrients back into the soil and the pollution which can be seen is nowhere near that of autos and trucks... (#12 --Citizen)

Response:
Burning of plant residue is a primitive agricultural practice for returning nutrients to the soil. Some possible alternatives to this practice include composting and using soil amendments. It is understood that grass burning is not the only, or the most significant contributor to air pollution.

Grass fields increase the water infiltration capacity of the soil.

- ...(Grass fields) increase water infiltration ability of soil... (#1012 --Citizen.)

- For years the Soil & Water Conservation District has been trying to install as many acres as possible to grass in the CRP program and the rotation of cash crops because of the benefits of water retention and the reduction of soil loss... (Restricting) grass burning will reduce our narrow variety of crops that in proper rotation give so many benefits to the soil. (#997 --Grower)

Response:
Comments are acknowledged and appreciated. (Please see the response to "The benefits of grass production compensate for the problems created by a few days of burning.")

Grass production contributes to air quality by producing oxygen.

- ...A by-product or waste of the grass is oxygen... (#1304 --Grower & Director, USDA Farm Service Agency)
- ...Grass fields purify the air 364 days a year by producing oxygen...(and) trap(ing) airborne dust;... (#1012 --Citizen.)
- This little grass field that I've got, this 50 acres, produced 50,000 pounds of seed this year. Well, at four pounds per acre, this brome grass, it'll produce, you know, we can plant 12,000 acres of grass. That exchanges oxygen; that produces oxygen; that exchanges carbon. That's important. That's science. (#1549 --Grower)
- ...One-half acre of grass supplies enough oxygen from photosynthesis for a daily requirement of a family of four... (#1494 --Grower / Processor)
- ...It puts oxygen into the air we breathe, making our country and the state of Washington a more beautiful and cleaner place to live. (#1597 --Jacklin Seed Company Employee)
- ...Idle ground does not produce oxygen like bluegrass... (#18 --Grower)
- ...For most of the year, bluegrass is green and growing, removing CO and CO2 from the air and releasing oxygen... (#1312 --Grower)
- ...It provides oxygen for people to breath... (#995 --Grower)
- ...The bluegrass provides oxygen for people to breathe... (#18 --Grower)

Response:
Oxygen production and gas exchange are certainly products of plant growth. Even if there is a significant difference between grass and non-grass crops in the volume of these activities, they are not a source of environmental concern.

Reducing grass production will be detrimental to air quality by creating an increase in particulates from wind blown dust.

- NRCS (Natural Resources Conservation Service) realizes that grass burning has some apparent detrimental effects on air quality, however, grass in the rotation does have positive effects on air quality. Although Washington NRCS does not have documented scientific evidence of these positive effects; our field observations indicate that grass in a conservation system will reduce tillage operations which will reduce agricultural fugitive dust. In looking at grass and its associated burning in a total holistic conservation system, we believe that this method of management may not be as detrimental to air quality as many may think. We recommend that WDOE (Washington State Department of Ecology) do an evaluation to quantify the effects of agricultural fugitive dust and equipment emissions versus field burning. (#1016 --District Conservationist, Pomeroy) (Attachment)

- If the season was to pass without farmers getting their turf grass fields burnt many acres would be plowed out. Last fall this very thing happened in North Idaho and as a result over 2000 acres were plowed out. Then in December we experienced high winds over these worked fields and the dust was so thick that air standards were exceeded for 7 to 8 hour periods... (#1062 --Inland Empire Chapter Soil and Water Conservation Society)

- ...The amount of dust can increase up to four times without using thermal methods. (#1071 --Palouse Conservation District)

- ...Grasses in rotation provide several benefits which include...reducing fugitive dust and equipment emissions from tillage operations under annual cropping systems. (#141 --Natural Resources Conservation Service) (Attachment)

- I have already worked up 250 acres of bluegrass because of the acreage reduction requirements for this burning season. Dust from these worked fields has already caused some problems with the environment. On Friday, August 29, 1996 all these fields were a sea of dust all day long from high winds. This was the same day that Spokane experienced the big dust storm... Dust will be in the air every time the wind blows until enough moisture falls to control it. (#18 --Grower)

- …Also, I'm growing this grass on highly erodable acres and the conservation impact has done wonders for this ground. It is not blowing any more... (#1460 --Citizen)

- ...The dust-storm potential of plowing up the grass is graphically depicted in the September, National Geographic. ... (#1019 --Grower)

- ...The other day we had a real nice dust storm. We couldn't even see Mica Peak from our place, which is a little over ten miles away. I noticed the next day in the newspaper it said the dust came from the unpaved roads in Whitman County, but I can tell you it was coming right off of the neighbor's grass fields that they have just plowed. About a third of the grass fields are going under the plow, and they're going up in the air. Next year it'll be two-thirds of it... (#1500 --Citizen)

- The implementation of this rule does more harm than good to the general public and our at-risk citizens who are affected by particulate emissions. It is known and documented by the USDA National Resources Study of 1992 that monocultural crop rotation in our state is responsible for an average of 10,400 lbs. of windblown particulate matter. In comparison, windblown particulate matter from a grass seed production field is virtually zero. Particulates emitted from these fields in the form of smoke are calculated by the Spokane County Air Pollution Control Authority at 24 lbs. per acre. It is impossible to dispute these numbers and the increased negative impact this additional load of particulate fallout will have on our airshed and the citizens of the State of Washington. (#221 --Processor/Wholesaler)

Response:

Implementation of this rule will result in an increase in dust from two sources; the difference associated with growing grass without burning and that from an increase in growing non-grass crops. Estimates on PM_{10} emissions resulting from non-burned acres of grass range from one to 95 tons based on AP42 emission factors for harvesting and for tillage. Total increases in emissions (including PM and for combustion CO and VOC's also) resulting from production of non-grass crops expressed as a percent relative to pre-proposal conditions are as follows:

tillage	less than 1/2% to less than 11/2%
burning alternate crops	less than 1%
blowing dust potential	less than 1%
equipment exhaust	less than 1/2% to less than 11/2%

The estimate of potential PM_{10} increases from tillage is 229 tons to 496 tons and from non-grass crop burning, 52 tons. This is based on the estimate from the economic analysis that 58 percent of grass acreage will remain in production.

Character and content of the particles should be considered as well when looking at the effects of increased dust emissions. Particles from tillage measure from 1 to 200 microns with 79 percent of the total being greater than PM_{10} and 90 percent being greater then $PM_{2.5}$. Particles from incomplete combustion range in size from .01 to 1 micron. The larger tillage particles settle much faster and, therefore, much nearer the source, resulting in a lesser impact on visibility. The smaller smoke particles remain, for all practical purposes, suspended indefinitely. This greatly increases the duration of their potential effects.

One should also note the improvements resulting from this proposal to completely assess the environmental impact. The estimated reductions in pollution from burning fewer acres of grass are: a decrease in PM_{10} of 1077 tons; a decrease of 6,797 tons of Carbon Monoxide (CO); and, a decrease of volatile organic compounds (including various toxic compounds) of 1,010 tons (62 percent to 67 percent reductions).

The filtering abilities of grass improve air quality.

- ...A bluegrass field produces a tremendous amount of oxygen, it filters contaminants out of the air... (#1318 --Grower)

- ...For most of the year, bluegrass traps dust particles and other pollutants in the air and binds them to the soil... (#1312 --Grower)

- ...Grass, during its annual growth cycle, acts as Nature's filter... (#1304 --Grower & Director, USDA Farm Service Agency)

Response:

Comments noted and appreciated.

Loss of grass production will increase sedimentation of water resources.

- ...During the recent floods the creeks and streams draining turf grass seed fields ran with cleaner water they also did not experience the higher flow levels because of the flood retarding features of grass... (#1062 --Inland Empire Chapter Soil and Water Conservation Society)

- …(We) have seen numerous benefits from control through grass field rotations. (We) live downstream from many grain fields and have ponds that fill with mud and (are) quite aware of the amount of erosion of fields and it is far less than grass field rotation….. (#1449 --Citizen)

- ...Bluegrass does as much for water quality as any agricultural practice. It not only prevents silt from running off the land into our fresh water supply, (which) affects not only people, but fish and wildlife as well, but it improves the quality of the soil. If the bluegrass industry ceased to exist, erosion rates would climb dramatically, and water quality would be affected accordingly. It is not an equitable trade to exchange a few days with smoke...for year after year of degraded water quality. (#394 --Whitman County Conservation District)

- ...Grasses in rotation provide several benefits which include: ...substantially reducing sediment loads to adjacent streams and water bodies... (#141 --Natural Resource Conservation Service) (Attachment)

- ...There will also be a significant decrease in water quality caused by the soil and the sedimentation... (#1531 --Washington State Farm Bureau)

- ...In 1972 the Federal Water Pollution Control Act was passed calling for our nation's streams to be fishable and drinkable by 1985. This law was the impetus for many of our conservation practices and was highly promoted by our soil conservation districts... (#1591 --Grower)

- ...By reducing the number of bluegrass acres, farmers will be forced into plowing the sod up and placing these acres back into intensive farming operation again. By doing so, this will further contaminate our rivers and streams with the erosion that will occur by working the ground... (#167 --McGregor Company manager)

Response:
Ecology has considered the effects of a reduction in grass production on sedimentation of water resources. It is estimated in the economic analysis that 35,138 acres will remain in grass production, and 22,342 acres will shift to the production of alternative crops. The potential degradation of water quality resulting from the estimated increase in soil erosion represents an increase of less than one-half percent of the pre-proposal conditions or an additional contribution of 6,839 to 20,244 tons of material to ditches, waterways and streams. These increases are within the variations seen in farming practices from year to year.

Chemical pollution of waterways is reduced by the production of grass.

- ...When erosion occurs it results in the loss of nutrients that have attached to the soil particles. the nitrate and phosphorus nutrients can pollute downstream rivers and reservoirs... (#1062 --Inland Empire Chapter Soil and Water Conservation Society)

- ...The massive root system helps to keep nitrates out of our aquifer, cleaning our drinking water... (#1597 --Jacklin Seed Company Employee)

- ...Bluegrass not only aids soil quality by improving soil tilth and building organic matter, but also helps to improve surface and ground water quality by reducing the amounts of pesticides and nutrients commonly applied in annual cropping rotations without bluegrass... (#1305 --USDA Natural Resources Conservation Service, District Conservationist, Colfax) (Attachment)

- ...The Spokane aquifer is protected to a great extent by bluegrass, grown primarily by Idaho growers... (#1318 --Grower)

Response:
Early information suggests that grass production without burning will not result in increased chemical use. Common practice indicates that an increase in chemical usage will occur on the 22,342 acres which are converted to non-grass crop production. It is estimated that the potential increase in chemical usage will be about one percent relative to pre-proposal conditions.

The majority of grass acreage will remain in production, (58 percent), and will not impact the amount of chemical usage. Even without grass, appropriate use of crop rotation systems can reduce the need for agricultural chemical applications. There are already regulations and established practices in place to ensure that application of chemicals has a minimal impact on environmental quality.

Reduction of grass acreage will increase erosion and thereby decrease water quality

- ...It is next to being perfect for protecting the soil, which effects water quality not only in the Spokane area, but all the way to Portland... (#1318 --Grower)

- When a erosion ditch system has started during a year like this every rain following through the spring seasons causes more erosion along all the small ditches already established compounding the problem. The turf grass fields do not have these ditch patterns started and continue to prevent sediment from reaching the stream system more effectively in years like this. (#1062 --Inland Empire Chapter Soil and Water Conservation Society)

- According to the NRCS by using the universal soil loss equation we are saving 11tons/year/acre, 5,500 tons (total). (SCS data attached) Without grass on these acres erosion would be increased substantially. (This) will increase the risk of water pollution causing problems in navigation and added risks to fish. (#1000 --Grower) (Attachment)

- ...The ten-year average erosion from this area is 20 tons per acre per year, 20 tons of prime top soil. This year my erosion after all the soil conservation practices were followed at my place, the erosion was measured at 35 tons to the acre with some of my neighbors going up as high as 125 tons per acre. Grassland was almost zero and will remain that way until plow down. Six thousand tons of top soil that's lost in the Palouse and the Snake River, mud that displaces water drainage, mud that does nothing for fish navigation, or water power. Natural resource conservationists says that grassland that was in production from five to seven years the erosion rate is greatly reduced for another ten years. (#1591 --Grower)

Response:

According to the rule's economic analysis, 58 percent of grass will remain in production and continue to benefit the soil. As previously indicated, a potential exists for an increase in soil erosion as a result of switching agricultural production to non-grass replacement crops. The potential decrease in water quality is less than one-half percent of the pre-proposal condition. This would potentially contribute an additional 6,839 to 20,244 tons of sediment to ditches, streams and waterways.

Grass is beneficial to many parts of an ecosystem.

- Bluegrass is a perfect fit. It protects our aquifers by eliminating almost all aspects of erosion. You are not creating airborne dust by tillage, you are not increasing chemical usage, and you actually build your soil base instead of watching it run off your field and down the stream to the river. What you have in that field is a giant air cleaner for 364 days of the year… (#1070 --Grower)

- The grass seed industry has long been recognized as having both positive environmental and economic impact. Grass helps purify the water, protects the aquifer, prevents run-off and erosion, traps dust and dirt, releases oxygen, and absorbs carbon dioxide and other air pollutants... (#1071 --Palouse Conservation District)

- ... (It) helps provide cleaner water... The plant...filters dust, absorbs pollutants from the air, reduces noise, modifies temperature, reduces glare, helps in reducing radiation and...gives back oxygen. (#994 --Dye Seed Ranch)

- ...The production of grass benefits the environment in a number of ways: grass helps to build the soil base, produces oxygen and fights watershed and erosion problems. (#988 --Citizen)

  Some of the benefits of grass seed production are: a more diversified economy, improved surface water quality through reduced soil erosion and a water filtering effect; improved air quality from reduced blowing dust; production of oxygen and improved soil structure, organic matter, and productivity... (#1001 --Grower)

- Besides being an oxygen producing crop it is the most soil conserving crop we can grow. Around Coeur d' Alene Lake the farmland that drains its runoff water into the lake has the government and the Fish and Wildlife Service pay the farmers to seed blue grass to keep the soil from eroding into the lake. Blue grass not only prevents erosion but also builds topsoil at the rate of about an inch every 8 to 12 years when it takes nature, under natural conditions 100 years or more to build that same inch of topsoil. (#219 --Grower) (Exhibit)

- …Grass helps purify the air, prevents water and wind erosion, releases oxygen and absorbs carbon dioxide... (#1470 --Citizen)

- ...A total ban on bluegrass will have an adverse effect on other types of pollution in Washington... (#1312 --Grower)

- ...Reduction of soil and wind erosion and water retention are two major factors that improve water quality in our streams and creeks. Because the overall goal in Asotin County is increased productivity of the soil while maintaining a strong resource base, bluegrass production is a stepping stone toward reaching our objectives. NRCS research shows that with grass in the cropping rotation, producers can reduce soil erosion created by wind and water by 50 percent or more. As stated by State Conservationist Lynn Brown, "grass not only aids soil quality by improving the soil tilth and building organic matter, but also helps improve surface and ground water quality by reducing the amount of pesticides and nutrients commonly applied in annual cropping rotations without grass. Further more, it is well known that long-term rotation with grass reduces dust problems and equipment emissions associated with tillage operations." (#393 --Asotin County Conservation District Board of Supervisors)

- I am a Vocational Agriculture instructor, FFA Advisor and Biology teacher for the community of Tekoa Washington... I am finding it difficult to explain grass burning to my community and especially my students. I have instructed students that grass growing in our area is used to protect the environment by reducing soil erosion. The erosion pollutes our streams and dust particles from grass free land reduces our air quality. Has this been a lie? (#1333 --Citizen)

- ...The bluegrass rotation is one of the best for building organic matter, reducing erosion (and) tillage and for improving the soil, water and air quality... (#397 --Grower)

- ...There is no single crop or practice that conserves more soil throughout the year, therefore contributes to clean air and water, than a rotation that includes bluegrass production. (#1015 --Grower)

- (The) Natural Resources Conservation Service (NRCS) (is required) to plan with producers for the protection of (natural) resources. The incorporation of grass in a conservation system, particularly in Eastern Washington, is one of the best alternatives to protect the natural resources and preserve the economic sustainability for producers. With grass in the cropping rotation, producers can reduce soil erosion created by wind and water by 50% or more and reduce concentrated flow erosion, a major contributing factor of sedimentation problems in fields, roadways and streams. Grass not only aids soil quality by improving the soil tilth and building organic matter, but also helps improve surface and ground water quality by annual cropping rotations without grass. Maintaining grass in a long term rotation also reduces fugitive dust problems and equipment emissions associated with tillage operations that are normally used in crop rotations. (#1016 --District Conservationist, Pomeroy) (Attachment)

- ...(Positive aspects of bluegrass include:) Cleansing of air during its many month growing season, protection from erosion, floods and dust-bowl storms, protection during wildfires, increased safety of playing fields and--most vital to the long-term health and well-being of all of us-- the actual building of soil's organic matter needed to sustain future generations... (#1019 --Grower)

- Grass seed is not a major crop in Columbia County (but) farmers concerned with preserving and

enhancing soils use grass in their crop rotations (to) benefit soil, water and air quality and provide wildlife habitat... (#1021 --Vice President, Washington State Association of Wheat Growers)

- Grass in a farmers rotation is the ultimate conservation system. It saves soil, improves water quality, cleans the air by adding oxygen every day except the day it is burned, is a plant well suited to the Pacific NW and provides food and cover for wildlife... (#1025 --Grower)

- ...We could not find an agricultural crop better for the environment... (Grass seed production) provides good wildlife forage and cover. It protects our aquifer... (It) prevents erosion when farming with extensive tillage. (#1636 --Rancher, Zahn Ranch)

  Grass growing is good for our environment. It helps purify water, protects our aquifers, prevents rain run-off and wind erosion, along with the beautiful open space it provides for the general public and the winter habitat provided for deer, elk, and upland birds, and it seems as if a few days of burning far outweigh the one percent emission. I believe the general public will feel the same way when they hear the whole story instead of just bits and pieces... (#1576 --Washington State Farm Bureau)

- ...The net effect of perennial of Kentucky bluegrass is air and water cleaning, soil saving and building... (#1494 --Grower / Processor)

- When we burn the grass fields, you've heard farmers comment for years and years that we get two benefits out of it; we sanitize the fields which eliminates the use for insecticides and herbicides and other insect controls, but also it thins the stand, and for some reason makes the plants reproduce more seed than if it is not burned... (#1497 --Hart Seed Company)

- ...If grass growing is eliminated the benefits of grass growing will also be eliminated. These include control of soil erosion, an improvement in water quality, an aid to better air quality, grass builds soil, and there are more. (#29 --Citizen)

- If this amendment (WAC-173-430) is adopted it will devastate (my) present farming operation (which) is approximately 90% Bluegrass. These fields are on highly erodible soil and a majority on slopes of 35-40% or more. (Under) the proposed amendment we would have to replace approximately 700 acres of bluegrass with alternative crops (which are much more devastating to the environment. The 250 acres (taken out of bluegrass production to meet this years requirements) have already caused some environment(al) problems. On 8/29 these fields were a sea of dust all day long from high winds. The same day Spokane experienced a big dust storm. Dust will be in the air every time the wind blows until enough moisture falls to control it (which sometimes) does not happen until November. Bluegrass does not have any lose dirt on the surface so there is absolutely no particulate emissions from the fields. During the winter and spring seasons as much as 25-30 tons of soil can leave conventional cropped fields due to water erosion. Under this amendment most of my farm will be in annual tilled crops and eroding at much higher rates than bluegrass. Thousands of tons of soil will be reaching our lakes and steams with the tear out of all that bluegrass acreage. (#995 --Grower)

- ...Planting grass has decreased soil erosion, improved air and water quality (and) acts as filters for our aquifers. Wildlife uses these fields for winter habitat... (#1020 --Washington State Farm Bureau)

Response:

Ecology agrees that grass production contributes to environmental quality as noted in many of the previous responses. (Please see other responses which discuss specific benefits.) The majority of grass in production will remain after the implementation of the proposal. There are some potential negative environmental impacts associated with the proposal, however, the overall effects are within the range experienced from one year to the next.

Reduction of grass acreage will impact both soil and water quality.

- ...Anticipated degradation of soil and water resources following the loss of 26,000 acres of perennial crop has already been adequately documented by other agencies and authorities... (#1316 --WSU / Spokane County extension agent, agronomist)

- The production of Bluegrass seed in the Inland Northwest has done untold good for the topsoil and water quality of the area. (#298 --Citizen/Grower)

- ...According to the USDA Natural Resources Conservation Service (NRCS), elimination of bluegrass would have substantial negative impacts on soil and water quality... (#1071 --Palouse Conservation District)

Response:
In the economic analysis of this proposal it was estimated that 25,082 acres of grass will be taken out of production, 22,342 shifting to replacement crops and 2,740 being idled. The majority of current grass production acreage will remain. Some negative impacts on environmental quality will occur but their potential magnitude relative to current conditions is small. (Please see other responses for specific impacts.)

Grass production is beneficial to soil and air quality.

- ...Kentucky Bluegrass in production also limits wind and water erosion as well as producing oxygen for us to breathe. It also scrubs our air of harmful pollutants. (#1263 --Grower)

Response:
Ecology agrees. Please see previous responses for details.

Grass fields have a positive impact on both air and water quality.

- ...Bluegrass farming is one of the leading benefits to water quality and is a producer of oxygen for a large portion of the year. (#1539 --Citizen)

- …If this ruling is not repealed, there will be less grass grown but more particulate in the air more days than now... There will also be more soil erosion than there is now. (#1470 –Grower)

Response:
Comments noted. Please see previous responses for details.

Grass fields provide habitat for wildlife.

- Grass fields provide wildlife nesting and escape cover in an otherwise barren landscape... (#136 --Citizen) (Exhibit)

- The Fish and Wildlife Department likes the fact that farmers provide habitat for upland birds and game animals. Simply drive by the grass fields in the winter and you can see that these fields provide excellent winter forage for deer, elk and upland birds. These same fields provide habitat for ground nesting birds in the spring. Tilling in these fields will destroy spring nesting areas and the winter habitat... (#140 --Grower/ Farm Bureau)

- The other picture I'd like to paint is a little bit about fire ecology. My degree in animal science gives me a great deal of interest in animals... I watched them interact with fire on bluegrass fields. Since I have no bluegrass on my own farm and have no economic interest in it, the impact on other things are probably more important to me than the economic impact. Animals, minor animals, let's say field larks, are extremely tied to bluegrass to be successful nesters; they're not endangered yet. But you know, it's funny because one of the main prey species of falcons are field larks. Field larks spend a great deal of time on bluegrass. In your Environmental Impact Statement it says that none of these things are important. The Endangered Species Act says these things are very important, and I think you should revise your Environmental Impact Statement to include these things... (#1530 --Grower)

- ...It would be hard on some of the wildlife that use it for habitat if they didn't have the grass field... (#1553 --Citizen)

Response:
The impact of this rule on wildlife has not been directly assessed. Since the majority of the land affected is and will be, agricultural, a detailed assessment was not necessary. The Department agrees that grass fields provide food and habitat for some wildlife. The 35,138 acres of grass which are estimated to remain in production will still be available to wildlife. Grass is grown as a rotational crop and is therefore not always found in the same exact location. Wildlife are accustomed to migrating short distances to locate a grass stand. With 58 percent of the crop remaining in production it is probable that wildlife will be able to migrate in order to find a suitable grass field. It is acknowledged that the total area and food available from grass will be reduced.

Grass is a winter food source for wildlife.

- ...Some major animals with some impact with bluegrass burning are deer and elk. Bluegrass, after it's harvested, has no value to animals. Its fiber is very high; its protein is extremely low and of no quality. Its amino acids are almost nonexistent. Its protein that's there is unusable, two or three percent digestibility. After it's burned, after it's fertilized, the regrowth comes back, the protein content digestible in that product is 16-18 percent. Its digestibility has gone to 70 or 80 percent. (#1530 --Grower)

- Every mouthful that a deer or elk eats in the wintertime on bluegrass does him some good. Burning is what makes that possible. (#1530 --Grower)

- ...Reducing the winter feed of resident deer and elk population will also have a significant impact on our wildlife, yet another part of our environment... (#1531 --Washington State Farm Bureau)

Response:
Comments noted. Please see the preceding response.

The increased use of chemical control methods that will accompany a reduction in grass production will have a negative impact on environmental health.

- ...Oregon State University research has documented that pesticide usage would increase 7 to 9 times in a grass seed production scenario utilizing non-thermal techniques... (#1071 --Palouse Conservation District)

- We are looking at a field this fall that was currently, or two years ago, in bluegrass. They took it out of bluegrass. This fall there's enough organic matter turnover of nitrogen that they will not even have to put fertilizer on the ground this fall. It's a real benefit to the environment that we not have to intensively put on these fertilizers and chemicals every single year. (#1567 --Chemical Retailer)

- ...Grasses in rotation provide several benefits which include:..reduces application of pesticides and nutrients needed with annual cropping systems... (#141 --Natural Resource Conservation Service) (Attachment)

- ...When a farmer is forced to move his rotation from a bluegrass crop into a cereal crop, we consistently see higher uses of pesticides and fertilizer. Farm land that is in bluegrass, if switched to a cereal crop, would typically require 30 percent more nitrogen than the bluegrass seed crop would. Pesticide usage is also typically higher in a cereal crop, than in a bluegrass crop. (#1267 --McGregor Company Manager)

- ...The leaching of fertilizers and pesticides are non existent at this point. (#1460 --Citizen)

- ...With grass, the soil isn't tilled for many years and less pesticides and herbicides are used, unlike wheat and other crops... (#1311 --Grower)

- ...The burn had several obvious benefits. Grasshoppers...thrip...(and) mildew...(which) are grass pests...(and) the pea leaf beetle...(and) aphids...will need to go elsewhere to get their start next year. There will be an environmental gain if no chemical control will be necessary. Aphid and thrip control damage several beneficial insects and all sprays are expensive... (#397 --Grower)

- ...Grass field burning greatly reduces the use of chemicals to control diseases, insects and weeds; ... (#1012 --Citizen.)

- ...I support burning wholeheartedly for the fact that if you burn you will not only stimulate the growth in the grass, but it also eliminates weeds. And you cannot combine any bunch of chemicals together to do that same job. My other point is for the environmentalists. Would you rather have people burning or spraying? There's also a positive side to burning, too. (#1578 --Grower)

Response:

The majority of grass acreage will remain in production, (58 percent), and will not impact the amount of chemical usage. Early information suggests that non-burn methods of grass production will not increase chemical use. Even without grass, appropriate use of crop rotation systems can reduce the need for agricultural chemical applications. There will be an increase in chemical usage on the 22,342 acres which will be converted to other crops. It is estimated that use will increase by about one percent relative to pre-proposal conditions. There are already regulations and established practices in place to ensure that application of chemicals has a minimal impact on environmental quality.

Land development for housing is an alternative to grass production which has adverse environmental impacts.

- The other alternative would be to subdivide some of the farm for 20 acre lots for sale to city people that want to move to the country and run a small place. The subdivided land usually is left idle and causes more environmental problems... (#18 --Grower)

- ...The other alternative is to subdivide some of the farm for 20 acre lots (which) is very damaging to the environment. The roads and utilities are the first damaging thing that is built. The roads are usually left graveled and are a source of dust for more air pollution that occurs throughout the year. The land is usually left idle...which does not produce oxygen like bluegrass (and) usually becomes infested with weeds and insects. Subdividing makes it economically unfeasible to ever raise food crops on it again. Someday this land will be needed for food production to feed a starving world. Subdividing also kills the open space concept and leads to more urban sprawl. (#995 --Grower)

- On the west side around C and Dalton in Coeur d'Alene, Idaho, was a 180-acre field of grass in 1993. The farmer became tired of fighting regulations imposed on him for burning. He sold the farm to a developer. The 180 acres now has paved roads winding through the acreage; 240 single-family-dwelling homes have been built, and the second phase calls for 440 more family homes in triplexes and duplexes. The pollution from these families far exceeds what that one farmer's burning did in one day. (#1584 --Citizen)

- My concern is if this regulation goes through, you're going to lose this rural community... It's so valuable; I would hate to see people go out of business, and then turn out that everything is developed with houses. 'Cause that's the only way you could then make money is by selling your land, and I hope that doesn't happen. (#1503 --Citizen)

- ...Much of the land is ill-suited to other crops and is likely to be converted into its last crop -- houses, asphalt, and subdivisions... (#1066 --Farm supplier)

- ...If not in grass and used instead for housing (when grass farmers are put out of business) there would be a loss of open space, higher taxes needed to provide services and utilities to outlying developments, potential pollution of the aquifer because of inadequate sewage disposal, congested highways, higher taxes needed for schools, school busing and an adverse effect on wildlife. (#136 --Citizen) (Exhibit)

- ...Lastly, one must consider the consequences of the grass fields that are taken out of grass and put into high density housing... (#362 --Physician) (Attachment)

Response:
Conversion of agricultural land to housing is not environmentally desirable. According to the economic analysis of the rule amendment, less than five percent of land currently in grass production is likely to be removed from agricultural use. It is not probable that all of this land will be suitable for development. Therefore, the overall impact of development resulting from implementation of this proposal is probably not significant.

Grass fields contribute to the aesthetic beauty of our state.

...(It provides)open space to enjoy... (#995 --Grower)

...It provides open space for the public to enjoy... (#18 --Grower)

Response:
So noted. Thank you for your comments.

Reduction in grass acreage will impact visibility.

- I was to the symposium in March, and I did have a proposal there from the Adams Conservation District concerning the fact that we'd like to keep some grass along the, this is talking about CRP (conservation reserve program grass), along some of our state highways in order to prevent accidents... If this CRP land, or grass, goes out, which it's likely to, we won't have anything to protect the highway system. We know that the man from the district here has predicted that 80 percent of dirt, dust, the sight-obscuring dust storms that we have, would be captured in that hundred-foot strip along the highways... (#1615 --Adams Conservation District)

Response:
Comment noted. Please see related sections on erosion. Please note that the proposal addresses grass seed fields not CRP ground.

Burning grass is beneficial to the environment.

- By eliminating the acres that you're burning, it promotes some other things. The increases in tillage, the diesel consumption, nonrenewable resource, and the dust particulates... (#1572 --Grower & Chairperson, Columbia Conservation District)

- ...Burning grass revitalizes the plant allowing it to filter six times as much air through photosynthesis than grass that hasn't been burned... (#1023 --Grower)

- There are circumstances where field burning may be necessary on grass fields to improve production, reduce disease and insect damage and to improve plant health and vigor. (This allows) producers to extend the length of time that grass is in the rotation which provides further conservation benefits... (#1016 --District Conservationist, Pomeroy) (Attachment)

- ...Farm Bureau thinks that these environmental benefits should be taken into consideration when you factor in the proposal to eliminate burning across the state will hamstring all the grass growers in this state... (#140 --Grower/ Farm Bureau)

- We are very much in the opposition to the proposed rule by the Department of Ecology eliminating the use of field burning as a best management practice for the production of our crop in two years. This ban poses a real threat of the increased public risk as well as economic hardship for farmers and processors of the grass production within Washington State. The implementation of this rule does more harm than good to the general public and to our citizens at risk who are affected by the particulate emissions. (#1555 --Jacklin Seed Company)

- …I am concerned about not being able to have grass seed available to protect different crops in the Dusty area... (#1430 --Citizen)

- ...There are circumstances where field burning may be necessary on bluegrass fields to improve production, reduce diseases and insect damages, and to improve plant health and vigor. With the improvement of plant health and vigor, producers are able to extend the length of time that bluegrass is in the rotation, which provides extended conservation benefits for the soil, water, and plant resources. When producers remove grass stands as a part of their normal rotation, we feel that a burn/no-till method of planting the next crop will have less adverse impact on the environment than drastic tillage operations. The NRCS recognizes that burning has negative aspects, however, the eventual elimination of bluegrass from cropping rotations would also have substantial negative impacts on soil and water quality concerns... (#1305 --USDA Natural Resources Conservation Service, District Conservationist, Colfax) (Attachment)

Response:

Grass production has environmental benefits. The economic analysis of this rule indicates that 35,138 acres (58 percent of current production) of grass will remain in production and continue to provide environmental benefits. The impact of production of alternative crops and grass, using alternative methods, on specific parts of the environment is addressed in detail in previous responses.

Burning is essential.

- ...Bluegrass production at the present time is dependent upon burning as an essential tool in the over all management system of the plant. (#394 --Whitman County Conservation District)

- ...I don't know if anybody's read the recent National Geographic, but there's a wonderful article in there

about the essential nature of fire and managing systems. It's an essential management tool of controlled, managed, and regulated open field burning. (#1494 --Grower / Processor)

- ...Grass stands need maintenance which includes burning... (#1021 --Vice President, Washington State Association of Wheat Growers)

- ...A way to burn residue must be maintained because nothing else is on the horizon that will replace burning. (#1028 --Grower)

- Through the years we have invested heavily in research and experimentation...in an attempt to eliminate burning. Our effort has not been fruitless, but it has not yielded the results we would have hoped. Burning is still a necessary part of the bluegrass industry... (#1563 --Grower)

- ...I grew grass for 20 some years, and I burned it because that was the only way I could make it have a seed crop again. No other way... (#1571 --Former Grower)

- I really take exception to your EIS statement and your Economic Impact Statements. I spent eight years on our Spokane County Planning Commission. I read many Environmental Impact Statements developed by staff or developers. Most were flawed. There is no way to prevent burning. There is no way to stop the burning without economic hardships and soil erosion and water pollution due to having to replant the grass frequently. They will only have about a three-year cycle if there's no burning allowed... (#1499 --Washington Cattlemen's Association)

- ...Burning is a necessary tool for the grass seed industry. (#1636 --Rancher, Zahn Ranch)

- ...It has to be burned to be no-tilled, burned to be fertilized, and even to plow... (#1591 --Grower)

- You're taking away one of the most useful tools on the farm... (#1500 --Citizen)

- Burning is a necessary practice. (#997 --Grower)

Response:
There are conflicting studies as to the effect of burning on grass seed production. Burning may make seed production more economically viable. It is possible to produce grass seed without burning. Ecology intends to continue the certification process with the target of certifying practical alternatives for use during 1998.

It is necessary to burn grass fields to achieve adequate seed production.

- ...Growth will not take place without the burning being done... (#11--Grower)

- ...We understand the value and necessity of burning in some cases... To reduce disease and insect damage or to stimulate and invigorate plant health. With newly invigorated plant health the length of time that grass is in production can be extended, which improves all natural resources. (#393 --Asotin County Conservation District Board of Supervisors)

- ...We have learned a lot over the years... One of the things we learned also was the tool of burning, that burning increased the yield and made it very productive... (#1609 --Grower)

- Grass seed is the only crop handled by Dye Seed Ranch, Inc... All the personnel of DSR(Dye Seed Ranch) feel strongly that (Kentucky) Bluegrass is the only true universal lawn seed. Many (fail) to realize that the vast majority of Kentucky Blue Grass seed comes from Eastern Washington, Northern Idaho, and Eastern Oregon. The plant can reproduce vegetation for years without ever producing seed. It will do this

unless it is forced by weather and agronomic conditions to concentrate on seed production. The dry summer of the Pacific NW place the Kentucky blue grass plant under stress during its normal vegetative growing period. The grower stressed the plant further by burning, (which) sets the plant up for seed production the following year. The closer the plant comes to death during the summer vegetative period, the more seed it will produce the next harvest... Grass seed burning is essential for production of Kentucky blue grass... (#994 --Dye Seed Ranch)

- I want to start...comparing bunch grass with rhizomatous grass, two different kinds. Kentucky bluegrass is a rhizomatous plant which means that it has two methods of propagating itself. One is by producing grass seed, the other is by sending out underground runners that develop a clean new plant at the end of these runners. It has two methods of reproduction. Bunch grass has seed production only. I want you to remember that we are not talking about a manmade product that can be adjusted and tinkered with, and what not. We're talking about a living plant, a plant that is genetically programmed to respond under certain environmental conditions. Every crop that a farmer raises is genetically programmed to do a certain job. The 27,000 acres we're interested in Spokane County is mainly all dryland production... Under irrigation, we can regulate the amount of water variable to support a plant population within a given acre. Under dryland, it's the opposite. We have to regulate the plant population for the available moisture; the exact opposite. So it's imperative that we maintain a standard population in our Kentucky bluegrass fields... We can remove all the residue with baling; we can finger rake; we can do everything else, but we cannot change the plant population by straw removal. And keep in mind now that Kentucky bluegrass is a rhizomatous plant; it spreads out underground runners; it reproduces new runners at the end of these, and so our burning does two things that we cannot do any other way that we know of today. One is the burning puts the bluegrass plant into a total shock; it eliminates all of the dead residue completely. The total amount of seed that is going to be produced next year after this year's burn is then determined after the fields are burned, not prior to burn. The burning prunes back the major plant. It reduces the number of rhizomatous plants... (#1497 --Hart Seed Company)

- ...Bluegrass is not like something from the Willamette Valley like Ryegrass or Fine Fescue, or some of these things. These varieties don't need, they're a different species, they don't need to be burned... (#1493 --Grower)

- Non-burned grasses in Oregon are bunch type grasses with a single system of reproduction--grass seed only. Spokane County Kentucky Bluegrass which is raised under dryland conditions, is a rhizomonus plant that propagates in two ways. It produces seed like a bunch grass, but also populates itself through underground rhizomes. A new identical plant establishes at the end of each rhizome. If these new plants are not eliminated each fall, the field is quickly overpopulated. With water being the limiting factor, all of the plants are stressed and are therefore unable to perform their seed production function. At this time, fire is the only known practice that performs this population control requirement. (#225 --Grower) (Attachment)

- ...Kentucky Bluegrass has been designed by nature to produce large amounts of seed only when the grass has been burned the previous fall. When no burning occurs, seed production is less than 1/3 the amount produced if the grass is burned... (#1312 --Grower)

- ...I'll give you some scientific evidence I did on my own farm. I did not burn 40 acres last year, and the cause of that, and it's nothing but a clay ridge. It took me four years to get this grass stand established--four years... I got a third of what I got off of everything else, a third grass production. So in other words, I'm losing money at this deal, but I'm doing it because it saves the soil, and it burns just for one day. (#1588 --Grower)

- ... The field is burned because it is a method for the field to be more productive (and) to limit diseases and other pests. (It) is the most efficient method today... (#1304 --Grower & Director, USDA Farm Service Agency)

Response:
Comments noted. Please see the two previous responses.

Burning is a natural management practice.

- ...On Friday, September 13th, National Public Radio had a program entitled, "Science Friday." Commentator and well-known scientist, Ira Flato, interviewed two environmentalists who discussed the benefits of natural disasters. One of which was lightning-started burns... The essence of the program was that therapeutic burns are at times essential to the perpetuation of wildlife, both plants and animals. Grass is one of these plants that thrives from having been burned... (#386 --Citizen)

- ...Agricultural producers have taken a tool that Nature has demonstrated in rejuvenating the environment. A method that is far better than the application of man-made chemicals... (#1304 --Grower & Director, USDA Farm Service Agency)

- ...Fire is part of the natural cycle in grasslands and that is why it works so well... (#1026 --Robert Dye Seed Ranch Employee)

- ...The September, National Geographic talks about the importance of burning to our ecosystem... (#1020 --Washington State Farm Bureau)

- ...(This) region (was) a prairie prior to farming. Introducing grass into the rotation (has) restored a more natural system of agriculture for the area. Fire has always been a part of the life cycle of the prairie. The loss of fire as a production tool will ultimately force farmers to give up producing grass... (#1023 --Grower)

- The farmer does a very good job. He's done this for years. The Native Americans basically taught him how to burn areas to get the reproduction. Fire is that method. (#1532 --Former grower)

- ...I believe the Department of Ecology should concentrate on educating the public on the importance of this agricultural tool and the similarity of this method to nature's way of promoting grass growth. The forestry department has recently promoted burning as a natural process... (#400 --Citizen)

- Are you going to sue God next or tell him he can't send lightning strikes to set forests afire even though that is nature's proven way to cleanse the earth for new growth?...Take a look at Yellowstone Park's recovery from the fire and try to convince anybody that burning isn't the proper way. (#336 --Citizen)

Response:
Fire is beneficial to some ecosystems. It is sometimes used as a management tool in areas where maintaining a natural ecosystem is of primary importance. Often this management practice consists of letting naturally occurring fires burn in a controlled setting. Sometimes fires are deliberately set. This burning usually occurs in a cycle of many years and not on an annual basis. These burning practices are often the subject of much controversy. Agricultural grass fields are not natural ecosystems.

Other agencies support and/or use burning as a management tool.

- ...Not only did we learn that burning is a productive tool, but the Fish and Wildlife Service in Jackson Hole, Wyoming, happens to burn 9,000 acres every year of their elk range. This is how important they consider the tool of burning. This is how we feel in the grass industry at the present time, that the burning is important. (#1609 --Grower)

- A couple of years ago they said Yellowstone Park was burning up. There was going to be no growth at all. Now it's one of the best parks in the world due to one of the largest fires it ever had... The average English farm is divided into five parts whether it's is a small farm or a large part. They have one of the highest livestock production rates of any country in the world, yet it is necessary for England to burn one field every year... It is the hope of all the Iowa farmers that they grow three crops per acre per year. They start out with a grain crop, a corn crop, and a soybean crop. During the transition period in Iowa, it is necessary to burn the residue of one of those crops, sometimes two of them. In other words all of the farming area in the state of Iowa is aflame sometime during each year, and they will have no problems doing that. (#1579 --Grower)

- ...Also, Adams County has to date, a right to farm act that is in place. It took place 9/17/1990. It states in there, Section 1, paragraph b, it allows means and conditions or activities which occur on a farm in conjunction with the production of that product to take place. That is in place at this point in time. In BMP 208, best management practices, water quality 208 was put in place and started that influx somewhere in 1977 and ended up being, I think finished, and filed around 1981. In that was a tool for water quality. One of those tools for creating good water quality was an agricultural burn situation. It's a tool; it wasn't used everyday, but it was a tool that was used. If this law goes into place, takes this place, and eliminates it all, that tool will no longer be there... (#1607 --Washington State Grange Association)

- ...The National Forest Service plans to expand burning but they will probably be exempt from these standards because they are a government agency... (#1020 --Washington State Farm Bureau)

- ...(The) last point I'd like to make is prescribed burning has been advocated the last 10 years. It is advocated by the National Park Service, the National Forest Service, The Bureau of Land Management, and various other private enterprises - the conservation groups, Green Peace, whatever you want to say. They prescribed burning for the renewal of Mother Earth and for the renewal of our natural resources, yet that makes no money for our taxes. So, I would like to say if it's good enough for the government to do that, then why can't we do it? (#1482 --Rainier Seed Inc.)

- ...Read the September issue of National Geographic. There's a wonderful article on the use of fire as a tool to protect and revitalize our environment. We will be hearing more requests from other segments of our government such as DNR (Department of Natural Resources) and the Department of Wildlife for permission to do more burning. Grass burning is a tool. (#1531 --Washington State Farm Bureau)

- Burning is considered best management practice for the farming community. Many different agriculture commodities use burning as a tool, whether it be wheat growers, orchardists, or grass growers. There are real concerns across the ag(ricultural) community that if DOE (Department of Ecology) eliminates burning of one commodity, it won't be long before the rest of the users are picked off one by one... (#1488 --Grower, Environmental and Natural Resources chairman - Washington State Farm Bureau)

- <u>National Geographic, "The Essential Element of Fire"</u>, should be on the DOE's (Department of Ecology) must read list, telling them that prescribed fire is one of today's best management practices for both forests and grasslands. "This land had been burning year in and year out for thousands of years, until settlers came and plowed much of it up."... (#1019 --Grower)

- ...Burning has been and will continue to be a best management practice for agriculture... (#1020 --Washington State Farm Bureau)

- (Burning) is considered a best management practice. (#1636 --Rancher, Zahn Ranch)

- ...We must act in a decisive and positive manner in order to maintain the use of selective field burning as a valuable tool for current and future production of cereal grains. (#1581 --Washington Association of Wheat Growers)

- ...In fact I really encourage the DOE to become an advocate for the entire environment. DOE should be promoting the bluegrass industry wholeheartedly. The DOE should encourage change and promote research where the need exists, but banning of a best management practice as natural as fire is, in my opinion, inappropriate... (#1563 --Grower)

- Burning is not only a necessary tool for the grass industry, it is used extensively as a best management practice by many commodities including the wheat industry... (#1576 --Washington State Farm Bureau)

- ...It is a cruel irony that many farmers were encouraged by federally-funded soil conservationists to grow grass crops to protect highly erodible areas from rain and wind - caused erosion. Grass seed production has been advocated as a best management practice to protect and preserve the soil... (#1066 --Farm supplier)

Response:
Ecology acknowledges that burning is a tool that is used by other agencies. Please see the preceding response and the response to "This rule conflicts with the recommendations of other agencies to plant grass as a conservation practice.) This proposal reduces the burning by 2/3 in 1997 and subsequent years. This tool still remains available for 1/3 of the grass seed acres in production in 1996, plus an additional five percent exemption is included for extraordinary circumstances.

Growing conditions are not suitable for alternative crops.

- All of the alternative crops at the present time do not do well on our farm, mainly due to shallow topsoil. Crops run out of moisture before half the growing season is over (therefore) seldom produc(ing) enough to pay for harvesting. Therefore alternative crops would be almost impossible to raise at the present time... (#995 --Grower)

- I've also learned a lot about soil structure. If you take out grass fields around Rockford, Colton, in the marginal areas, most of the grass seed is seeded on marginal ground, it does not produce wheat, peas, or lentils economically. It can raise bluegrass... (#1588 --Grower)

- ….I have my grass on ground that is very highly erodible. It is on steep shallow ground... Shallow ground on my farm doesn't allow me to grow normal rotation crops because it does not produce enough to break even. (#1070 --Grower)

- ...Alternative crops at the present time do not do well on our farm. The soil is very shallow to a real impervious red clay subsoil. All alternative crops run out of moisture before half the growing season is over. This is mainly due to shallow topsoil. When crops run out of moisture before maturing they seldom produce enough to pay for harvesting cost. (#18 --Grower)

Response:
The economic analysis of the proposed amendment estimates that 58 percent of acreage currently in grass production will remain so. It is anticipated that less than five percent will be taken out of production permanently. Acres not suitable for other crops due to climatic or soil conditions may be suitable for grass production using non-burning methods or shorter rotations. The five percent exemption provision and the permit trading system should lessen the impact on those who cannot grow alternative crops.

Growing alternative crops will be detrimental to environmental quality.

- ...It is shameful that the Department of Ecology has rejected sound advice from their own sister agencies regarding the effects on their soil and water. If we lose a perennial crop and go to working the

(ground) year after year versus every 4-8 years, this will increase our water quality problems and put a lot of good top soil in the draws... (#1482 --Rainier Seed Inc.)

- ...As a wheat producer and sometime field burner, for a spring field burn for annual cropping in dry areas is that the trade off is between tillage and fire, and we strongly believe that the tillage is the biggest destructor of soil quality and water quality than any of the burning will ever add up to, and we are bucking research to try to prove our point. We've been getting stonewalled quite regularly--this goes against research. Is that fire has always been bad, you know, tillage is good. It's wrong, and so that's what we have to fight with is the worser of two evils. (#1572 --Grower & Chairperson, Columbia Conservation District)

- ...Moreover, Murray (1996) also indicated that alternatives may require increased pesticide use for weed, disease and insect management; the environmental effects of these pesticides need to be taken into account... (#362 --Physician) (Attachment)

- ... (Has a study been done on) a substitute crop that will enrich the soil, control erosion and be financially acceptable? How many dollars have been spent on research for a solution?... (#981 --Citizen)

- I am concerned that this production will be moved back to cereal and other production such as wheat, barley, peas, and lentils. If this happens, the annual tillage will almost certainly cause more erosion and windborne dust, water quality will also suffer. This will result in lost productivity in the land, increased cost for road maintenance, windborne dust during working seasons, and the degradation of our rivers and streams which would increase the danger to the salmon habitat and all other fish and quality of life... (#1552 --Dye Seed Ranch Employee)

- ...There are on the average 147,000 acres of irrigated wheat in and adjacent to the Columbia Basin. At 2.1 tons of straw per acre, it equals 300,000 tons. DOE has acknowledged that in order to annual crop, that the quantity volume of material must be removed. Even if one-third was utilized, we would still have 200,000 tons to get rid of. (#1600 --Othello Chamber of Commerce)

- ...Without the bluegrass the environment would be devastated with many tons of soil pollution both airborne and water transported. I cannot think of a more environmental compatible crop. Alternative crops have 20 to 30 times more pollution... (#995 --Grower)

Response:

Ecology has carefully examined the environmental effects of growing alternative crops. The economic impact study indicates that only 22,342 acres or 37 percent of current acreage in grass production will be converted to other crops. This constitutes a less than one percent increase in pre-proposal production of these other crops.

The determination of the magnitudes of effects are based on reported acreage figures, the proposed grass burning reduction requirement and typical / common farming practices. The consequences of the proposal are qualitatively evaluated by comparing the estimated conditions before, and projected conditions after, implementation of the proposal.

Potential emission increases from production of alternative crops come from an increase in tillage, non-grass burning, potential wind erosion and equipment exhaust. Expressed as a percentage relative to pre-proposal conditions, the potential effects are as follows:

tillage	less than 1/2% to less than 11/2%
burning alternate crops	less than 1%
blowing dust potential	less than 1%
equipment exhaust	less than 1/2% to less than 11/2%

The potential increase in soil erosion is 67,000 to 313,000 tons, less than one-half percent to less than two percent relative to pre-proposal conditions. The potential degradation of water quality resulting from the estimated increase in soil erosion represents an increase of less than one-half percent of the pre-proposal conditions or an additional contribution of 6,839 to 20,244 tons of material to ditches, waterways and streams. These increases are within the variations seen in farming practices from year to year.

One should also note the improvements resulting from this proposal to completely assess the environmental impact. It is estimated that reductions in pollution from burning fewer acres of grass are: a decrease in PM_{10} of 1,077 tons; a decrease of 6,797 tons of Carbon Monoxide (CO); and, a decrease of volatile organic compounds (including various toxic compounds) of 1,010 tons (62 percent to 67 percent reductions).

Alternative crops will increase erosion.

- The DOE (Department of Ecology) estimates that the soil erosion potential from non-grass crops is about two times greater than that of grass. Our experience and research indicates that that potential is much, much, much higher. The actual figure is about ten times more potential soil loss from non-grass crops. In addition there is no known non-grass crop which will actually build soil. Bluegrass actually builds soil. (#1563 --Grower)

- ...Soil conservation studies show that perennial Kentucky bluegrass will release only 200 pounds of sediment annually in the form of dust and run off compared to an average of 12,000 to 20,000 pounds produced by other annual crops grown in our region... (#1494 --Grower / Processor)

- ...The rotation of bluegrass preserves and builds precious topsoil that would otherwise be lost to erosion while planted to wheat or other crops... (#1311 --Grower)

- During the winter and spring seasons as much as 25 to 30 tons of soil can leave conventional cropped fields due to water erosion. Under this proposed amendment, most of my farm will be in annual tilled crops and eroding at much higher rates than it would be with the bluegrass. Just think thousands of tons of soil will be reaching our lakes and streams with the tear out of all that bluegrass acreage. (#18 --Grower)

- ...The conservation districts have worked very hard over the years to get highly erodible areas into grass to protect the water supply and air quality. Removing highly erodible areas from grass and into crops which must be tilled will mean higher erosion from rain and wind. This will only increase the PM_{10} problem in Spokane and increase sedimentation into streams and reservoirs... (#140 --Grower/ Farm Bureau)

- ...Kentucky blue grass will release 200 lbs. of sediment annually in the form of dust and runoff compared to an average of 12,000 to 20,000 lbs. produced by other annual crops grown in our region. (#217 --Grower)

- ...For the past ten days and two weeks, I've been tearing out almost 300 acres of Kentucky bluegrass sod in the conventional manner, and it's prodded me to make this statement one more time... I estimate it's going to take at least eight trips over this 300 acres with various types of tillage equipment to get the soil in condition to accept the winter wheat seed. In doing this, besides the two weeks it takes or more, it's going to put that soil in a very vulnerable condition for soil erosion this winter... There is a better way--the way is burn-no-till. It's a one-pass operation instead of eight, and it leaves the soil virtually undisturbed--the sod is still intact. This is in rotating bluegrass seed into food crops. (#1504 --Grower)

- ...Make no mistake, there will be considerably more dust in the air and more dust storms. We will return to the days of severe soil erosion, not immediately, but over time as the tilled soil is destroyed by intensive rain... (#1507 --Grower)

- ...I was happy to hear that DOE (Department of Ecology) is also responsible for soil and for water. For every acre of grass that is going to be taken out and put back into rotation, there's going to be the equivalent of 13 tons, which is 26,000 pounds, which is one large dump-truck load of soil. So if we reduce a third of our acreage plowed out, you're looking at 12,000 or 15,000 acres, 12,000 or 15,000 ton, 12,000-15,000 dump truck loads of soil that is going to be dumped into the streams and roadways. And I wonder how the people in Spokane would stand if all of a sudden, ten thousand dump trucks showed up on the Spokane River and started dumping their loads of top soil into the river. That's the amount of soil that will be lost for every acre that's taken out of grass seed production, and goes into annual crop. (#1497 --Hart Seed Company)

- ...Other crop production will cause more erosion in the form of wind, water and tillage of downhill slopes, causing loss of farm productivity in a relative short time. (#1010 --Citizen)

- Grass provides soil protection against sheet and rill erosion and gully erosion... If not in grass these same fields would have to be used for the production of tilled crops which would add to the dust and spore problems and water erosion problems... (#136 --Citizen) (Exhibit)

Response:
Comments noted. Please see the preceding response for details.

Growing alternative crops will increase wind blown dust.

- ...Grass growers who are forced out of raising grass...are going to raise cereal grains or peas and lentils. Are the clean air activists going to stop them from creating dust when they cultivate and weed their fields, that is probably next. Remember grass stays in crop four years as a rule. Wheat, barley, peas, canola & lentils require cultivation every year... (#989 --Garfield County Fire Chief & Pomeroy Grain Growers Co-op employee)

- ...Maintaining bluegrass in a long-term rotation also reduces fugitive dust problems associated with tillage operations that would normally be used in an annual cropping rotation... (#1305 --USDA Natural Resources Conservation Service, District Conservationist, Colfax) (Attachment)

- If you would like to see the air quality in the area decrease, just take out all the bluegrass fields and annual crop the land. The air will be saturated with dirt and dust and the water running off those fields will be chocolate in color. Where do you think the dust storms that Spokane or any area receives every year comes from? The answer is from land that is unprotected. Grass protects the land from wind erosion, water erosion and air pollution 364 days per year. (#213 --Citizen)

- ...Not only will we have major impacts on air quality from dust by changing from a multiple-year perennial crop to annual cropping, but there will be significant increases in soil erosion, both by wind erosion and water erosion... (#1531 --Washington State Farm Bureau)

- ...99 percent of the particulates will remain even with the elimination of bluegrass burning. However it may be that with the reduction of grass growing, an increase in dust particles from the different farming practices could result... (#29 --Citizen)

- It is known and documented by the USDA National Reserve Study of 1992 that the monocultural crop rotation in our state is responsible for an average of 10,400 pounds of windblown particulate matter. In comparison windblown particulate matter from the grass seed production field is largely zero. Particulates emitted from these fields in the form of smoke are calculated by the Spokane County Air Pollution Control Authority at 24 pounds per acre. It is impossible to dispute these numbers and the increased negative

impact of the additional load of particulate fallout will have on our airshed and citizens of Washington State. (#1555 --Jacklin Seed Company)

- ...If burning was not a vital step to the production of bluegrass seed, we certainly would not use this practice... Will the sensitive few be bothered by the multitude of dust resulting from the removal of grass fields using the only conventional methods?... (#1542 --Grower)

- The implementation of this rule does more harm than good to the general public and to our at risk citizens who are affected by particulate emissions. It is known and documented by the USDA National Resources Study of 1992 that monocultural crop rotation in the state of Washington is responsible for an average of 10,400 lbs. per acre of windblown particulate matter. In comparison, windblown particulate matter from a grass seed production field is virtually zero. Particulates emitted from these fields in the form of smoke are calculated by the Spokane County Air Pollution Control Authority at 24 lbs. per acre. It is impossible to dispute these numbers and the increased negative impact this additional load of particulate fallout will have on our airshed. (#238 --Processor/ Wholesaler)

- ...Will we be told to go ahead and grow our wheat, but don't make any dust?... (#1542 --Grower)

- ...It is known and documented by the USDA National Resource Study of 1992 that monocultural crop rotation in our state is responsible for an average of 10,400 pounds of windblown particulate matter. In comparison, windblown particulate matter from a grass seed production field is zero - zero. Particulates emitted from these fields in the form of smoke are calculated by the Spokane County Pollution Control Authority at 24 pounds per acre. It's impossible to dispute these numbers, and the increased negative impact this additional load of the particulate fallout will have on our airshed and citizens of the state of Washington... (#1490 --Jacklin Seed Columbia Basin operations manager)

Response:
Please see the preceding response for details on the potential increase in dust from soil erosion. It is important to also note the difference in character between particles from incomplete combustion and particles from tillage. The primary difference being of size. Particles from tillage measure from 1 to 200 microns with 79 percent of the total being greater than PM_{10} and 90 percent being greater then $PM_{2.5}$. Particles from incomplete combustion range in size from .01 to 1 micron. The larger tillage particles settle much faster and therefore much nearer the source resulting in a lesser impact on visibility. The smaller smoke particles remain, for all practical purposes, suspended indefinitely. This greatly increases the duration of their potential effects. Research suggests that more serious health effects are associated with the smaller particle size. Comparing content reveals that particles from tillage are primarily mineral which also has less of a health impact than the components, particularly the toxic compounds such as poly-aromatic hydrocarbons (PAH's), found in smoke particles.

Comments on Alternatives to Burning

The growers can use alternative methods of growing grass.

- My next point is that there are alternatives to uncontrolled burning, and some of us know of some of those, and there's probably a fairly extensive list of several things... (#1492 --Citizen)

- ...It's time to put an end to field burning and turn to alternative practices that don't threaten the health of our people and the enjoyment of our environment. (#1250 --Citizen)

- According to the letter (to the editor) “What’s it to be, profit or health?” there are other ways to take care of their crop and stubble rather than burning and it is not costly. (#2--citizen)

- Must we be forced to choose between grass burning and housing developments? surely there is a way to save grass fields with reduced smoke from grass burning. I hate the either/or scenario presented and figure that where there's a will, there's a way. (#6 --Citizen)

- The burning of the Kentucky Bluegrass fields after harvest to remove straw residue and to maintain seed yields inexpensively is an unacceptable way of producing the grass seed for several reasons. I do not ask that these farmers go out of business. I do ask that they produce their product using other methods rather than burn those fields. (#206 --Citizen)

- I would like to see an alternative to the burning... It's hard for me to believe that someone can get away with doing this to the air everyone breathes. I am requesting that alternatives to burning be implemented. (# 1339 --Citizen)

- …We would be happy to see all burning of fields phased out and stopped ASAP and replaced with other means. (#1355 --Citizen)

- I feel, although it is more expensive, other means of planting and harvesting grass should be considered. (#1358 --Physician)

- I believe it is important to stop field burning, especially since Bluegrass can be produced without the fire. Growers have already shown this… (#1361 --Citizen)

- Grass burning everywhere should be phased out and the grower should find alternative methods to growing bluegrass, which I understand can be produced without burning… (#1369 --Citizen)

- …I feel there needs to be alternative ways, instead of burning and polluting and risking the lives of others if it does go out of control… (#1370 --Citizen)

- …There are other ways for these people (growers) to handle this (Bluegrass growing)… (#1386 --Citizen)

- …I wish the burning would stop and we could find other methods less harmful to the environment… (#1397 --Citizen)
- Grass growers need to find other alternatives. (#1398 --Citizen)

- ...It is so painful to see friends and family suffer. My heart goes out to the farm families that are facing this issue. I'm sure their suffering is great - but they have more choices. (#1253 --Citizen)

- …I understand there are alternatives for the farmers other than burning… (#1410 --Citizen)

- I am a teacher of young children and (am) very much concerned about the burning and if there was some way to have it discontinued and find alternative methods, that would be very much appreciated. (#1436 --Citizen)

- …There are many alternatives to this practice for farmers… (#1441 --Citizen)

- …I just wish you could do whatever you could to put a complete stop on this from going on because there are alternatives. (#1465 –Citizen)

- ...There are methods other than fire that the growers can utilize to prepare their fields. (#1292 --Citizen)

- ...I am supportive of research focused on alternatives to burning and its eventual discontinuation in the near future. (#1487 --Citizen)

- The bottom-line question relative to this issue seems to be, "Does burning produce air pollution?" Without doubt, the answer is "Yes." Given this certainty, the question, "Is air pollution from burning beneficial to human life?" follows. Again, the answer clearly is, "No," as substantiated by research on global warming and the health effects of burning, along with the position papers of medical practitioners in Spokane County. Such evidence calls for the use of alternative practices to burning. (#1487 --Citizen)

Response:
Ecology agrees that developing and implementing alternatives is important to “secure and maintain levels of air quality that protect human health and safety.”

There is no economical and / or feasible alternative to field burning.

- The "leadership toward development alternatives to burning" has been nowhere to be found as Ecology moves ahead with draconian measures that will all but eliminate grass burning by 1998...No viable, economical alternative to burning exists for grass growers and this punitive measure threatens to drive them out of business... (#1066 --Farm supplier)

- There's no economical alternate to field burning. We need more research, as we have been doing as long as I have been in the industry. (#1597 --Jacklin Seed Company Employee)

- (At) DOE’S (Department of Ecology's) March symposium city dwellers explain(ed): (1) “growers need only remove straw...to maintain yields” (2)...weeds and pathogens will not be a problem. (3)...Other crops can substitute for turf seed production. This is totally ridiculous. University researchers (commented): (1) “there is no present substitute for residue burning, we simply need to burn fields.” (2)...much of the available equipment is new and may not be fully adapted to all bluegrass producing areas (3) Users and markets for residues must be developed. (4)...There are few chemical compounds to control weeds,...diseases, insects and rodents. All of these problems drastically reduce seed yield and quality. I am not willing to state the goals set for us are unattainable; but...I know that plant research is very expensive and very slow. Bluegrass is limited to one growing cycle per year; therefore we have on opportunity a year to alter this cycle. We are in search of methods that will fit together to make a system. A system that will be planned and initiated years before the bluegrass is planted. It will not be a system started today on existing fields that will sustain quality and yields... I am being told to replace methods and systems that were developed over the last 50 years with (those) yet to be developed in preparation for the 1997 crop. I am told to do it now for the economy and welfare of all... That are touched by our products. I am not sure I am capable of this. Maybe your department can help. (#985 --Dye Seed Ranch employee)

- I also run a custom no-till business. I'm a conservationist. I've done no-till farming for 12 years. One year I took out a sod field for a farmer. I broke ten of my blades in 25 acres. (#1588 --Grower)

- No viable or acceptable alternatives exists for our bluegrass farmers... (#1071 -Palouse Conservation District)

- I can say for myself, I do not like to burn our Bluegrass fields. If there was some other way to stimulate seed production we would certainly use it... (#1263 --Grower)

- I have heard of different alternatives to grass burning, but I have found none to be economical. Every time I don’t get a decent burn I encounter a problem with increase(d) weeds and powdery mildew which have increased my cost by $20/acre. Grass needs to be stimulated in some way to produce seed (and) none of the alternatives provide that stimulus. We do not receive enough rain to overcome lack of stimulus... (#1006 --Grower)

- There is no viable alternative to replace open field burning of KBG (Kentucky Bluegrass). By the time you add up all the expensive, fuel consumptive, mechanical operations coupled with the harsh chemical treatments, and yield reduction, farmers will be forced out of business. (#217 --Grower)

- The phase out in three years of open field burning of KBG (Kentucky Bluegrass) would be an unworkable situation. Proven yield reduction from non-thermal treatments of straw removal and increased cost to handle the nearly 68,000 tons of straw (a stack of low feed value straw that would stretch 200 miles) would put us at a competitive disadvantage... (#217 --Grower)

- ...At this time, there are NO certifiable alternative practices to burning and the DOE (Department of Ecology) is not qualified to designate any... (#1311 --Grower)

- The industry is awaiting an economic alternative to burning. New seed varieties are in the wings. New methods of handling crop residue are being developed. Possibly new agricultural chemicals will be developed. When an economic alternative to burning is developed, burning will cease... (#394 --Whitman County Conservation District)

- ...We all have heard there's no alternatives to grass burning that are economical and safe... (#1556 --Optometric Physician)

- There is no viable alternative (to grass burning). (#1636 --Rancher, Zahn Ranch)

- Grass growers would welcome a viable alternative. Burning is dangerous, hot, dirty work, but the alternatives cannot be mandated... (#1531 --Washington State Farm Bureau)

- ...The Department said they'd provide a viable alternative to burning. What is it? All growers know that there is none. No one has invented a machine to stay on that 30 or 40 percent slope covered with unburned grass straw... (#1591 --Grower)

- ...There's no viable alternative to replace open field burning of Kentucky bluegrass. By the time you add up all these expensive fuel-consumptive mechanical operations coupled with the harsh chemical treatments and yield reduction, farmers will be forced out of business... (#1494 --Grower / Processor)

- ...We know you have not factored in the research done on the issues. It all indicates that there's no viable alternative at this time... (#1500 --Citizen)

- ...I was a researcher at Washington State University. I've seen all the research that's gone on down there. To this date, I have not seen anything that gives us a viable alternative... But we hear all the time that we have all these solutions to our problem. I've worked with Dr. Johnston; he is on my committee, and when I was through there, I never saw an alternative to open burning. Yeah, we have alternatives if you want to reduce your production by up to 50 percent, but I don't call that an alternative... And here you're trying to tell us that we have an option right now when we don't. (#1516 --Grower)

- With no alternative I will likely rotate my grass field out of production, against what I know is best for the land. Paying the bills will have to come first and without burning my grass crop revenues will plummet... (#1077 --Grower)

Response:

This proposal concentrates on reducing acres burned until alternatives are available. Many on both sides of the issue disagree as to the effectiveness of alternatives. Ecology has committed to review alternative practices to burning and certify them where appropriate. Ecology anticipates beginning the certification process in 1997.

There must not be alternatives because none have thus far been identified / certified.

- In Reason #8 DOE (Department of Ecology) states "(it) has committed and will continue to commit resources to the identification of practical and reasonably available alternatives to grass seed field burning." This is, at best, irrelevant to the proposed rule. That resources have been committed but no alternative has been identified or certified illustrates that the grass seed industry needs field burning... (#1338 --Attorney)

- ...DOE (Department of Ecology) has a record of finding alternatives for grass that began in 1973 to 1996, is almost zero, and you're going to do it in two years? (#1600 --Othello Chamber of Commerce)

- ...For 25 years the grass grower has been paying an assessment to research for alternative methods. None has been found and will not be found in time to save the grass seed industry for our area... (#1074 --Retired grower)

- The anti-agricultural people insinuate that alternatives are available for the production of Kentucky bluegrass using non-thermal methods. This is an obvious fabrication and public relations ploy. Under state law, if the DOE (Department of Ecology) determines that there is a reasonable economic alternative, then burning (will) cease to exist. While the DOE will not verbally admit that there are no viable alternatives, they legally/politically admit it by not certifying an alternative. (#238 --Processor/ Wholesaler)
- ...We have paid an assessment to the Department of Ecology through permit fees. The reason for the assessment was to use the money to find an alternative to burning... The only thing that your Department has worked on was a field burner that would only last for one or two days... What happened to the millions of dollars collected during this time period (20+ years), and because of your failure to find an alternative you now say it was our responsibility as farmers to find the alternative? We as farmers have assessed ourselves millions of dollars through the Intermountain Grass Growers Assn. To find an alternative and that money was given to Washington State University and Oregon State University. They have not come up with an alternative either... (#1307 --grower)

- ...The industry and the growers have work(ed) for decades to find alternative(s) to field burning but (have) yet to replace what Nature has applied for eons in the rejuvenating cycle!... (#1304 --Grower & Director, USDA Farm Service Agency)

- ...If there was an economical way to raise grass without the burn it would have been done by now... (#1025 --Grower)

- What are the alternatives? I've asked you and asked many times, what are the alternatives. Put some costs to some alternatives. I never have got an answer... (#1511 --Grower)

- ...We also protest that the Department of Ecology still has not identified a clear alternative for the farmers to use... (#1500 --Citizen)

Response:

Since 1991, research has been directed toward the development of effective non-thermal alternatives and viable grass straw markets. Such studies are providing a significant amount of information. This proposal to reduce burning does not identify alternatives and is not designed to do so. Under state law (RCW 70.94.656), a pro-rata reduction can be used until alternatives are available.

The growers can grow grass seed on shorter crop rotations.

- ...It's going to have to take a change in the way you farm because this can be grown without burning it. But--you're going to have to go to shorter crop rotations and grow the varieties that do better under burning than nonburning. It's all in the research done by WSU. It's there... (#1512 --Citizen)

Response:
Thank you for your comments.

The alternative of shorter field rotations is not practical.

- To get the full benefits of grass we need to rotate it every four years. DOE (Department of Ecology) has indicated that grass growers can go to shorter rotations if they can't burn. We are already in short rotation, (any shorter) would not be economical with the additional costs and risks of lower yields due to not being able to burn all of the acres. (#1000 --Grower) (Attachment)

Response:
Ecology agrees that alterations in field rotation patterns will not be practical for all growers in all situations. Thank you for your comment.

The grass seed industry has had the money and the opportunity to develop alternatives but has not done so.

- ...The 1969 industry spokesman, Don Jacklin, promised us the end to the burning in the foreseeable future. He said the industry was committed to look for alternatives to research. We believed him, but when we started looking at the research history we found that industry leaders had intentionally chosen to fund research projects which have little chance of succeeding into real projects which showed potential. (#1299 --Save Our Summers) (Attachment)

- I wanted to say something about alternatives. They haven't been studying alternatives. I have all of IGGA's (Intermountain Grass Growers Association) income tax returns. They did not spend the money on alternatives even though when incorporated in 1969, 30 years ago, saying that they were going to fund alternatives and find alternatives to open field burning. They didn't do that. They spent it on public relations, mostly travel, food, and they spent it on smoke management. And I have all the income tax returns, so let's compare money to money and what was spent on what. I have all the DOE (Department of Ecology) and what you spent your money on. At the insistence of the grass growers, they spent it on mobile field burners that they knew wouldn't work. They didn't work ten years ago and 20 years ago in Oregon. (#1603 --Citizen)

Response:
Your comments are appreciated and have been noted.

What research has been done with the money that we pay as growers.

- ...You said we have $60,000 in the fund. I'd like to know how long that fund's been there, and the other thing is, I would like to know what our research money has been going to. One of the ladies sitting over here referred to that we are not giving anything into research. We pay research with our burning fees for funding, and maybe she's right, maybe it is not being used. I mean, I don't think you should have $60,000 in there, and what has it been used for? You said Bill Johnston has not presented his proposal yet, is that right? ...Can we find out what it has been used for, and is that up to date, and how far back does that

money go?... (#1610 --Grower)

- ...Our fees ear-marked for DOE (Department of Ecology) research-into-burning-alternatives have turned up nothing except the inefficient field burner limited to flat-land use. Now DOE attempts to turn the tales, blame the farmers for failing to find alternatives, kill the industry and dry up the source of the research fees. (#1019 --Grower)

- ...Why are we not putting more money and time into funding to develop residue-handling plans, burning schedules, and/or alternative methods to stimulate grass seed production?... (#1605 --Grower)

Response:
Thank you for commenting. From 1979-1985 the University of Washington received $118,000 for portable grass seed burning machine design. Between 1985-1988 no new projects were funded. During the period of 1989-1991 $41,000 in funding was issued to Washington State University for continued design of portable grass seed burning machinery. In 1991, Phoenix industries was funded $70,800 for research into tilling / dethatching equipment for grass seed field residue. From 1992 to date, Washington State University received $105,200 for studies concerning management practices to address post harvest operations. This research has included continued work on dethatching and composting.

An alternative to burning the grass straw is using the material as livestock feed.

- ...You had so many chances to do straw residual removal, and they didn't do it. In Idaho they used to feed it to cattle; that was a practical alternative, and now all of sudden that this ban's come into place, you have people coming out of the woodwork, all of a sudden they have ways they can get rid of this straw. (#1512 --Citizen)

- ...So I see this as part of a resource that we're burning up, whether it's in the grass, stubble, the orchards, whatever it is. This uncontrolled burning, we are utilizing a resource that could be put to some good use... (#1492 --Citizen)

- …They can bail the hay which the grass seed is taken from, sell it or feed it to livestock or raise sheep and I've seen some if this near Coeur d' Alene. Maybe 300 sheep in one field. The sheep will take it down to bare dirt. This will eliminate terrible smoke. (#1404 --Citizen)

Response:
Your comments are noted.

Grass straw is a poor feed for livestock.

- ...What do we do with the residue? Do we put it in a pile and let it rot? Nearly the same pollutant will be the result, just not as visible to the eye. So far it has proven as an inadequate feed for animals. (#1074 --Retired grower)

Response:
Thank you. Your comments are so noted.

Non-thermal techniques to growing grass increase yields or do not decrease yields.

- ...In 1988 a field trial conducted in conjunction with researchers at WSU compared several nonburning

practices against burning. Results showed greatly increased seed yields in the absence of burning. Although the researchers expressed enthusiasm about the potential of the techniques and strongly recommended continuing the research, someone in the industry made the decision to kill the project, and the results were never made public. In 1989 a field trial looked at practical changes in management practices and found increased seed yields in the absence of burning. Someone within the industry made the decision not to pursue this research, and the results were never made public. In 1991, DOE (Department of Ecology) contracted with Art Krenzel of Phoenix Industries of Oregon over the strenuous objections of the industry. This was the first time that DOE (Department of Ecology) contracted out for research without prior approval of the industry. The first yearly results showed nonburned yields to be up to twice as good as the burned yields. Mr. Krenzel acknowledged that the methods used were time consuming, dusty, and costly. It was his intention to address these problems in the following four years with an ultimate goal of increasing profits without the fire. He never got the chance. Industry leaders got the project transferred to WSU, then went to Olympia and brought back a law that makes it illegal for the Department of Ecology to fund independent research. (#1299 --Save Our Summers) (Attachment)

- …The grass farmer can get just the same yield without burning… That has been proven in Oregon with grass growers there. (#1445 –Citizen)

- I am sure you have read the material that proves there is another alternative which does not cost them much more and does give them a bigger yield the next year in seed. They are distorting information about research to make it look like there is no alternative and that in turn makes people feel sorry for them... (#1631 --Citizen)

- An agricultural Engineer, Art Krenzel, worked with the bluegrass growers in your area and proved conclusively that thatching yielded better results and more crop yield than burning. (#1327 --Citizen)

Response:
The Department of Ecology will thoroughly review the studies and information, including yields, during the certification process.

Available alternatives significantly reduce yield.

- ...Mechanical removal of straw, reduced average seed yield about 32 percent in the second seed crop, 46 percent in the third and 60 percent in older stands... Kentucky Bluegrass seed stand requires 2 years for establishment and first harvest. Costs must be recovered over the productive life, thus the longer the life the lower the annual charges to amortize costs {8}. (#1010 --Citizen.)

- ...I remember the years we baled the straw and the resultant decrease in yields the next year, especially if it was a dry year... (#1507 --Grower)

Response:
There is a significant amount of confusion about the impact of likely alternatives on yield. Some research suggests reductions in yield whereas, others, are inconclusive. As stated above, Ecology will review all information available during the certification process.

Alternative varieties of grass exist which perform better than traditional varieties without burning.

- ...Varieties of bluegrass which do well or better without burning have been identified by the grass industry's own grass researchers. Alternatives to burning exist now. (#1536 --Save Our Summers)

Response:
Alternative varieties of bluegrass will be considered in the process of certifying alternatives. Thank you.

New varieties are not yet developed.

- Grass growers have given millions of dollars towards research to develop other varieties that do not benefit from burning or straw removal. The problem is that bluegrass is genetically complex, making development of new varieties slow, but we are working in that direction. (#1599 --Washington State Farm Bureau)

Response:
Thank you, so noted

Grass seed crops can be tilled and replanted similar to grain production.

- It is our understanding that grass seed can be produced without burning. Traditional agricultural practices of tilling and harvesting can produce viable crops without burning. (#1069 --Citizen)

- …I don't know how valid this is but somebody told me that when they are burning fields, it kills the bacteria that would normally decompose the grass and they would be much better off to turn it over… (#1415 –Citizen)

Response:
Ecology will explore these ideas and others more fully during the certification process

Specific machinery / equipment exists that will replace the need for burning.

- ...I was an experimenter. I tried a lot of things, not only on grass, but on other crops that I raised. I had a Ronal beater, and I tried beating that grass instead of burning it, and I did just a little bit because I didn't want to wipe out my grass crop if it didn't work. And it looked like it might have possibilities. It cleaned up some of the cheat grass, and I told Dean Johnson who's already talked to you, maybe this'll work. He said try it some more, so I did. I tried it on about six acres of my one little patch of grass, and it worked wonderfully. It peeled all the cheat grass, and it took every seed head off of the grass. There wasn't one on that area... (#1571 --Former Grower)

- ...When are the grass growers going to take responsibility for purchasing the proper equipment to manage their fields with? (#1344 --Citizen)

- This issue has been on going for over thirty years. Technology has advanced on farm equipment and procedures. Are these farmers unable to grasp the concept of new technology and the alternatives to field burning? Isn't it time to move ahead and put a value on human life on human profit? (#363 --Citizen)

Response:
During the certification process, consideration of alternatives will include evaluation of a variety of different types of equipment for non-thermal techniques will be reviewed for their effectiveness and availability.

Dethatching is a proven technique to eliminate the need for burning.

- ...Bluegrass can be produced without burning. There is no physiological shock involved. Research had shown that. (attachment) 1) Dethatching works depending upon which method of residue removal is used. 2) There was no reduction of bluegrass seed purity, seed quality, or seed germination due to mechanical residue removal versus the open burn fields. 3) There was no significant increase in diseases or pests in the dethatch versus open burn fields. 4) Mechanical dethatch sites had no drastic increases in grassy weeds or broadleaf weeds. 5) Seed yields on irrigated dethatched sites were comparable to yields on open burn sites. Seed yields on the dryland sites were somewhat lower than burned fields but this depended upon the variety of bluegrass planted and the method of mechanical dethatch used. To be successful farmers should go to a 4 year rotation, plant varieties that do well under non burning conditions and utilize grass straw markets. Grass straw has been used for animal feed, fiberboard, pulp and composting. (#1302 --Citizen) (Exhibit)

Response:
Research into dethatching has suggested that a variety of mechanical techniques may be successful alternatives. Such dethatching techniques will be reviewed as possible alternatives to grass seed field burning during the certification process.

Mechanical residue removal is unproductive and inappropriate as an alternative.

- ...As a field manager of the company, it's my job to work closely with the growers to maximize the production of grasses grown for seed. Most of the acreage I'm involved with lies in the middle of the Palouse region. The main characteristics of this region is the consistent rolling hills with the varying steepness from 50 percent slopes on down to relatively mild slopes of 20 percent or less. The production of grasses for seed in this area typically is situated on terrain that does not produce other crops, these being tops of ridges, steep side slope, and hollows. If this rule is implemented as written, there's no doubt that we will experience a loss of about 80 to 90 percent of this production... The alternative suggested to replace burning with the required use of machinery that either does not exist, is unavailable, or not designed for the steep slopes where grass is grown. Also, the profit margin that most growers operate under will not allow the purchase of such machinery... (#1552 --Dye Seed Ranch Employee)

- ...Residue removal is not only costly, and labor intensive, and very time consuming, but causes heavy dust pollution over a long period of time and is a health hazard to the equipment operator... (#1074 --Retired grower)

- At this point in time, there aren't any practical alternatives. To get a good crop the following year, and I might add to have a chance at a good crop the following year, the straw has to be removed. Conservative cost estimates for mechanical straw removal could run between $100 to $500 dollars per acre, depending on the field. This additional cost to remove the straw eliminates the profitability of my grass crop. Farmers can't stay in business very long growing a crop that they can't make a profit on. Until there are viable markets out there to offset the costs of mechanically removing the straw, the only economical means to get our crop ready for the following year is to burn it. (#1599 --Washington State Farm Bureau)

- …You have not addressed any viable alternatives, especially for steep ground, where you cannot get mechanical or tractors on with balers behind them… (#1476 --Citizen)

- ...Mechanical operations ,straw removal, raking, etc., only increase production marginally with a large increase in operating costs. No study by <u>anyone</u> has shown an economical substitute for burning. The only way the farmers can comply with forced burning reductions is by taking bluegrass out of production and substituting other crops less beneficial to the environment... (#1312 --Grower)

- ...Added cost of mechanically removing straw would be burdensome, time consuming and probably negate profitability. Growers would switch to the (traditional) alternative crops with annual tillage and erosion

hazards and the loss of all benefits associated with the perennial crop of grass. {references cited} (#1010 --Citizen.)

- ...In a letter to Representative Gary Chandler, Mary Riveland, Director of DOE (Department of Ecology), stated it is not DOE's intention to eliminate production of Kentucky Bluegrass. She points to the fact that research shows that mechanical removal of straw can accomplish the same thing as burning. She agrees that (it) may cost more and higher production costs may decrease the farmer's profits. Riveland states "the bottom line is that bluegrass can still be produced if the farmer chooses"... Our state WAC states, "Agricultural burning is allowed when it is reasonably necessary to carry out the enterprise. A farmer can show it is reasonably necessary when it meets the criteria of best management practices and no practical alternative is reasonably available." DOE's statement that mechanical removal of straw is a reasonable alternative shows yet another government agency doesn't understand the economics of farming. (We) maintain that eliminating the profit line for growing Kentucky Bluegrass does not fall under the definition of either "practical or reasonable". Riveland's letter goes on to state, "this may nudge growers to other, more lucrative crops'. This again ignores economics... (#1020 --Washington State Farm Bureau)

Response:
Ecology realizes that alternatives to grass seed field burning are going to increase production costs as the costs of air pollution are internalized. Yet, studies suggest that with improving markets for grass straw and improved equipment, mechanized straw removal can be successful. Such practices will likely be considered as possible alternatives to burning. Thank you for your comments; they will be used as Ecology reviews alternatives during the certification process.

Growers in other areas produce grass without burning, why can't those in our region.

- …Other grass growers in the world manage to get crops without burning it…(#1458 –Citizen)

- …This (grass burning) is ridiculous, and tremendously archaic in this thinking and has to be stopped and I know there are other methods of growing grass without burning it. They are doing it in Oregon. (#1463 –Citizen)

- ...My father-in-law, who has farmed near Connell for the past 40 years, never felt that he had to burn his fields and believes that it is not necessary to burn stubble to control weeds, diseases, or insects, or to reduce crop residue... (#1587 --Palouse Preservation League)

- I can sympathize with Washingtonians who have had to suffer field burning smoke intrusions. Ever since 1984, we struggled with the problem in Oregon; since 1991, there has been a gradual phase-down mandated by the legislature. (#1327 --citizen)

Response:
Thank you for your comments.

There are chemical treatments available that can eliminate the need to burn.

- ...Beacon (a new herbicide) used on bluegrass effectively attacks foxtail and quack grass among other weeds. (This) alone could add several years to each grass field's productivity--saving us from the dust pollution, erosion and flood potential caused by extra tillage on these Palouse hills-- and would reduce the quantity of weed residue, saving us from the need to burn that extra material. Beacon could make this whole controversy obsolete... (#1019 --Grower)

Response:
It is the hope of Ecology that chemical treatments can be avoided as much as possible. Although, some may be considered as possible alternatives. Ecology looks forward to an update on this particular chemical at the 1997 Grass Seed Cropping Systems for a Sustainable Agriculture Conference.

Markets for grass straw are small or nonexistent.

- For the last three years, we have used a bale-and-burn program in our grass fields. Most of our straw sales are to the west-side horse market. This market is very limited due to transportation costs, and I also know the market is saturated with the small amount of straw that is shipped there now. It is unrealistic to expect a larger market to develop in the short time frame allowed by DOE (Department of Ecology) regulations. So a first year third reduction followed by a second year two-third reduction in aces burned is a totally unviable response to a long-term situation. (#1598 --Grower)

- ...Yes, the grass grower can bale the straw and remove it, then thatch the remaining residue and get to the same condition that burning would give. It is cost prohibitive without higher grass prices, gov't payments, or higher straw prices. The market for grass straw is very limited and at a very poor price. There is a start-up company that has a solution for the market of grass straw. ... They intend to set up a manufacturing business that will consume grass straw and recycled plastic to produce a wood substitute product. This Post Falls Company is named HARJ FIBER... (#16 --Citizen)

Response:
Markets for grass straw are expanding. Currently there are two that look promising; a straw digestor and a fiberboard plant. Feasability studies are currently underway on both.

The implementation of alternatives is necessary but growers should be subsidized.

- …I also think if it impacts the growers, there is enough welfare money around to help these people retrain and develop a different system and subsidize a more clean way of handling it. (#1360 –Citizen)

- Due to the fact that grass controls erosion, and that it controls dust, compared to other crops grown, maybe the grass growers would be more apt to comply if they were given a subsidy to help them cover the cost of a more expensive way (healthier) to release the grass seed, besides burning. (#119 --Citizen.)

Response:
Thank you for your comments, they have been noted. It is not within the Ecology's legislative authority to provide subsidies to the grass seed industry, nor are funds available for such a purpose. The Washington State Legislature may determine that it is necessary to provide funding for machinery or other similar assistance at a later date.

The cost of alternatives should not prevent their implementation.

- …Mr. Jacklin quotes that there are alternatives to burning and frankly I don't care how they get the money or what they do to get alternative ways to grow their crops, if they can't afford to get alternative ways of destroying dead grass they don't want, they should get into another business… (#1413 –Citizen)

- Every time I hear people talk about the cost of alternatives, it really saddens me. When did someone's profits become more important than our breathing function? Does someone have to die to make this stop? Alternatives will not be used unless the farmers are forced to use them. I think they've proven that. (#1544 --Citizen) (Exhibit)

Response:
Thank you for commenting. Your comments have been noted.

There are alternative farming practices which reduce erosion.

- Now, there are many tillage and conservation measures that could have been employed in this area, but they haven't been done... They could have done strip cropping or contour plowing. They could have done terracing. They could have done many other things to prevent erosion, but unfortunately, I'm afraid that the Palouse pays the price for poor farming practices. (#1526 --Citizen) (Attachment)

Response:
Thank you. Your suggestions will be passed along to the Agricultural Burning Practices and Research Task Force which reviews farming practices and establishes best management practices for farming.

Grass seed does not need to be shocked by fire to maintain yields.

- In 1979 the research done by doctors Ensign, Hickey, and Bernardo, who are grass researchers, showed that fire was not necessary to shock grass plants into production. The public, and I believe most grass growers, were not aware of this research. It was not made public. We had to wait until last year before the shock theory was officially disproven by grass researchers in Oregon and Idaho... (#1299 --Save Our Summers) (Attachment)
- Grass researchers have admitted that fire is not necessary to shock the plants into production... (#1536 --Save Our Summers)

Response:
Thank you for your comments. Ecology has copies of the quoted studies.

Grower safety is a concern when considering alternatives.

- DOE (Department of Ecology) has failed to adequately provide for farm worker safety in the proposed rule. No one questions that residue must be removed from grass fields after harvest. There are two possible methods of removal, burning or mechanical. Mechanical residue removal, which requires raking and baling, cannot be done safely on steep slopes. The equipment available for mechanical residue removal was designed for operation on flat or moderately sloped ground... Mechanical engineers, experienced in the operation farm equipment, have concluded that the machinery available for mechanical residue removal can be operated safely only on smooth slopes of less than 15 percent. Under this proposed rule, farmers will be forced to use mechanical residue removal on steep slopes. This rule causes farm workers to be exposed to ultra-hazardous working conditions... (#1338 --Attorney)

- ...Farm worker safety has not been given any thought with regard to operating level-land designed hay equipment to remove residue on steeper than 15 percent slopes... (#1494 --Grower / Processor)

Response:
Thank you for your comments.

Alternative crops are a better choice than bluegrass.

- ...Blue grass is not a good type of grass to grow in our area (not drought tolerant). These farmers should switch to crops that do not need to be burned to be sustained. (#1031 --Citizen)

- ...Bluegrass is actually a poor choice for the environment. We grow it in our golf courses, parks and yards. In doing so we increase water usage, pesticide and herbicide use and usurp native flora and fauna... A better choice would be to invest in the buffalo grasses that are being developed in the Mid-West which are not burned. (#1293 --Citizen)

- ...Bluegrass is mainly a flatland crop. Burning bluegrass is a very poor farming practice. Valuable nutrients are lost, water holding capacity is lowered, and tilth and microbial activity are greatly reduced. The vas majority of land in southeastern Washington and Columbia Basin is eolian, which is wind blown silt blanketing basalt. Contour plowing, terracing, strip cropping, and putting the land in CRP are practical alternatives to burning steep slopes. (#1302 --Citizen) (Exhibit)

Response:
Your comments are noted and appreciated.

Comments on Quality of Life

The smoke from grass seed field burning impacts quality of life.

- ...Any measures which would increase the quality of air in Spokane County without undue economic hardship should strongly be considered. Improved air quality would likely lead to an improvement in quality of life in our region. (#237 --Physician)

- …It shouldn't come down to money, it should come down to human quality of life and so I urge you to stop the grass burning forever. (#1363 --Citizen)

- ...We came from Chicago, and we were so glad to be coming to the Pacific Northwest where we were assured the air was clean, and everything was wonderful... We arrived, and this was a new type of area to us to live in; however, we noted in those days in the summers, there was a lot of smoke in the air, and it bothered us, and it bothered our baby... (#1586 --Citizen)

- I think the burning has to stop, the sooner the better. This is affecting people's health, recreation, and I am very much against it. (#1428 –Citizen)

- ...We are angry that: (A) grass burners are allowed to jeopardize our son (B) that his and our quality of life is disrupted (C) he must remain inside when smoke is in the air (D) we must bear the emotional and financial burden of others who cavalierly endanger us. (#388 --Citizen)

Response:
Thank you for your comments. Ecology has a responsibility under the Washington Clean Air Act "to protect the public welfare, to preserve visibility, to protect scenic, aesthetic, historic, and cultural values, and to prevent air pollution problems that interfere with the enjoyment of life, property, or natural attractions." Ecology continues to work toward improving the quality of life for area residents.

The grass seed industry improves quality of life for many.

- ...I hope that everyone understands here that the grass seed that we're talking about is the same grass seed that is in your lawn, in your golf course, in your park, on your football field, and we all enjoy these uses... (#1531 --Washington State Farm Bureau)

- ...I don't even want to have to burn, but I do it out of necessity, and it's for the benefit of not only me economically, but it is a benefit to you as a consumer of the product that I raise as a farmer and to the gentleman...every time he goes to the golf course, every time he sprinkles and mows his lawn, every time he buys a loaf of bread out of the grocery store, he should be thanking me rather than condemning me for doing something that is fundamental to the well-being and that's necessary for every human being living and everybody here. (#1577 --Grower)

- Opponents of field burning refer to impact on "historic, cultural, and aesthetic values." As regards history and culture, what could be more historically and culturally appropriate than farming on the Palouse? As regards aesthetics... I find the aesthetics of the farm country of the Palouse unique, and feel it would be a loss to see it covered with tract homes. Moreover, grassland is felt by some to have a special connection with the human psyche... (#362 --Physician) (Attachment)

Response:
Thank you for your comments. The Department of Ecology agrees that grass seed is an important crop for our state and that farming communities in Washington State are an integral part of our culture. However, the Department of Ecology also has a responsibility to improve air quality and quality of life. In this case, Ecology believes there is enough evidence to show that emissions from burning the residue from this crop are (not) effectively controlled. [The word "not" was inadvertently excluded from the version in the file on January 7. We have corrected this oversight for the published version.]

The smoke is so intense that I and/or members of my family are trapped at home and are uncomfortable.

- The smoke fouls the air and makes it impossible for me to leave my home. All of my outdoor plans have to be worked around the grass burning in August and September. I don’t know from day to day if I can open a window in my house or even take out the garbage. (#139 --Citizen)

- ...I don't usually end up at the doctor or at the hospital, but I end up inside. I know there's a lot of us out there that get very frustrated when there's a lot of smoke that could be prevented. I can't get my outside gardening done or the weeding. And if you have company, you cannot take them to the lake because the smoke is so bad, and so I agree that the tourist industry is suffering because of the grass burning. (#1522 --Citizen)

- When most teenagers are starting school and going to football games Spokane asthmatics are restricted to their homes with specially installed air filters. (#374 --Citizen)

- I am a healthy senior citizen but last summer I tried staying inside with the doors and windows shut but the smoke seeped in day and night. I finally escaped to the coast--at a great deal of expense. (#293--Citizen)

- There are days we must stay inside, can’t enjoy our home, or even see across the lake - but they {referring to grass growers} sure don’t contribute to our high taxes- (#310 --Citizen)

- …We have to close up our house and spend our money on expensive air conditioning each year and we don’t get to enjoy nice weather with our windows open. (#1401 --Citizen)

- I often times can’t sleep because of the smoke, and we certainly can’t open our windows. (#1455 --Citizen)

- ...I’m tired of living inside my house, with a filter system going this part of the year because it’s so bad… (#1456 --Citizen)

- We love the outdoors but due to the smoke caused by grass seed field burning we remain indoors. Our quality of life has been compromised by an industry with archaic farming practices. (#390 --Citizen)

- Many nights recently we have been unable to open our windows due to invasive smoke from burning fields including stubble acreage... (#1291 --Citizen) (Attachment)

Response:
Thank you. Your comments are appreciated and have been noted.

Grass seed field burning hampers recreation and our enjoyment of summer activities.

- ...It seems that in the effort to avoid the residents of the major populated areas, the smoke is often diverted in our direction. This not only perturbs North Idaho residents, but annoys regional tourists as well, which can't help the local economics or the pristine image of our mountain lake environment. We find it ludicrous that anyone would think that summer recreation is confined to weekends! Even Monday through Thursday burning is too much. (#1057 --Citizen)

- As a result of the burning, we must close up our house and stay inside. We curtail our gardening, boating, walking, yard work or any other outdoor activity. We have been forced to cancel BBQs or simply sitting on our deck with friends. (# 20 --Citizen)

- I believe that the smoke is not only harmful to everyone in this area's health, but also greatly effects our quality of life here. I personally can not enjoy the boat we have moored at a local lake or put the convertible top down on my sports car. I have worked very hard to be able to afford these and resent being forced to stay home with the air purifying system running trying to avoid getting sick. (#330 --Citizen)

- We get one vacation a year. We go to Flathead Lake in September after Labor Day when there aren't crowds and we enjoy some of that beautiful part of the country. Last year when we went, the whole time we were there it was terribly smoky. We thought there must be a forest fire... Glacier Park was smoky and terrible visibility but we read in the paper about half way through this vacation that it wasn't forest fires at all, but grass field burning around Spokane. I agreed with the stop field burning faction before this event but now I really agree and feel strongly that Save Our Summers is a battle cry, and it is true. (#1342 --Citizen)

- ...I find that it (grass burning in Eastern WA) is a health problem for the members of my family and it is a problem for us in terms of enjoyment of the area recreationally, and when we have visitors from the east coast... (#1349 --Citizen)

- …We tried to go camping a couple of weekends ago during the incredible amount of burning going on. It was incredible. It was a nightmare. We had to leave in the middle of the night with her (daughter), unable to breathe… (#1357 --Citizen)

- …Last year I was hitting golf balls at Hangman Golf Course on a September afternoon and the smoke was being generated quite a bit east of where I was, but it was blowing over where I was standing, and I actually had black soot falling all over me. That was the final nail in the coffin for me, when I thought something had to be done… (#1375 --Citizen)
- …When we have smoke in our area we see an increase in coughing, burning eyes, and we have to curtail our activities such as running and jogging… (#1384 --Citizen)

Response:
Thank you for describing how smoke from grass seed field burning interferes with your enjoyment of your typical

activities. We understand that smoke causes many people to forsake activities that they enjoy. Your comments have been noted.

The smoke resulting from grass seed field burning impacts regional visibility and / or aesthetics.

- I was driving between Rockford and Spokane (with) both sides of the highway engulfed in clouds of thick, brown smoke. Traffic was stopped for more than 15 minutes and (those) in approximately 20 cars were forced to sit and breath the smoke from burning fields... (#1298 --Citizen)

- I lived in Southern California and every August I come to live at the house my grandfather built in 1903 and it's at Lakeview on Pend Oreille and every August and September between 4:00 and 6:00 the smoke is so thick I cannot see between Lakeview and Bayview. I cannot see the mountains beside me… (#1437 --Citizen)

- Why do we have to wait for a major accident to occur on our roadways from smoke caused by grass seed field burning. Grass burning was shut down in Oregon because the smoke caused a major highway accident that took many lives. The visibility issue is a serious public threat that seems to get overlooked and something the DOE (Department of Ecology) must also take into consideration. (#390 --Citizen)

- We Are People too! We are quite frankly tired of irritated breathing, scratchy throats, our not being able to enjoy the view outside our windows and having to keep the windows closed even on the hottest of summer nights because of the burning... (#1057 --Citizen)

- ...One day the street lights in Moscow came on in broad daylight, and I looked into it to find out what had happened and found out it was the day bluegrass was being burned up north of us. (#1586 --Citizen)

- ...I live in Northeast Oregon, not Washington, but for two reasons I an interested that field burning in Eastern Washington is regulated. We receive smoke from these burns, when the wind comes from the north. This adds to what we must contend with from local burns and also adds to our total smoky, hazy days. (#1297 --Citizen)

Response:
There is no doubt that increased smoke in the atmosphere will negatively impact visibility and aesthetics. Your comments are noted.

The smoke impacts relationships with others.

- ...I frankly discourage people from visiting us in this time of year. We have a cabin at Lake Coeur d' Alene, so we get both Idaho and Washington State smoke. Last Monday there were black particles coming down on the house and outside furniture of friends across the lake... (#1534 --Citizen) (Exhibit)
- ...I've got three teenagers, and I left the Spokane Valley because a friend of mine called and told me that the smoke was coming into the Valley a little bit on Tuesday. Well, I called SCAPCA, and SCAPCA told me that it would be a minimal impact. For some it's minimal impact. For others it's extreme impact, and my airways tighten... For me to pick up and leave Tuesday, it was real scary. I have a 14-, 16-, and 18-year old... My husband was working out of town this week, so I needed to find someone to stay with the three teenagers, and most of the people that are mothers know that you feel like you want to be there. You want to be the one that's there. I couldn't be a statistic for my family, so I couldn't be there the rest of the year... (#1602 --Citizen)

- I have just come from an open house reception which was spoiled because of wheat burning in the community. People were choking, and we were covered with ash, there was ash, and I regard this as an act of discourtesy to the community and I wish you would do something about it. (#1486 --Citizen)

- My husband and I have three teenagers and the air quality effects time spent outside. During the burn time, I am unable to attend my children's outside functions, as I am confined to home or work where the air is filtered. (#363 --Citizen)

- Many of us have had to quit work, cannot afford to get knowledgeable medical help, and too many have been deserted by friends and relatives who do not understand that our symptoms are real. (#1049 --Citizen)

- My mother leaves Spokane each year between August 15- October 1, to get away from the smoke caused by grass field burning. She is 68 and has severe asthma... (#390 --Citizen)

Response:
Thank you for describing the ways grass seed field burning impacts you. Your comments have been noted.

Additional Comments

Statements made in the proposed rule amendment are incorrect or inappropriate

- In Reason #2 DOE (Department of Ecology) states that "(r)esearch demonstrates that incomplete combustion processes produce high proportions of fine particulate." There is no basis in the rule making file for this statement. Nor is there any basis in the rule making file for the conclusion that "(g)rass burning...involves fairly uncontrolled and incomplete combustion processes..." These conclusions may indeed be correct, but there is no evidence in the rule making file to support them. DOE (Department of Ecology) may only rely on the contents of the rule making file. Therefore Reason #2 is baseless and does not support the proposed rule. (#1338 --Attorney)

- In Reason #4, DOE (Department of Ecology) states "(f)ine particulate causes severe health impacts to sensitive populations, including individuals with chronic respiratory diseases, such as emphysema and asthma." This statement, while true, is irrelevant to the proposed rule. The proposed rule is purportedly based in a statute authorizing pro rata limitations on acres burned. Nothing in the statute addresses health impacts. More importantly, nothing in the rule making file establishes that any member of a sensitive population suffered severe health impacts caused by exposure to fine particulate from grass field burning in Washington... (#1338 --Attorney)

- In reason #6, DOE (Department of Ecology) states "(i)n the last year, the medical community in Spokane has sent numerous letters to the department of Ecology documenting their (sic) observations of the effects of smoke from grass burning on their (sic) patients." There are several problems with this statement. First, the letters appearing in the rule making file were not sent to the Department of Ecology by members of the medical community. Of the eighteen letters, one was addressed to the Spokane County Commissioners, one was addressed to Spokane County Air Pollution Control Authority (SCAPCA) and fourteen were addressed to unknown entities but were processed by SCAPCA before they were received by DOE. None were sent to DOE by a member of the Spokane Medical Community. (#1338 --Attorney)

Response:
Comments noted.

The Washington Clean Air Act (RCW 70.94) addresses public health and air pollution, among other topics. Chapter 173-430 WAC - Agricultural Burning states in section (WAC 173-430-040(4)(b)): "For the purpose of protecting public health...the permitting authority may limit the number of acres..." Fine particulate emissions resulting from incomplete combustion (including grass field burning) are documented in the US EPA Compilation of Air Pollution Emission Factors -- Document No. AP-42.

Suggestions

It is important to maintain grass buffer strips along major roadways.

- Dust control near major highways would help reduce potential for traffic accidents (severe chain reaction of auto and trucks) during high wind conditions. These conditions exist within the Adams, Franklin and Grant county areas in the State of Washington. Highways I-90/395/26 have all been problem areas during past dust storm activities. existing CRP contracts scheduled to expire during next two years - Recommend 100' (grass) protective barrier strips be left to aid in dust control next to major highways...the highways would remain more visible during wind conditions. There would be less heavy sight obscuring soil particles blowing across highways. It is estimated that 100' grass strips would capture 80 percent of the dust particles. This method would also be a health improvement for those suffering from respiratory ailments...Some wildlife habitat would remain for birds, insects, etc. Calculating the cost of $60 per acre and recognizing that 32 miles of Interstate 90 has approximately 768 acres; 10 miles of Hwy. 395 between Lind and Ritzville has 120 acres; and 22 miles of Hwy. 395 has 528 acres; and Hwy. 26 has 26 miles with 624 acres of potential dust blowing areas equates to a total of 2040 acres of visibility concerns for the public. $60 x 2040 acres = $122,400 annually. Duration of project would be indefinite and ongoing until a more permanent solution can be determined... D.O.E. Please we need your help! (#1261 --Adams Conservation District) (Attachment)

Response:
Your suggestions have been noted.

Requests for Documents / Information

What was spent to generate this proposed amendment?

- How much taxpayer money will the Department of Ecology spend this year to eliminate bluegrass which contribute less than one percent of the total pollution in Washington State? What percentage of the Department of Ecology's total budget does this represent? (#1269 --Grower and Producer)

- ...We'd like to see the price tag on this fight to eliminate such a small part of the state's total air pollution problem and request that it be made public. These dollars should have been used to address real problem areas. (#1542 --Grower)

- …What amount of the taxpayers money has been spent on fighting this grass burning issue to date, and what percent is ranking of agricultural burning to other pollutants? (#1418 --Citizen)

Response:
Comments noted.

The Department of Ecology costs of processing this rule during 1996 are estimated at $200,000 to $300,000. These are the costs of staff time and contracts spent on the rule process and represent less than one percent of Ecology's total budget. Past costs are not available but are estimated to be considerably less based on less staff time spent working on grass field burning in past years.

Ecology does not generally rank sources of air pollution because the nature of the Clean Air Act calls for comprehensively addressing air pollution from all kinds of sources. The agency does maintain an inventory of estimated emissions. That inventory suggests that the percentage of pollution attributed to agricultural burning ranges from approximately five percent on an annual, statewide basis to 17 percent for eastern Washington (annual). The agricultural burning share of pollution increases if one focuses on the time period and/or areas when and where burning takes place. For example, on a high burning day over 7,000 acres of grass seed fields can be burned. The burning of 7,000 acres would release 84 tons of PM_{10}.

What information has been collected on the deleterious impact of grass smoke?

- ...Ecology states that recent studies indicate that fine particulate matter in field burning smoke can cause serious human health problems and that a petition by more than 300 doctors was submitted. Under the "Freedom of Information Act" the Palouse Conservation District formally requests copies of all such studies and the data associated with such studies. We further request copies of the "petition" and any associated communications before or following the submission for the petition including identification of the sponsor of the petition and any associated communications with that sponsor in any way connected with the petition. Further, as Ecology was scheduled a hearing in Colfax for September 18, 1996, we request the above documents at least on week prior to that date. (#1071 --Palouse Conservation District)

- As a biology instructor, I teach my students the scientific method of research. I instruct students that scientific law and principles are based on proven data. Do you have highly tested data that supports that grass burning is a significant health hazard? If so, I would appreciated a copy to share with my community and students. (#1333 --Citizen)

Response:

All of the information used in making this decision can be found in the rule amendment file which is available via public disclosure.

How were decisions made on the content of the proposed amendment?

- ...Who on the DOE made the decision that pollution was going to be based on acres and not particulates? Please supply the support documents that lead to this decision. Who on the DOE decided that there would not be any discussion on alternatives to reduce smoke emissions until 1998? We request this in a written response... (#1529 --Cenex Supply and Marketing)

Response:

Comments noted.

The Washington Clean Air Act directs how emissions from grass seed field burning are to be controlled (RCW 70.94.656). As part of a process under this law, Ecology continues to gather information about practical alternatives to burning. Information about grass burning is available for review through public disclosure.

How will a final decision be made?

- ...When the DOE (Department of Ecology) makes their final decision on the permanent rules on grass field burning, will there be a meeting held? Please furnish a list of DOE personnel that will be in on the decision making. Who'll be the ranking DOE person? Will this be a closed-door meeting for the DOE personnel only; if not, please list the agency, the organizations, the names, and the reasons for their attendance. (#1529 --Cenex Supply and Marketing)

- When the DOE (Department of Ecology) makes (its) final decision on permanent rules on grass field burning:
  Where will the meetings be held?
  Please furnish list of DOE personnel that will be in on the decision-making.
  Who will be the ranking DOE person?
  Will this be a closed door meeting for DOE personnel only? If not, list agency / organization, names and reason for their attendance.
  Who in the DOE made the decision that pollution was going to be based on acres and not particulates? Please supply support documents that lead to this decision.
  Who in the DOE made the decision that there would not be any discussion (of) alternatives to reduce smoke emissions until 1998? (# 239 Processor \ Wholesaler)

Response:

The final decision will be made by the Director of Ecology based on the contents of the rule amendment file. This information is available to the public through public disclosure procedures.

What is the scientific data to support this amendment?

- The Washington Association of Wheat Growers (WAWG) would like to state that the recent actions taken be the Department of Ecology in regards to grass burning were not justified. If this total ban is allowed to stand, other crop burning bans could easily follow, with no scientific backup. In order to make wise decisions, the public needs more information regarding how and why the decision to ban was made. WAWG requests from Washington state DOE all of the verifiable scientific and economic data used in the decision to ban burning of grass seed fields. (We) request data that is verifiable and not just anecdotal. This information must include: a. Economic and social impacts of the total burning ban. b. Impact on other parts of the environment. c. Research and feasibility of alternative practices to agriculture burning. d. Verifiable on public health effected by grass seed field burning. (#395 --Washington Association of Wheat Growers)

- The district has continued to request of DOE (Department of Ecology) to study the multiple impacts for the air, the water, and the soil qualities. Too much is focused on air quality whereas the burning in the instance of field burning, we are trading water quality for air quality. I'd like to know. I'd like to know what the facts are with dust particulate, diesel consumption, and those factors vs. The match, one time, one minute. And those are some factors that get involved with our district. (#1572 --Grower & Chairperson, Columbia Conservation District)

- The wheat growers request all of the verifiable scientific data used in this decision to ban burning of grass seed fields. Since this decision has such far-reaching implications, the wheat growers request the Department of Ecology to provide scientific data that is verifiable and not just anecdotal. The data should be quantified and identified. This information must include economic and social impacts of the total burning ban, impacts on other parts of the environment, research and feasibility of alternative practices to agricultural burning, and data that is verifiable on public health affected by grass seed field burning. (#1581 --Washington Association of Wheat Growers)

Response:
Comments noted. Likely environmental and economic consequences of the rule were evaluated as part of the process. This information is available for review through public disclosure

Will growers be compensated for lost income?

- ...If a county is under a Growth Management Act, and agricultural burning is in part accepted within that Growth Management Act, are the farmers who are not allowed to burn able to be compensated for their loss?... (#1607 --Washington State Grange Association)

Response:
This rule does not include compensation to any party.

What are the studies that indicate the volume of particulate matter in an acre of Bluegrass?

- ...You (Grant) said Dr. Johnston, WSU, had a report that stated how much particulate was in an acre of grass. I think I have seen most of his reports; I don't recall of ever having one that stated how much particulate an acre of bluegrass puts out. I would like to have that, and I would like to have those two by Friday because we have another testimony coming up... (#1508 --Grower)

Response:
The series of reports on Washington State University dethatching project (under the direction of Bill Johnston, Ph.D.) identify the amount of material or residue burned per acre of grass. The US EPA Compilation of Air Pollution Emission Factors -- Document No. AP-42 identifies the amount of emissions generated by burning each ton of residue. Multiplying the amount of residue (tons/acre) by the emission factor (lbs. pollution/ton of residue) yields emissions per acre.

What percentage of smoke from agricultural burning is grass field smoke?

- ...Grant, I want to know how much of a percent that grass smoke is contributing to the pie in the chart. We keep saying five percent for agriculture. This is not an agriculture meeting here tonight; this is a grass meeting. And I would like to know exactly how much particulate or how much smoke you say that we should not put in the air. Is it zero? Let's have it then. If it's two-and-a-half percent, we're doing all right. (#1508 --Grower)

Response:
The Clean Air Act calls for comprehensively addressing air pollution from all kinds of sources. The agency does maintain an inventory of estimated emissions. That inventory suggests that the percentage of pollution attributed to agricultural burning ranges from approximately five percent on an annual, statewide basis to 17 percent for eastern Washington (annual). The agricultural burning share of pollution increases if one focuses on the time period and/or areas when/where burning takes place. For example, on a high burning day over 7,000 acres of grass seed fields can be burned. The burning of 7,000 acres would release 84 tons of PM_{10}. Based on a comparison of burning permits, grass burning represents about half of agricultural burning. The proportion of grass burning relative to other field burning may change if the permitting compliance rate varies among crops.

APPENDIX A:

LISTS OF

ATTACHMENTS AND EXHIBITS

Grass Seed Field Burning Rule Amendment
Testimony Exhibits

Number/Letter	Date	Person	Submittal
136	9/10/96	Hans Kraus	Mask
# 219	9/11/96	Tom Dashiell	Grass/Soil
# 1534	9/12/96	Patricia Walker	Pictures
# 1544	9/12/96	Trina Hiesel	Debri
"A"	9/12/96	Anonymous	Particulate Article
"B"	9/12/96	Anonymous	Particulate Diagram
"C"	9/19/96	Anonymous	Spokane PM_{10} Appendix
"D"	9/20/96	Anonymous	Card w/ Article
# 1320	9/20/96	Maynard Cutler	2 Reports
# 1302	9/20/96	Cherie Rodgers	Map and file of info
# 1634	9/24/96	Helen Jackson	Pictures

Grass Seed Field Burning Rule Amendment
Testimony Attachment List

Attachment # 17	**Bert Scholtz**	**Article**
Attachment # 137	**Cloris Lewis**	**Article**
Attachment # 141	**Bruce Williams USDA**	**WQ Benefits**
Attachment # 218	**Ellen Wright**	**Medical History**
Attachment # 220	**Jim Linskey Cenex**	**Attachment**
Attachment # 224	**Dan Meckel**	**Letter to Editor**
Attachment # 225	**Clarence Argyle**	**Reference to Test.**
Attachment # 240	**Mr. & Mrs. Dashiell**	**Article**
Attachment # 332	**Ray WeHolt IGGA**	**Letter**
Attachment # 362	**William Bitsas**	**Paper**
Attachment # 392	**John Covert**	**Newspaper Article**
Attachment #	**Garfield Co. Comm.**	**Resolutions**
Attachment # 1008	**Roger Dumbeck**	**"DOE Proposed..."**
Attachment # 1016	**Jeff Harlow USDA**	**WQ Benefits**
Attachment # 1018	**Nick Waldher**	**Demographics for**
Attachment # 1000	**Keith Berglund**	**Notes**
Attachment # 1056	**Eileen Klatt**	**Unsigned letter**
Attachment # 1262	**Ron Krug**	**Resolution w/ faxes**
Attachment # 1291	**Mr & Mrs. Honican**	**Letter from M. Staley**
Attachment # 1299	**Tricia Hoffman SOS**	**1536 Testimony, Meeting**
Attachment # 1305	**Sharon Bromiley USDA**	**WQ Benefits**
Attachment # 1309	**Jane Dashiell**	**McCall's Article**
Attachment # 1310	**Geneva Clausen**	**Poem from Wheat Life**
Attachment # 1328	**David Ostheller**	**SCAPCA 96 GSFB Reg.**
Attachment # 1635	**Burgess Lange**	**Article**

APPENDIX B:

LIST OF

COMMENTORS

AND

CORRESPONDING

COMMENT NUMBERS

ID#	Last Name	First Name	ID#	Last Name	First Name
1	CUTLER	MAYNARD	61	KREWSON	VERA
2	HYMAN KORUS	LANICE	62	FELDKELSEN	RITA
3	LANGFORD	JAMES	63	WARGO	JIM
4	CLARK	COURTNEY	64	CONNORS	JOSEPH
5	STEILEN	CHARLES	65	EGGLESTON	DIXIE
6	BRYAN	CAROL	66	RUSSELL	LINDA
7	HOLLADAY	DAWN	67	BILVER	FRANCES
8	CONSALVO OLSON	CAPRICE	68	DOBBS	LARRY
9	MOOTRY	ALAN	69	JOHNSON	DAVID
10	CAVANESS	MARGARET	70	KAVANAGH	DAVID
11	BENSON	EARL	71	MCDONALD	LINDA
12	HEMSTROM	CARL	72	OLSON	BEVERLY
13	HOLMAN	ROBERT	73	MILLER	ARNOLD
14	SIMS	ROBERT	74	HARBERT	D B
15	MEYERS	MARGARET	75	FOZIER	V WAYNE
16	MURRAY	LEROY	76	SAXBY	LOUIS
17	SCHOLTZ	BERT	77	LARUE	JACK
18	JAHNS	CHESTER	78	HUFTY	TOM
19	BAKER	BOB	79	RIZZUTI	GRETA
20	CARPENTER	GARY	80	(ILLEGABLE)	(ILLEGABLE)
21	FISK	MICHAEL	81	CAPPELLALNO	J
22	MARKER	JEAN	82	WAGNER	JOHN
23	MARKER	ROBERT	83	EIERDAM	IRENE
24	JANSSEN	RICHARD	84	BANKS	SUSAN
25	MADENWOOD	DARLENE	85	PUMBELL	(UNKNOWN)
26	HOYT	DONNA	86	JACOBSON PHD	DEAN
27	BURGESS	SHARON	87	OLSNESS	DOUG
28	STROUT	SUSAN	88	BITZ	JANE
29	SCHOLTZ	LOIS	89	SMITH	THOMAS
30	VIRNIG	SUSAN	90	SMITH	WILLIAM
31	PLUMMER	THOMAS	91	BUCHANAN	JOHN
32	BAKER	DAVIS	92	MIDDENDORF	LEO
33	FOREMAN	ADELE	93	BELANGIE	TODD
34	RUDBECK	MIKE	94	WOLD	BUD
35	FOSTEV	LEROY	95	BARRENTINE	MARIANNE
36	MAGGIO	ALEX	96	O'BRIEN	HELEN
37	KALLESTAD	CHARLENE	97	MOULD	JOYCE
38	LITTELL	SALLY	98	CERNEY	IRENE
39	RIZZUTI	STANLEY	99	NODLAND	TIM
40	MANZER	JANET	100	BALDWIN	ROBERT
41	MEYER	JAMES	101	MICHAELIS	BECKY
42	WINKEL	MARGUERITE	102	SMITH	STEWARD
43	STALEY	JOHN	103	BYERS	MARGARET
44	PATTEE	JAMES	104	ADAMS	RON
45	VANDEBERG	DONALD	105	HINNEN	MIKE
46	KNAPP	ROBERT	106	HENSRUD	ALLEN
47	WALKER	KRISTINE	107	CARR	VERA
48	KAMPFER	JAMES	108	HUNT	JOHN
49	WALKER	J STEVE	109	GRAFT	HELEN
50	YORK	GLENDA	110	WEEDES	JEANETTE
51	LIND	REBECCA	111	BAUER	ALICE
52	THOMSEN	T MARK	112	LONGIE	ELLEN
53	ARBEIA	(Unknown)	113	GROVE	RUSS
54	VOSS	ELLEN	114	WRIGHT	MONA
55	CAGEL	DAVID	115	COYLE	CHRISTINE
56	BELANGIE	ELISA	116	MCDONELL	DONNA
57	EGGER	LARRY	117	O'GALLAGHER	DENNIS
58	WORMEETH	ED	118	MICKEDIE	GARY
59	FAGAN	JEANINE	119	OLSON	CHERYL
60	JOHNSON	LINDA	120	BISHOP	CHERYLE

ID#	Last Name	First Name	ID#	Last Name	First Name
121	REDWIND	MARGIE	181	DODGEN	HARRIET
122	MANZ	MICHAEL	182	TAYLOR	BILL
123	KELLWELL	DEEANN	183	THIBAULT	JULIE
124	DECKER	BEN	184	MORRIS	JACK
125	BROWN	TOM	185	MORRIS	LOIS
126	BRADETICH-TIFFT	RHONDA	186	MAITLING	MIKE
127	THOMPSON	DOROTHY	187	LINDENBAUER	LEO
128	WRIGHT	TERRELL	188	KOZELSKI	GLENDA
130	MOULD	JOYCE	189	KENDALL	EILLEEN
129	ROUTSON	KATHRYN	190	MCRAE	DINA
131	SMART	RICHARD	191	LOUCKS	R
132	SMART	BARBARA	192	ODEM	NOEL
133	SMART	HENRY	193	SEYDEL	KENNETH
134	PAGE	JON	194	CONNORS	JOSEPH
135	PAGE	JENNIFER	195	DAVIS	JOYCE
136	KRAUSS	HANS	196	MUSIATTO	DOMINIC
137	LEWIS	CLORIS	197	MAWSON	PATRICIA
138	JUSTUS	HOWARD	198	NESTOR	LINDA
139	RUSSELL	LINDA	199	RESL0R	DAVE
140	POULSON	MIKE	200	OLSON	GAY
141	WILLIAMS	BRUCE	201	BARHAUR	BONNIE
142	FEIST	JOE	202	DERKEY	PAMELA
143	SHIVE	ELLAMAE	203	FELDHAUSEN	JOHN
144	RUSSELL	ROD	204	BUCHANAN	BRUCE
145	CUTLER	FRED	205	DAVIS	JOYCE
146	MAYCOCK	LOY	206	NORVELL	RON
147	JOHNSON	ROGER	207	MOORE	VICTOR
148	BROWN	THERESA	208	NODLAND	TIMOTHY
149	CASEY	JOHN	209	HELM	ROBERT
150	MOYLE	JENNIE	210	HEAPS	R STEVEN
151	SIMMONS	BARBARA	211	HENDERSON	ALLEN
152	HAWKS	STURZ	212	ROGER	T RICHARD
153	BOVEY	LAVONNE	213	MCCATHERN	PAUL
154	HARDY	DAVID	214	SCHOLTZ	BERT
155	SCRUDAHL	DAVID	215	SCHOLTZ	BERT
156	NESTER	JOSEPH	216	MORRIS	JACK
157	MORRIS	ROSE	217	OSTHELLER	ELLEN
158	NESTOR	BETTY	218	WRIGHT	ELLEN
159	O'ROURKE	MARY	219	DASHIELL	THOMAS
160	LETOURNEAU	ALLAN	220	LINSKEY	JIM
161	WRIGHT	KAREN	221	ALLERT	SKIP
162	TURNER	CHARLES	222	MEENACH	ROBYN
163	GANN	HEIDI	223	FELGENHAUER	KARL
164	FISCHER	JANET	224	MECKEL	DAN
165	MIREVE	KEN	225	ARGYLE	CLARENCE
166	STRADER	JAMES	226	WALKER	PATRICIA
167	ROGERS	JAMES	227	GREEN	TODD
168	KERR	O	228	JOSEPH	SAMUEL
169	HACKETT	LINDA	229	BRADLEY	SCOT
170	MUTTON	NANCY	230	BYRD	RICHARD
171	ALLEN	LOUISE	231	BRUYA	TIMOTHY
172	ROGERS	DIANA	232	KLOCK	LAWRENCE
173	DUGGER	MARILYNID	233	ELMER	JEFFREY
174	FISCHER	BRUCE	234	WHITEHOUSE	ALAN
175	HOWELL	K SUSZANNE	235	ELMER	JIM
176	HILL	CAROLINE	236	ELMER	JEFFREY
177	BROWN	DAVID	237	LAMBERT	RICHARD
178	ARNOLD	CLARENCE	238	JACKLIN	GLEN
179	TRUSTY	GABRIELLA	239	LOCKHART	WALTER
180	MUTTON	FRANCIS	240	DASHIELL	TOM

ID#	Last Name	First Name	ID#	Last Name	First Name
241	SCHOLTZ	BERT	301	ALLISON	JENNIFER
242	CLOVIS	LINDA	302	CARPENTER	MICHAEL
243	EUDALE	ANGELA	303	NUTSCH	LEON
244	HENSLEY	LAVINA	304	GREEAR	DENISE
245	VANSLATE	MICHAEL	305	BURNETT	DAVID
246	VANSLATE	KAREN	306	SIEMERS	DONNA
247	MCMULLEN	DIANE	307	CORINTUIS	MICHAEL
248	MUELLER	J	308	ROGER	JOLYNN
249	LOASBY	HARRY	309	MOSER	JULIE
250	FOOT	JIM	310	CLARK	A J
251	GILLESPIE	DAVID	311	FRITZ	JANE
252	SCHMID	KARL	312	SOELBERG	JEONINE
253	HUMDAYS	JANET	313	SOELBERG	RAY
254	COONEZ	RITA	314	BERRGHILL	MARY
255	ALM	LINDA	315	ANDERSON	ANITA
256	NELSON	MARCELLA	316	ROSE	TINA
257	LANDRES	LALO	317	HANKS	D
258	HAMMEND	DALE	318	MELCHER	RANDY
259	COLLINS	JAN	319	LELAND	SHELLY
260	ZELLER	DON	320	HOLSTEIN	ROBERT
261	BENNET	JUDY	321	EDWARD	LYLE
262	WOEHRLE	PATTI	322	CASSIDY	HEATHER
263	WHEELER	CYNTHIA	323	MCCABE	ELLEN
264	NESTOR	DAVID	324	HELMER	B J
265	WAREHUME	GEOFFREY	325	FIX	LORENE
266	CARRASCO	JACQUELINE	326	UCHIDA	DEBBIE
267	MCCOY	CHERESE	327	RUSSELL	SIGNE
268	JOHNSON	WALTER	328	BOWERS	MICHAEL
269	HIGH	JOHN	329	LONG	ARTHUR
270	BUSH	CONNIE	330	WALTERS	KATHI
271	DRASKOVICH	CAROLE	331	RUSSELL	ROD
272	ZELLER	MARVELLA	332	WEHOLT	RAYMOND
273	PHIPS	LAURA	333	DRUFFEL	STEVE
274	HADLEY	ADRENE	334	TIPPETT	TOM
275	HANNAH	EDWARD	335	DASHIELL	ARDIS
276	KLONTZ	LAURIE	336	BRADY	V V
277	BENSEN	MARGARET	337	EMTMAN	G G
278	MCMULLEN	JAMES	338	ZELLER	GARY
279	BRADFORD	GENA	339	MYERS	BARBARA
280	MCLAUGHLIN	GAIL	340	SUMMERS	GAIL
281	KOLLARSKY	PATRICIA	341	TENOLD	JANET
282	REEDER	CARL	342	HINES	MURIEL
283	MIHELICH	MIKE	343	PRATT	VICKIE
284	FINLAY	MADISON	344	WICKLINE	HAROLD
285	DEAM	JUDY	345	HAMES	WAYNE
286	BARLOW	EARL	346	NEALAND	EDWIN
287	SMITH	THOMAS	347	BISHOP	PATRICIA
288	BOLIN	RAY	348	CONN	GEORGE
289	RADKE	STEVE	349	BURGARD	VIVIAN
290	PYLZEHN	RICH	350	HARRINGTON	K C
291	MOORE	WILLIAM	351	GASAWAY	ELEANOR
292	LEAF	LEROY	352	RICH	JACK
293	MIDDENDORF	MARGIE	353	GRIESE	GLENN
294	BROZOVSKY	DAWN	354	ROGERS	WILLIAM
295	ADAMS	RON	355	HARWOOD	CHARLES
296	PARKINSON	GEORGE	356	TOFTE	IMAGENE
297	WERT	PAUL	357	DONOIAN	DAN
298	CORNWALL	JAMES	358	HILLS	CATHERINE
299	NUTSCH	CAROLYN	359	ESTES	RICHARD
300	KING	JEANETTE	360	PHILLIPS	DONALD

ID#	Last Name	First Name
361	HUNT	JOHN
362	BITSAS	WILLIAM
363	WOEHRLE	PATTI
364	WOLFE	CHARLES
365	STEVENS	PATRICIA
366	LAWRENCE	MARC
367	CROMER	NANCY JO
368	(GROUP)	(GROUP)
369	CHINDABLE	FRED
370	KIRSCH	LINDA
371	EGGERS	E V
372	THOMPSON	MARY JANE
373	DALTON	ESTHER
374	OGDEN	JOHN
375	FLORES	GUADALUPE
376	MAGDA	CHRIS
377	RICHARDS	JOHANNA
378	WALDRAM	ROSE MARIE
379	MICHAELSEN	RUSSELL
380	ADE	ANNIE
381	DITTMER	DAVE
382	ALDEICH	ROGER
383	CADY	MONA
384	RADKE	B E
385	BENOIT	TONI
386	MEYERS	CECE
387	SKELTON	ERIC
388	PATTEE	JAMES
389	GRANT	SUE
390	APAYDIN	ENVER
391	PHILLIPS	C L
392	COVERT	JOHN
393	JOHNSON	BRAD
394	MILLER	ROGER
395	KENO	KEN
396	LUKES	DONALD
397	SCHOLTZ	BERT
398	BISHOP	SHAWN
399	THOMAS	J W
400	McGREEVY	THOMAS
401	OBENLAND	BERT
402	LOW	BUTCH
403	GORMSEN	SHARON
404	WOLF	LYNELLE
405	DENISON	JOHN
406	LAUGHERY	DAVID
407	GRANT	DEL
408	TURNER	JACK
409	TURNER	GAYLE
410	FLYNN	LONNY
411	WADE	CARL
412	WADE	KIMBERLY
413	SHELTON	VICKI
414	TRAVIS	LETA
415	ROOSEVELT	EVELYN
416	ROOSEVELT	JIM
417	BAKER	RICHARD
418	SHELTON	DAVE
419	FINNEGAN	TERRY
420	HARPER	PEGGY

ID#	Last Name	First Name
421	LEDGERWOOD	JANICE
422	HAWKIN	BILL
423	HULTBERG	MONICA
424	MUTHENY	TOM
425	(DOES NOT APPLY)	L R C
426	BURT	TIM
427	GATES	JOHN
428	BLACHLY	H ANN
429	GOMSRUD	GEORGE
430	WOMMACK	MARY KAY
431	WATSON	POLLY
432	GREENE	JIM
433	HANSEN	JENNY
434	ELLS	LOIS
435	FITZPATRICK	HELEN
436	BEALE	JOANNE
437	STILSON	STEVE
438	MARTIN	MELINDA
439	REICH	DON
440	WOLF	RICHARD
441	WILDMAN	CAROL
442	GORMSEN	MARIE
443	SLAYBASH	RICHARD
444	McGREEVY	DON
445	KEATTS	MERRI LEE
446	WILDMAN	GORDON
447	WADE	BEVERLY
448	WILLIAMS	DAN
449	BARTELS	DUANE
450	VanVOGT	WILLIAM
451	BARR	R CLAY
452	NIEBEL	DELBERT
453	SHAWLEY	JIM
454	VanVOGT	W R
455	RUARK	PAUL
456	RUARK	KERRI
457	BEALE	SUZANNE
458	PEASLEY	BOB
459	ROBBINS	KAMI
460	DIXON	STEPHANIE
461	CAPWELL	JOHNNY
462	WEIMER	QWYNETH
463	FEIDER	BELVA
464	BERGLUND	DALE
465	MAUBACH	DEBORAH
466	WOMMACK	WILLIS
467	MARTIN	NORM
468	KEATTS	RICHARD
469	FIELD	JENNIFER
470	WEIMER	PAUL
471	WOODLORENE	LORENE
472	WOODLORENE	SHIRLEY
473	CASH	SHELDON
474	CASH	LORETTA
475	HEITSTUMAN	ANN
476	GEIGER	IRENE
477	BELANGER	D J
478	PETERS	SUE
479	HARRIS	SHARON
480	FRESH	DWYLA

ID#	Last Name	First Name
481	DELP	DOLLY
482	CRAWFORD	LaDONNA
483	PORTER	RUBY
484	RACE	TERRY
485	MORGAN	ETHEL MAE
486	HALE	CLARENCE
487	GINGERUH	BARBARA
488	BOWLES	VIRGIL
489	BOWLES	JUYNE
490	HENRY	JOHN
491	HERRES	H JAMES
492	HERRES	THOMAS
493	LUNDERQUIST	TOM
494	WARD	BRIAN
495	FISCHER	DONALD
496	HERRES	CHRIS
497	WOLF	DAN
498	HERRES	REED
499	HERRES	FERDINAND
500	DAMRON	VICKIE
501	RUCHERT	WILLIAM
502	CASSETTE	JON
503	BROWN	RICHARD
504	GILLIS	DENNIS
505	DENNY	AILEEN
506	BRAMELL	JANIE
507	SCHULTE	CHRIS
508	FEIDER	DOROTHY
509	LUND	LORA
510	SLAYBAUGH	MARIAN
511	BLACHLY	MARY
512	TOM	TERESA
513	SLUSSE	ELENORE
514	GONZALES	NELLIE
515	FLEMING	GAYLE
516	CASSETTE	JOANNE
517	HERRES	M
518	GIGGINBOTHAM	FRED
519	DEAL	MIKE
520	BLACHLY	ANDIE
521	CALDWELL	JACK
522	SMITH	L SCOTT
523	DEAL	GARY
524	KIMBLE	P ERNEST
525	SANDERS	CHARLES
526	CARMIER	ROSE
527	TRESCOTT	VIVIAN
528	COX	MAXINE
529	McGEE	DONNA
530	SCOGGIN	JAMES
531	WEIMER	EILEEN
532	BOYD	SHERRI
533	NORRIS	LINDA
534	CORMIER	LYLLIS KAY
535	LYTLE	TERI
536	LANDKAMMER	JUDY
537	JOHNSON	ROBERT
538	BISHOP	LEWIS
539	LANDDAMMER	DORIS
540	KIMBLE	EARLINE

ID#	Last Name	First Name
541	SCOGGIN	LARRY
542	LUECK	JEREMY
543	BRENNE	CAROL
544	LEDGERWOOD	JIM
545	DesJARDIN	DAWN
546	RUCHERT	JAMES
547	GRIM	STEVEN
548	SOLBRACK	DENNIS
549	COLE	GARY
550	KELLER	KRISTINA
551	MEYERS	THOMAS
552	KAUSCHE	ANN MICHELE
553	LUECK	CHRIS
554	McKINLEY	JEAN
555	VanVOGT	DOROTHY
556	WILBER	KEITH
557	HIRSCH	MELODY
558	KILLBEER	LAYTON
559	KAZDA	STEVEN
560	PHERSON	ELWOOD
561	PHERSON	CAROLYN
562	McCLANAHAN	BARBARA
563	LANDGREN	DAVE
564	HEITSTUMAN	ROBERT
565	TAYLOR	PEGGY
566	DUMBECK	ROGER
567	KAVEON	KEITH
568	WOODY	CHARLES
569	RUARK	DAVID
570	WOLF	MICHELLE
571	DAVIS-DUMBECK	JUNE
572	KOLLER	NEEDA
573	FRUH	ED
574	BEALE	LOREN
575	GWINN	ALICE
576	FISCHER	LYNNETTE
577	McKEIMAN	PAT
578	KLAVEANO	KRIS
579	HEITSTUMAN	DALE
580	FITZSIMMONS	WAYNE
581	KOLLER	JIM
582	SCOGGIN	MAX
583	FEIDER	WAYNE
584	STOVEY	JIM
585	KUCKLICK	JOE
586	JENKINS	MARC
587	STOVEY	LINDA
588	GWINN	MICHAEL
589	JOHNSON	ROBERT
590	MARTIN	DON
591	JOHN	KIM
592	APPEL	PATTY
593	McCUBE	WYNNE
594	WILSON	LARRY
595	KELLY	JON
596	KELLY	KELLY
597	WILSON	C CHRISTINE
598	CLAASSEN	JULIE
599	CLAASSEN	ALICIA
600	CLAASSEN	CURT

ID#	Last Name	First Name
601	GINGERICH	BRAD
602	McKEIRNAN	LINDA
603	SHAWLEY	LYNN
604	McKEIRNAN	JAMES
605	WARREN	STANLEY
606	WARREN	BROOKE
607	WARREN	SYLVIA
608	McKEIRNAN	ANDREW
609	WARREN	KARN
610	PRICE	JEANNE
611	PRICE	JEANETTE
612	RUCHERT	ANDREA
613	BYE	GARY
614	MULRONY	RANDY
615	KELLY	SUE
616	KELLY	TOM
617	CHANDLER	MICHELLE
618	CHANDLER	WILLIAM
619	BARTLOW	N E
620	O'DELL	HAZEN
621	BURT	GORDON
622	McCABE	JAMES
623	COX	ROBERT
624	COX	RESA
625	KIMBLE	KYLE
626	FEIDER	KATHRYN
627	FEIDER	RICH
628	RUCHERT	JEFF
629	RUCHERT	THOMAS
630	GEIGER	MARIE
631	BURT	DIANA
632	FISCHER	SHIRLEY
633	HATLEY	LOREE
634	BELL	ROWENA
635	McKEIRNAN	PATRICIA
636	BRENSON	BERTHA
637	GWINN	DORIS
638	RICHARDSON	PATRICIA
639	LEDGERWOOD	FRANCES
640	RUCHERT	BLANCHE
641	FANNINK	MADELYN
642	FITZSIMMONS	MARJORIE
643	KIMBLE	JOANN
644	COLE	EDITH
645	HERRES	AUDREY
646	SIGMON	JACI
647	KRESSE	PEGGY
648	DOUGLAS	JOHN
649	BECKER	MARGARET
650	TAYLOR	ROBERT
651	MARBACH	DORIS
652	SCOTT	KAY
653	BOYD	DENISE
654	OBENLAND	CAROL
655	BAKER	JAMES
656	FUCHS	JAMES
657	MORROW`	SUSAN
658	HERRES	KATHY
659	MORROW	J D
660	HULTBERG	SCOTT

ID#	Last Name	First Name
661	KOLLER	JERRIE
662	BADEN	JEPTKA
663	HOWELL	DAN
664	RUCHERT	MAX
665	WERNECKE	CAROL
666	BERGLUND	TROY
667	BAGLY	HOWARD
668	BERGLUND	JANEEN
669	MORGAN	VERNA
670	CRAWFORD	ED
671	TETRICK	WAYNE
672	FEIDER	DEEDEE
673	SULLIVAN	CONNIE
674	BAKER	MARY LOU
675	GILBERT	SANDRA
676	GRIFFIN	OPAL
677	LAUGHERY	CHERRY
678	GORMSEN	STEVE
679	DENNY	JENNIE
680	LEDGERWOOD	MICKI
681	BASTELS	RICHARD
682	McKEIRNAN	C R
683	KEATTS	BERGER
684	DAVIS	SCOTT
685	ROBINSON	JOHN
686	BLACHLY	LEE
687	HASTINGS	RICHARD
688	HASTINGS	JUDY
689	TETRICK	PAULA
690	KOLLER	JANE
691	LEDGERWOOD	DICK
692	BERGLUND	KEITH
693	DAVIS	GLEN
694	BROWN	JAMES
695	SCOTT	JAMES
696	HERRES	ROBERT
697	WHITE	DONALD
698	HARRIS	FRED
699	BAKER	DEBORAH
700	KOLLER	DORIS
701	BINGMAN	ELEANOR
702	JOHNSON	DOROTHY
703	LANDKAMMER	LYLE
704	DIXON	JOE
705	BLACHLY	GUY
706	SLAYBAUGH	RICK
707	KIMBLE	LOUISE
708	O'DELL	JENNIE
709	HIRSCH	JOHN
710	WOLF	JIM
711	WARNER	WILLIE
712	HOUTZ	ROSE
713	ANDERSON	ROCHELLE
714	LIVINGSTON	JANE
715	HALBERT	TERRY
716	BARTELS	MYRNA
717	MOCK	MAXINE
718	SLAYBAUGH	STEVE
719	NEBERGALL	DONNA
720	BARTELS	ALLEN

ID#	Last Name	First Name	ID#	Last Name	First Name
721	NORMAN	DANIEL	781	RUCHERT	RICHARD
722	NORMAN	JOY	782	REILLY	SANDRA
723	JONES	RANDOLPH	783	KESSLER	PAUL
724	DIXON	FRANK	784	DIXON	JUDY
725	MEYERS	CECELIA	785	COOK	KATHERINE
726	SUMMERS	CATHY	786	YOUNG	WILLIAM
727	KAZDA	KENNY	787	RUCHERT	CYNTHIA
728	WARNER	SUSAN	788	BUNCH	GEORGE
729	BINGHAM	TERESA	789	BRAMELL	L
730	NIEBEL	JENNIE	790	HERRELL	ELLEN
731	NIEBEL	LORETTA	791	RACE	HOPE
732	PERRY	DARES	792	JEFFREYS	BURTON
733	LOW	ANNETTE	793	INGRAM	JENIFER
734	LOMEN	LORI	794	BRENNEN	ROBERT
735	EMERSON	KATHY	795	SHULTZ	DEREK
736	FITZGERALD	JULIE	796	FIELD	MARY JANE
737	MARTIN	RICHARD	797	FIELD	CHRIS
738	MARTIN	SHAUN	798	RUCHERT	HARLY
739	ROOSEVELT	JAMES	799	VanDYKE	JULIE
740	KEATTS	QUEST	800	BUNCH	ROSE
741	GORMSEN	LEON	801	SCOTT	BETTY
742	BAKER	LORENA	802	WEIMER	CHAD
743	KEATTS	NEIL	803	BECKER	JOHN
744	SCOTT	VIRGINIA	804	PALMER	JACOB
745	LUECK	LILLIAN	805	PALMER	CHELSEA
746	KISSMER	A L T	806	LOCKARD	DARYL
747	GINGERICH	LISA	807	LATHAM	ROSETTA
748	STILSON	TRESSIE	808	EATON	ROBIN
749	SLAYBAUGH	SHELLY	809	MATHENY	TOM
750	JENNINGS	GWENDOLYN	810	TURNER	LARRY
751	BROWN	MARIE	811	DICKINSON	DICK
752	PIRTLE	ALICE	812	DICKINSON	DENNIS
753	PIRTLE	CALVIN	813	DICKINSON	LINDA
754	BRAGG	MIRIAM	814	CRUMLEY	HAROLD
755	HENRY	EILEEN	815	WHITEHEAD	DONNA
756	DENNY	JIM	816	EGGER	KELVIN
757	BUNCH	LAWRENCE	817	KEATTS	LOIS
758	BOWLES	LARRY	818	TARDIF	HELEN
759	DOUGLAS	KATHY	819	HAPPY	JANICE
760	SCOGGIN	LOREE	820	JOHNSON	SHIRLEY
761	HEITSTUMAN	PHYLLIS	821	GODINEZ	AL
762	SUMMER	DAN	822	GERBER	KATHY
763	LIVINGSTON	KIM	823	FLERCHINGER	FRANCES
764	ABNEY	CORA	824	MORROW	EVELYN
765	BEAN	ROBERT	825	MORROW	DELBERT
766	BYLSEE	LOI	826	TASH	ROMAN
767	BOYD	DANIEL	827	TOWNER	BETTIE
768	SCHMIDT	MARK	828	JEFFREYS	ORLIN
769	ROOSEVELT	DUANE	829	WEIMER	ARDIS
770	CASSETTE	KIM	830	FITZSIMMONS	KATHLEEN
771	KELLY	JOE	831	MARBACH	MIKE
772	SCOTT	WALTER	832	LONG	THELMA
773	KAZDA	SHERRI	833	STALLCOP	DON
774	JENNINGS	CASSANDRA	834	KOLLER	BETTY
775	RUCHERT	KATARINE	835	BINGMAN	WAYNE
776	CONNER	CODY	836	JOHNSON	KATHRYN
777	LATHAM	STEPHENE	837	JOHNSON	ELLIS
778	BROWN	JIMMIE	838	WREN	TOM
779	LANDKAMMER	KENNETH	839	WREN	BARB
780	STARIN	ALLEN	840	KOLLER	ROBERT

ID#	Last Name	First Name
841	SLAYBAUGH	BOB
842	BROWN	CLARICE
843	BROWN	WAYNE
844	SHELTON	GENEVA
845	HERRES	HERM
846	HERRES	CATHY
847	WALDHEN	RICHARD
848	PIERCE	MICHAEL
849	BOTT	MURIEL
850	RAEKEATT	DEBRA
851	TRIMP	ANN
852	JOHNSON	DEAN
853	FELLOWS	NORMA
854	FELLOWS	DALE
855	MULRONY	VINDA
856	FITZGERALD	RICHARD
857	ROMMEL	ROBERTA
858	JOHNSON	LINDA
859	McGILLIS	JUDY
860	VanAUSDLE	GERALD
861	JEFFREYS	TERRI
862	CRICKMER	JOHN
863	BAGBY	JAMES
864	LEWIS	RICK
865	KAZDA	MARGARET
866	NEAL	HOWARD
867	KLAVEANO	CYNTHIA
868	McKEIRNAN	R E
869	WILLIAMS	LEWIS
870	DICE	BOB
871	MORGAN	RON
872	ROOSEVELT	JAY
873	WILLIAMS	MARIE
874	EVALSON	PAT
875	RUCHERT	WES
876	BINGMAN	BOB
877	SKELTON	DAVE
878	JOHN	ANGIE
879	DICKINSON	JAN
880	DICKINSON	MICK
881	FLEMING	WENDY
882	FLEMING	CHAD
883	STEVENS	JAMES
884	MORGAN	GEOF
885	HASTINGS	TOM
886	RICE	FLORRESS
887	CARLSON	ELIZABETH
888	KEATTS	TOM
889	BENDER	JESSE
890	GIBSON	WARREN
891	WALDHER	REGI
892	BOYD	RAY
893	KIMBLE	RODNEY
894	BEALE	KENNETH
895	PATTERSON	MARIETTA
896	BOTT	CATHY
897	VIERS	GARY
898	LEDGERWOOD	KENNETH
899	DIXON	JOHN
900	DIXON	DAVE

ID#	Last Name	First Name
901	DIXON	SANDI
902	HOVRUD	JEROME
903	DICE	DENISE
904	GRIMM	PAT
905	BERGLUND	SHELLEY
906	LUNDQUIST	LINDA
907	POWER	LEE
908	WALDHER	JUDY
909	BLACHLY	PATTY
910	GILBERT	GREG
911	FREI	BILL
912	ROBBINS	ROBERT
913	MORROW	JOHN
914	LUND	GARY
915	LONG	GARY
916	LEDGERWOOD	BROCK
917	RUCHERT	MIKE
918	WALDHER	MARK
919	TARDIE	MIKE
920	FLYM	DANA
921	KOWALKOWSKI	DEBRA
922	APPEL	JOHN
923	VanAUSDLE	JOE
924	KIMBLE	PAM
925	BARTELS	LINDA
926	MOORE	JERRY
927	HERRES	BETTY
928	COX	TERRILIE
929	SLITER	ROBERT
930	MORROW	JOHN
931	BROWN	JASON
932	BURT	BARBARA
933	McKEIRNAN	LINDA
934	SLAYBAUGH	BERT
935	LEDGERWOOD	DEBBIE
936	FLERCHINGER	MARY
937	FLERCHINGER	SARAH
938	GINGERICH	ANNE
939	WEATHERLY	W H
940	SCOGGIN	MAUREEN
941	SLUSSER	WILLIAM
942	RATHBUM	RANDALL
943	AUBERT	JEFF
944	EGGER	KELVIN
945	JOHN	TERRY
946	HUERMARK	JASON
947	PALMER	JACOB
948	HALBERT	ALPHA
949	RUCHERT	WESTON
950	RUCHERT	HARLY
951	BIERHAUS	GENE
952	GEIGER	PHILLIP
953	HALBERT	TERRY
954	WADW	CARL
955	DUPRIO	KUY
956	HULTBERG	SCOTT
957	BURKE	CONNIE
958	MUTCH	MARY
959	SCHMIDT	MARK
960	HERRES	FERD

ID#	Last Name	First Name
961	DIXON	JOE
962	FIELD	MICHAEL
963	GINGERICH	BRAD
964	BOTT	MURIEL
965	MEYERS	TOM
966	BRENNER	CAROL
967	WALDHER	RICHARD
968	LEDGERWOOD	DAVID
969	WILSON	JERRY
970	STOVY	JIM
971	RUCHERT	BUZZ
972	FRU	ED
973	TOM	MIKE
974	FISHER	ROBERT
975	GATE	JOHN
976	GERLES	KATHY
977	KIMBLE	PAM
978	STANTON	RANDY
979	STILSON	TRESSIE
980	BUNCH	ROSE
981	MORROW	EVELYN
982	BOWLES	LARRY
983	RICHARDSON	SHIRLEY
984	GORMSEN	LEON
985	STORMENT	GARY
986	JOHNSON	FRANK
987	BRANDON	TERRY
988	EGGER	KELVIN
989	BUNCH	LARRY
990	LEWIS	CLORIS
991	BROWN	RICHARD
992	KEATTS	TOM
993	WILLIAMS	DAN
994	JOHNSON	DEAN
995	JAHNS	CHESTER
996	BURT	GORDON
997	McKEIRNAN	ERIC
998	WEILAND	R J
999	AUBERT	HARRY
1000	BERGLUND	KEITH
1001	STALLCOP	WYNN
1002	LOW	KARL
1003	BURTON	DEAN
1004	EMERSON	VERN
1005	LEDGERWOOD	STEVE
1006	JOHNSON	BOB
1007	HOUSER	GARY
1008	DUMBECK	ROGER
1009	KLAVEANO	VIRGIL
1010	RUCHERT	WILLIAM
1011	(GROUP)	(GROUP)
1012	RUARK	DAVID
1013	BEALE	LOREN
1014	MARBACH	MIKEL
1015	SCOTT	GREGORY
1016	HARLOW	JEFF
1017	JOHNSON	DEAN
1018	WALDHER	NICK
1019	THORN	ERIC
1020	WARREN	GENE

ID#	Last Name	First Name
1021	WOOD	GEORGE
1022	STILSON	JOHN
1023	DYE	ROGER
1024	KIMBLE	ERNEST
1025	WILDMAN	GORDON
1026	KEATTS	KEVIN
1027	BERGLUND	TROY
1028	SCOTT	JAMES
1029	WILLIAM	DAN
1030	MORROW	SUSAN
1031	HOWARD	DEBRA
1032	CRAMER	DIANE
1033	COLGAN	JOAN
1034	JOHNSEEN	ADOLPHE
1035	BOOTH	CHARLES
1036	BURGESS	GARY
1037	BAUMANN	CHARLES
1038	BURGESS	COREY
1039	CORKILL	JEANNE
1040	HERION	JANE
1041	PERRELLI	MARK
1042	SHERMAN	FRANCES
1043	JACQUES	WILLIAM
1044	TREFRY	VICKI
1045	McKENZIE	DAVID
1046	DUMKE	RUTH
1047	KELPIN	WENDY
1048	VERCRUYSSE	HAZEL
1049	BAUMANN	NANCY
1050	BISLINE	PAT
1051	MAKENAS	BRUCE
1052	DAVIS	ANTHONY
1053	HERBST	ROBERT
1054	SMITH	DOTTIE
1055	CARTER	RICHARD
1056	KLATT	EILEEN
1057	KELLICUT	DARWIN
1058	PERRELLI	MARK
1059	SCHOESLER	MARK
1060	PRINCE	EUGENE
1061	ARLAND	C MICHAEL
1062	JAHNS	CHESTER
1063	MOODY	TIMOTHY
1064	NICHOLS	TOM
1065	SCHOLTZ	TODD
1066	McGREGOR	ALEX
1067	SCHMIDTLEIN	BARBARA
1068	MONACO	JANET
1069	MOORE	VICTOR
1070	BECKER	MIKE
1071	DRUFFEL	JIM
1072	SCHULTHEIS	ARTHUR
1073	HENSLE	JUDITH
1074	SCHULTHEIS	CARROLL
1075	HEITSTUMAN	ROBERT
1076	HOLLAND	PETER
1077	SHEER	TOM
1078	MEYER	DOUGLAS
1079	MEYER	KATHRYN
1080	FAERBER	ANTHONY

ID#	Last Name	First Name
1081	FAERBER	JOY
1082	NIEHENKE	DEBORAH
1083	DUFFY	IRENE
1084	EVANS	STEVE
1085	HARDER	DAN
1086	TURNER	GARY
1087	HODSON	JERALD
1088	HODSON	HELEN
1089	SHARP	JOANNE
1090	WEBER	DAVE
1091	DRUFFEC	LEROY
1092	DRUFFEC	MARV
1093	BAFUS	ADRIAN
1094	BAFUS	EVELYN
1095	MEYER	KIPP
1096	KIRPES	KELLY
1097	DAHMEN	ROLAND
1098	DAHMEN	JOANNE
1099	LIGUORI	JANNE
1100	TAUFRE	CAROL
1101	DAHMEN	MARILYN
1102	DUDLEY	PEGGY
1103	LIGUORI	DOUGLAS
1104	DAHMEN	C P
1105	DAHMEN	JON
1106	DAHMEN	JAMES
1107	WEBER	GERTRUDE
1108	TOBY	DALE
1109	ROBERTS	KYLE
1110	BAUER	KAYLA
1111	TRUONG	HONG
1112	CLAUSEN	ISA
1113	MEACHAM	TRAVIS
1114	LEE	DANIEL
1115	POND	RUSSELL
1116	BAUGER	RYAN
1117	MATTSON	JOSH
1118	HICKMAN	LAWRENCE
1119	BARSTOW	BEN
1120	KAMERRER	RICK
1121	WALLACE	BETSY
1122	WHITTEN	ROGER
1123	GRUOL	DEBRA
1124	GRUOL	DOUG
1125	BERRY	DAVID
1126	SCHULTHEIS	EDNA MAE
1127	SHEVHAM	MICHAEL
1128	WOLF	BEN
1129	ESTED	YEVETTE
1130	WEBER	MARTIN
1131	PARKER	ERIC
1132	PARKER	ELAINE
1133	OLSON	ROBERT
1134	OLSON	ROBIN
1135	SORENSEN	HAROLD
1136	SORENSEN	KAREN
1137	SOLBRACK	ELLA
1138	CUTLER	MAYNARD
1139	PETERSON	GLENN
1140	RYETZKY	PAUL

ID#	Last Name	First Name
1141	JACOBS	JEFF
1142	SWENSON	MONTE
1143	GWINN	JOHN
1144	STONE	LARAYE
1145	THOMSON	SHARON
1146	WEBER	CHERRY
1147	SIENKUECHT	DOUG
1148	CONGER	CHRIS
1149	SCHOESLER	MARK
1150	JAMISON	HOLLIS
1151	ANTONI	DAN
1152	McKEIRNAN	ROGER
1153	PAUL	TIMOTHY
1154	DOYLE	D O
1155	HOLBROOK	DANIEL
1156	McGREGOR	ALEX
1157	McGREGOR	LINDA
1158	DAVIS	JESSE
1159	DRUFFEL	JOANNE
1160	WEBER	LYNN
1161	GRAHAM	KYLA
1162	GRAHAM	MATT
1163	SCHLEENEGER	JUANTE
1164	SCHLEENEGER	CAL
1165	SCHULTHEIS	CARROLL
1166	ANKERSON	EILEEN
1167	NELSON	RICHARD
1168	MOTLEY	BILL
1169	HERMAN	HARVEY
1170	RUSSMILLER	PAT
1171	SCHLEE	CINDY
1172	SCHLEE	RANDDY
1173	MILLER	LARRY
1174	PFAFF	APRIL
1175	DOWNEY-EAGAN	PATRICIA
1176	STUECKLE	HARVEY
1177	EAGAN	STEPHEN
1178	CLAUSEN	KEN
1179	HEITSTUMAN	RICK
1180	QUIST	DAN
1181	QUIST	SHIRLEY
1182	MEYERS	GLENN
1183	RICH	PAM
1184	FICKEN	LEWIS
1185	GEWINN	JOHN
1186	BECKER	LORI
1187	RUARK	DAVID
1188	RUARK	NANCY
1189	HUTTON	KATHY
1190	VANTINE	NEIL
1191	SUESS	JEAN
1192	SUESS	HENRY
1193	VANTINE	DON
1194	BOHN	STEVEN
1195	WOLF	DANIEL
1196	DRUFFEL	ERIKA
1197	NOLLETTE	SARA
1198	MITCHELL	KEN
1199	MITCHELL	HEIDI
1200	McKENZIE	DONALD

ID#	Last Name	First Name
1201	EMERSON	ANNJRE
1202	WYSONG	TOM
1203	CRIM	ALICE
1204	CRIM	GLENN
1205	SAGERSER	SCOTT
1206	BURNWORTH	RACHEL
1207	COCHRAN	MATTHEW
1208	BARSTOW	JANET
1209	HERKIEKSON	CYNTHIA
1210	FUNKE	WENDY
1211	STOTT	FRANCES
1212	FODOR-GRASS	MICHELE
1213	HENAGER	BOB
1214	PAULS	NORMAN
1215	WITT	DALE
1216	NIEHENKE	NORBERT
1217	UDY	DAN
1218	POPE	RICHARD
1219	FAERBER	DAVE
1220	APPEL	DIANE
1221	SWOOPE	STEVE
1222	KOPF	KEITH
1223	DRADER	LYLE
1224	KOPF	MATTHEW
1225	McINTOSH	LILA
1226	SCHULTHEIS	ARTHUR
1227	HENDRICKSON	PAUL
1228	JENNINGS	RALPH
1229	KEEN	ADDIE
1230	MEYERS	ARLIE
1231	PPAFF	RAMONA
1232	HARBER	DAVID
1233	CHRISTLE	JIM
1234	BROECKEL	VERNA
1235	BROECKEL	BOB
1236	WILSON	PAUL
1237	SHIELDS	MILDRED
1238	VOGEL	MARCIA
1239	HENSLE	JUDITH
1240	SWOOPE	KAREN
1241	PATTERSON	WESLEY
1242	SCHULTHEIS	CHRIS
1243	WEBER	PATRICK
1244	SCHARNHORST	DAVID
1245	BATES	BARBARA
1246	MOSER	CAROLINE
1247	BECKER	CAROLE
1248	NEBELSIECK	CHRIS
1249	BATES	BOB
1250	BOOTH	CHARLES
1251	BROWN	NANCY
1252	DATER	LEONA
1253	COLLINS	SHEELA
1254	PARKER	JERRY
1255	ORTON	ORA MAE
1256	HOLTAIN	SHERRY
1257	KUBIK	STAN
1258	LA JOIE	JO
1259	PFEIFER	LONA
1260	FUCHS	MARK
1261	TEMPLIN	CHESTER
1262	KRUG	RON
1263	TEMPLIN	GARRETT
1264	LYLE	CHRIS
1265	KRUG	ROBERT
1266	DICK	EUNICE
1267	WELTER	MARK
1268	BERGLUND	SHELLEY
1269	SCHULTHEIS	ARTHUR
1270	JEFFREYS	TERRI
1271	PAYNE	DALE
1272	ASHWORTH	BETH
1273	BERKMAN	MIRIAM
1274	McDONALD	MONA
1275	CRANDALL	PATRICIA
1276	EGLY	JENNY
1277	VEVEA	KAREN
1278	GRAISING	PATRICIA
1279	BRENTON	JACK
1280	LANEY	STEVEN
1281	McBROOM	ROY
1282	BRISBANE	DONALD
1283	DWYER	DON
1284	SHOVALD	ROBERT
1285	BENDER	CHRISITE
1286	GOHLENS	HEIDI
1287	JONES	DAVID
1288	FRANKEL	ANITA
1289	GERMAIN	ROBIN
1290	HEFNER	JEAN
1291	HONICAN	ROLLIE
1292	BELOUS	JUDY
1293	ACKERMAN	LAURA
1294	FLESHMAN	DOROTHY
1295	BURROWS	TERESA
1296	HANSEN	GAYLEN
1297	LARVIK	CHLOE
1298	GILLESPIE	PAUL
1299	HOFFMAN	PATRICIA
1300	VERCRUYSSE	DIANE
1301	DEAN	STACEY
1302	RODGERS	CHERIE
1303	HALL	LARRY
1304	GRAEDEL	DONALD
1305	BROMILEY	SHARON
1306	SCHULTHEIS	HAROLD
1307	SCHULTHEIS	J LEIGH
1308	TREJBAL	KAREN
1309	DASHIELL	JANE
1310	CLAUSEN	GENEVA
1311	DASHIELL	MARY JANE
1312	CLAUSEN	ROBERT
1313	WEBER	EDWARD
1314	BADEN	MARCIA
1315	CARMACK	BRUCE
1316	PETERSON	PAUL
1317	LONAM	MARK
1318	ERIKSON	TRACY
1319	GARDINIER	LYLE
1320	CUTLER	MAYNARD

ID#	Last Name	First Name	ID#	Last Name	First Name
1321	WULFF	TAMARA	1381	SMITH	THOMAS
1322	WILLIAMS	PAUL	1382	BROWN	NANCY
1323	WICKLEIN	ROBERT	1383	BRADFORD	JACK
1324	SHEFVELAND	JOHN	1384	CASSIDY	HEATHER
1325	HOPPER	CHARLOTTE	1385	KAVANAGH	DAVID
1326	WOLHETER	FLOYD	1386	LITTELL	SALLY
1327	JOHNSON	BILL	1387	HODGSON	ROSE
1328	OSTHELLER	DAVID	1388	CRUISE	BUELA
1329	KRUG	RICHARD	1389	YORK	GLENDA
1330	SOLBRACK	DENNIS	1390	COBB	FIELDS
1331	KOPF	GARY	1391	PRAY	LYNETTE
1332	EMTMAN	G G	1392	FORD	DIANNA
1333	HUTTON	DANIEL	1393	ABRAHAM	BRIGHTON
1334	JAHNS	CHESTER	1394	GROVE	WAYNE
1335	MECKEL	DAN	1395	GABEL	SHARON
1336	ENSLEY	JACK	1396	GAGE	LINDA
1337	QUINN	ROBERT	1397	WARD	(UNKNOWN)
1338	RASMUSSEN	THEODORE	1398	KREILKAMP	MARK
1339	EHLERT	JUDY	1399	THAIN	JEANIE
1340	PAYTON	BARBARA	1400	HANLY	MICHAEL
1341	DIXON	RUTH	1401	ZELLER	DON
1342	SMITH	CARL	1402	LOUCKS	RICHARD
1343	SUTTERFIELD	BARBARA	1403	KAMPFER	CLAUDIA
1344	SHERRILL	SANDRA	1404	KAMPFER	JIM
1345	SCHABER	PATRICIA	1405	AUSTIN	LINDA
1346	DELHAR	JACKIE	1406	ROGERS	DIANNA
1347	JOHNSON	WALTER	1407	(UNKNOWN)	LUCILLE
1348	CASEY	JOHN	1408	MANSFIELD	DOROTHY
1349	HINNEN	CHRISTIE	1409	(UNKNOWN)	(UNKNOWN)
1350	O'DONNELL	BETTY	1410	HOON	PAT
1351	WHITE	RON	1411	SPRADLAND	MARSHA
1352	MYERS	BARBARA	1412	MARTIN	EDITH
1353	JAMES	WILMA	1413	BYRD	MYRTLE
1354	BILLOW	DAVE	1414	SCAFETTI	MARJORIE
1355	CARROL	DAVID	1415	KELLER	MARILYN
1356	SAXBY	LOUIS	1416	RAMAKER	NANCY
1357	FAGEN	JANENE	1417	BEAN	MARILYN
1358	FAGEN	JOHN	1418	CUPP	LINDA
1359	CUTLER	MARY	1419	DOLMAN	JOE
1360	KELLER	GARY	1420	STROUSS	LEVI
1361	CAROL	(UNKNOWN)	1421	KROMER	NANCY JO
1362	SMITH	STUART	1422	COX-PREECS	ANN
1363	MICHAELIS	BECKY	1423	OLSON	GARY
1364	HUFTY	(UNKNOWN)	1424	SANDESKI	RUTH
1365	CROW	SHELLE	1425	DODGSON	HAROLD
1366	McCRAE	NEWTON	1426	SPEAR	LINDA
1367	(UNKNOWN)	ADA	1427	MOE	DIANNE
1368	REAGAN	KENNETH	1428	MURPHY	PATTY
1369	DOLDARLING	KAREN	1429	DONELLY	JOHN
1370	RICKETT	PAULA	1430	STICKLE	ERNIE
1371	GILLESPIE	KATHRYN	1431	SMITH	REBECCA
1372	McDONALD	VIOLA	1432	SHAW	BARBARA
1373	FULLER	PAULINE	1433	DUMKE	RUTH
1374	(UNKNOWN)	CHI CHI	1434	ANONYMOUS	ANONYMOUS
1375	WALKER	STEVE	1435	GILARDO	MIKE
1376	MORRAN	JOAN	1436	BARTUSKA	HELEN
1377	FELDHAUSEN	JOHN	1437	ANONYMOUS	ANONYMOUS
1378	MUTTON	FRANCIS	1438	MARCIELLE	MARY ANN
1379	DUGGER	MARILYN	1439	COLEMAN	SHEILA
1380	MARKER	ROBERT	1440	JAKES	NANCY

ID#	Last Name	First Name
1441	HUGHES	MARY ANN
1442	SPRINT	GARY
1443	MORROW	LINDSEY
1444	ASHWORTH	BETH
1445	JOHNSON	WILLIAM
1446	LAZAR	STEVEN
1447	JOHNSON	MARK
1448	BARTUSKA	TOM
1449	LEDGERWOOD	SAM
1450	ANONYMOUS	ANONYMOUS
1451	HAYER	LOREN
1452	ANONYMOUS	ANONYMOUS
1453	ANONYMOUS	ANONYMOUS
1454	MACOCK	LARRY
1455	GRIFFEN	PAT
1456	ANONYMOUS	ANONYMOUS
1457	FLESCHER	MARK
1458	JOHNSON	RON
1459	HUNTABEE	DAVID
1460	SCHAFER	KEITH
1461	ANONYMOUS	ANONYMOUS
1462	ANONYMOUS	ANONYMOUS
1463	DWYER	DON
1464	OSLUND	PAM
1465	NEIL	NOREEN
1466	WESSON	RICH
1467	HUNTABEE	ANN
1468	WALSH	C K
1469	CORNWALL	DAVE
1470	ANONYMOUS	ANONYMOUS
1471	ANONYMOUS	ANONYMOUS
1472	ANONYMOUS	ANONYMOUS
1473	ROWE	DENNIS
1474	ANONYMOUS	ANONYMOUS
1475	ANONYMOUS	ANONYMOUS
1476	ANONYMOUS	ANONYMOUS
1477	POWERS	JULIEN
1478	JOHNSON	HAL
1479	UPHUS	DIANA
1480	ANONYMOUS	ANONYMOUS
1481	LONG	ANN
1482	HARRIS	TOD
1483	SHILL	KAREN
1484	ANONYMOUS	ANONYMOUS
1485	ANONYMOUS	ANONYMOUS
1486	ANONYMOUS	ANONYMOUS
1487	OLSON	CAPRICE
1488	POULSON	MIKE
1489	BERGEVIN	GARY
1490	TEEL	CRAIG
1491	MASTIN	DAVE
1492	COX	JOHN
1493	HEINEN	KEVIN
1494	OSTHELLER	DAVID
1495	GRANT	BILL
1496	SMART	JAKE
1497	ARGYLE	CLARENCE
1498	CARSTENS	DELBERT
1499	CARSTENS	KATHLEEN
1500	DICK	EUNICE

ID#	Last Name	First Name
1501	CLOVIS	LINDA
1502	FULKERSON	RON
1503	RISING	ELAINE
1504	FELGENHAUER	KARL
1505	CORNWALL	JOHN
1506	BADEN	RICH
1507	DASHIELL	ARDIS
1508	GADY	LARRY
1509	MAHN	TERESA
1510	DASHIELL	PAUL
1511	GADY	DWAYNE
1512	RODGERS	CHERIE
1513	LeSHAW	MIKE
1514	AMEND	HARRY
1515	ENTMAN	ROBERT
1516	GADY	DAVID
1517	ROBERTS	ROE
1518	BUCKLING	YVONNE
1519	RESLER	DAVID
1520	JOHNSON	MERLIN
1521	RICE	ARTHUR
1522	INNES	GWEN
1523	WHITEHOUSE	ALAN
1524	ELMER	JEFF
1525	CLOVIS	LINDA
1526	RODGERS	CHERIE
1527	JONES	GLEN
1528	QUINN	ROBERT
1529	LONAM	MARK
1530	MEENACH	HAL
1531	MEENACH	ROBYN
1532	MUMBS	RICHARD
1533	UPHUS	DIANA
1534	WALKER	PATRICIA
1535	GREEN	WILLIAM
1536	HOFFMAN	PATRICIA
1537	RUDBECK	MIKE
1538	SMITH	TIGHE
1539	LeSHAW	MARGIE
1540	LeSHAW	MIKE
1541	KUHN	KENNETH
1542	DASHIELL	JANE
1543	MAGER	BONNIE
1544	HEISEL	TRINA
1545	TENOLD	JANET
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1547	CORNWALL	JOHN
1548	GADY	LARRY
1549	HYSLOP	DONALD
1550	MASTIN	DAVE
1551	GRANT	BILL
1552	RUCHERT	WILLIAM
1553	RUCHERT	BUZZ
1554	STILSON	STEVE
1555	JOHNSON	DAVID
1556	PANASUK	ALLEN
1557	SCOGGIN	LARRY
1558	HULTBERG	SCOTT
1559	BOWLES	LARRY
1560	GWINN	MICHAEL

ID#	Last Name	First Name
1561	WALDHER	NICK
1562	WOLF	BILL
1563	THORN	ERIC
1564	CARLTON	DAVID
1565	BUNCH	ROSE
1566	LOVELAND	VALERIE
1567	WELTER	MARK
1568	RUSSELL	BILL
1569	HERRES	TOM
1570	RODGERS	CHERIE
1571	BARTLOW	DON
1572	MEAD	SKIP
1573	GINGERICH	BRAD
1574	BARTLOW	SCOTT
1575	ALFORD	BRIAN
1576	STUECKLE	DAVID
1577	SCHULTHEIS	TOM
1578	COCHRAN	MATTHEW
1579	JOHNSON	MERLIN
1580	COCHRAN	HEATHER
1581	SUESS	RANDY
1582	HINDIRE	BLAINE
1583	DUNFORD	DANE
1584	COCHRAN	SARA SUE
1585	HEITSTUMAN	RICK
1586	DODGEN	HARRIET
1587	WEGNER	CHRIS
1588	PENNELL	ROGER
1589	WEBER	MARTIN
1590	DRUFFEL	MIKE
1591	PFAFF	STEWART
1592	RODGERS	CHERIE
1593	SCHMIDTLEIN	BARBARA
1594	SCHOLTZ	TODD
1595	GREEN	DAN
1596	ENSLEY	JACK
1597	PYLE	TOM
1598	FRANZ	CURT
1599	FRANZ	RANDY
1600	CLEMMONS	LES
1601	WEISHAAR	WALLY
1602	WOEHRLE	PATTI
1603	RODGERS	CHERIE
1604	GADY	DWAYNE
1605	KULM	DARRELL
1606	BAUMANN	RONALD
1607	SNYDER	JERRY
1608	DREGER	JOE
1609	ENTMAN	ROBERT
1610	GADY	LARRY
1611	JOHNSON	GAVIN
1612	MECKEL	DAN
1613	MECKEL	DAN
1614	MOODY	TIMOTHY
1615	TEMPLIN	CHESTER
1616	JACOBS	JEFF
1617	BIERLY	KENNETH
1618	McIRVIN	JUDITH
1619	WOGONER	LAUREEN
1620	RICHARDS	LELANIA
1621	DUNHAM	SHANON
1622	HANSEN	ROGER
1623	NIST	J
1624	ENDICOTT	KATHY
1625	GREEN	GEORGETTE
1626	KODY	NEAL
1627	FURRE	DANELLE
1628	VANCINE	FRANCIS
1629	BRIAN	TOM
1630	BRAUN	GORDON
1631	KORUS	LaNICE HYMAN
1632	ADAMS	RON
1633	ROBERTS	JOHN
1634	JACKSON	HELENE
1635	LANGE	BURGESS
1636	ZAHN	DOUG
1637	MAIDEN	CHARLES
1638	JONES	GREG

APPENDIX C:

ADMINISTRATIVE PROCEDURES ACT

DETERMINATIONS

Department of Ecology
Air Quality Program
Eastern & Central Regions

MEMORANDUM

TO: File

FROM: Grant D. Pfeifer, Section Manager:
Eastern & Central Air Quality Section

SUBJECT: GRASS SEED FIELD BURNING SMOKE

DATE: January 7, 1997

There is limited monitoring data on smoke intrusions in eastern Washington. The Spokane County Air Pollution Control Authority (SCAPCA] identifies in their annual grass seed field burning reports smoke intrusions in the Spokane area. The reports clearly identify when the source of the smoke is grass burning. The 1994 SCAPCA report shows a graph of hourly PM2.5 values far September 6, 1994. That graph clearly shows that before the grass burning smoke "hit" the monitor both PM10 and PM2.5 values were relatively stable and low. Once the smoke got to the site, both PM10 and PM2.5 rose sharply. The chart shows clearly that most of the PM10 was actually PM2.5. Even though SCAPCA acknowledges that the area faces many particulate and smoke problems, the grass burning reports give no indication that the grass smoke intrusions are in any way due to sources other than grass burning. Engineering and air pollution science dictate that, other things being equal, reducing the amount of grass burning will reduce the amount of grass burning emissions which will reduce the PM10 and PM2.5 concentrations in areas affected by the smoke. This can be clearly seen in the SCAPCA graph.

This information makes sense and is consistent with the basis of RCW 70.94.656 which directs that reducing the amount of burning is the way to effectively central emissions and minimize adverse effects on air quality.

DEPARTMENT OF ECOLOGY

January 6, 1997

TO: Mary Riveland
Director

THROUGH: Joe Williams
Program Manager
Air Quality Program

FROM: Grant Pfeifer
Section Supervisor
Air Quality Program

SUBJECT: Grass Seed Field Burning Rule Amendment
Administrative Procedures Act Determinations

The purpose of this memorandum is to document the Department of Ecology's determinations as required under the Administrative Procedures Act, for the grass seed field burning amendments to Chapter 173-430-WAC - Agricultural Burning. This memorandum relies on information from several documents required for rule-making activities at Ecology. These documents include: the rule adoption document, the rule development plan, the reviews performed by the Agency Rules Coordinating Committee, and the prepared briefing material. All of these documents are available in the rule-making file for this rule.

RCW 34.05.328 requires that an agency make several determinations before adopting a rule. These determinations are addressed below.

Objective (1)(a)
The general statutory objective the rule seeks to implement is the enhancement of air quality. The specific statutory objective is the minimization of adverse effects on air quality from the open burning of field and turf grasses.

A Rule is Needed to Achieve the Goals (l)(b)
Ecology has used several methods over the last twenty years in its efforts to reduce emissions. These methods include: (a) authorizing studies into alternatives to burning; @) conditioning permits to minimize impacts (smoke management program); (c) grower established best management practices; (d) working cooperatively with stakeholders intensively over the last seven years trying to agree upon a plan for reduced burning. (Inland Northwest Grass Burning Summit) Prior to the 1996 emergency rule (1/3) reduction, there have been no reductions in burning.

Another option identified in RCW 70.94.656 for implementing the statutory objectives regarding grass seed burning is the process of identifying and certifying alternatives that are "practical and reasonably available." Once an alternative is certified, a permit must not be issued where the alternative is reasonably available. The Air Quality Program has committed resources to determine and certify alternatives. However, even if an alternative is certified, it must also be reasonably available. Because this process may not achieve reductions on a statewide basis for several years, Ecology determined that it will not serve the goals and objectives set forth above.

Two other tools were considered as possible methods for achieving the statutory goals and objectives set forth above: guidelines and administrative orders. Guidelines would be voluntary and therefore not enforceable, making their usefulness towards accomplishing the goals and objectives highly questionable(Administrative orders are used elsewhere to establish source-specific requirements. However, it is not clear whether such orders could be used on a project-by-project basis to reduce the number of acres burned that individual farmers could burn because the statute directs that burning reductions should be applicable on a pro rata basis, therefore meaning that a rule is probably required under the Simpson Tacoma Kraft case. Simpson Tacoma Kraft Co. v. Ecology, 119 Wn. 2d 640, 648, 835 P. 2d 1030 (1992) (agency requirements of general applicability must be accomplished by rule).

Finally, Ecology has considered the "status quo" alternative, i.e., continuing to rely on the tools outlined in the first paragraph of this section. None of these tools have effectively controlled emissions from grass seed field burning. Therefore, it is Ecology's conclusion that a rule is needed td achieve the statutory goals and objectives.

Cost Benefit Analysis (1)(c)

A cost analysis and a benefit analysis was conducted by Washington State University for this rule. Several methods were used to calculate probable costs and probable benefits. The results show that the probable benefits of this rule outweigh the probable costs. The entire study is found in the rule-making file.

Alternative Versions of the_Rule\Least Burdensome Alternative (1)(d)

Ecology considered several versions of the rule. The most restrictive version contained only the reduction requirements. A second version contained the reduction requirements and a five percent exemption. A third version contained the reduction requirements, the five percent exemption for extraordinary circumstances, and a provision allowing for a permit trading program. The proposed rule language selected was the third version.

After reviewing the comments from the hearing process and the completed economic analysis, Ecology concluded that the proposed version is the least burdensome version of the rule. This version will allow growers some flexibility in implementing the acreage reductions. The five percent exemption as applied to dryland acreage, has the potential to lower costs reducing the

amount of steep land which might otherwise be left idle. The permit trading program will provide flexibility and cost savings to growers, as documented in the economic analyses.

The goals and objectives of the statute can be achieved with the five percent exemption and permit trading program provisions.

Another Federal or State Requirement (1)(e)
There are no apparent conflicts with other federal or state laws. One area of potential conflict was mentioned during the hearing process- the federal farm program requirements. Further investigation showed that growers often use grass seed crops to assist in meeting the goals of individual farm plans. There is not, however, a "burning" requirement for this crop and farmers can continue to use grass in their plans if they choose. Nor is planting grass seed fields the only measure available to meet farm plan requirements. Therefore, there is no direct conflict with the farm plan. In any event, it is not cleat that the individual farm plans are requirements of federal or state law, thus, this provision may not be applicable at all.

Public v. Private Entities (1)(f)
The reductions apply the same to both private and public entities. Therefore, the rule does not impose more stringent performance requirements on private entities than on public ones.

Rule Differences from Federal Regulation or Statute (1)(g)
There is no federal statute or regulation addressing grass seed field burning. Therefore, no further analysis is required.

Coordinate Rule with Federal. State, and Local Laws (1)(h)
The Department of Ecology has coordinated with other agencies on this issue for many years prior to this amendment. There have been ample opportunities for participation through the extensive and intensive rule-making process. Also, the implementation plan prepared for this rule addresses coordination with other governmental entities.

Rule-making File Contents (2)
The rule-making file contains the actual documents used in making the determinations for this rule.

APPENDIX D:

SEPA

DETERMINATIONS

WASHINGTON STATE DEPARTMENT OF ECOLOGY

ADDENDUM

Description of Proposal: This amends WAC 173-430 - Agricultural burning. The purpose of the rule is to reduce the number of acres of grass grown for seed burned in Washington. This rule does not reduce other types of agricultural burning.

The rule proposal reduces the acres of burning allowed by 1/3 in 1996 and 2/3 in 1997. It also provides: 1) an exemption for unusual or extraordinary circumstances capped at 5%; 2) a permit trading system; 3) a method to certify an alternate way to measure emission reduction, if one is identified (besides acres); 4) a method to certify alternate open burning practices that quantifiably reduce emissions, such as propane burning.

Proponent: Washington State Department of Ecology

Location of Proposal: Statewide

Lead Agency: Washington State Department of Ecology

The Department of Ecology has prepared a Concise Explanatory Statement (responsiveness summary) and a Cost/Benefit Analysis (economic analysis) for this proposal. These documents are being used as an ADDENDUM to the Determination of Non-Significance issued for the proposal described above on July 24, 1996. These documents are available for public review at the Department of Ecology.

Responsible Official: Claude W. Sappington

Position/Title: Regional Director
Eastern Regional Office

January 7, 1997 Claude W. Sappington

GDP:MMM

DISTRIBUTION: Environmental Review Section, Department of Ecology/Olympia
Heidi Renz, Department of Ecology/Eastern Regional Office

Department of Ecology
Air Quality Program
Eastern & Central Regions

M E M O R A N D U M

TO: Joe Williams, Program Manager
Air Quality Program

FROM: Grant D. Pfeifer, Section Manager
Eastern & Central Air Quality Section

SUBJECT: GRASS BURNING RULE -- ENVIRONMENTAL IMPACTS -- REVISED

DATE: January 6, 1997

PART ONE -- INTRODUCTION

I. PURPOSE

This memorandum provides a summary of the evaluation of the environmental consequences of making changes to Chapter 173-430 WAC -- Agricultural Burning, in order to reduce the amount of grass seed field burning as provide for in the Washington Clean Air Act. The summary is based on a reconsideration of the potential environmental consequences of the proposal following receipt of comments and additional information related to the DNS issued by the Department on July 24, 1996.

II. BACKGROUND

Ecology is in the process of changing Washington's Agricultural Burning regulation. One of the steps in that process is evaluating the potential adverse environmental impacts associated with the proposed rule change. Those changes have the purpose of reducing the air pollution emissions from the practice of open burning of grass seed fields. The fields are burned by the farmer following harvest. The burning of grass seed fields produces carbon monoxide (CO) emissions, volatile organic compounds (VOCs), and particulate matter (PM) emissions. Under the Washington Clean Air Act (RCW 70.94.656(4)), Ecology may reduce the amount of grass seed field burning to effectively control emissions which come from the burning. In March, Ecology made a determination that the emissions from grass seed field burning were not effectively controlled. That determination was made based on the health effects of fine particulate matter as reported in the scientific literature and by reports from the medical community citing adverse health consequences from grass seed field burning emissions. Following the determination that emissions were not effectively controlled, Ecology proceeded to reduce the amount of grass seed field burning, relative to 1995 burning levels, by one-third in 1996 and has proposed reducing grass field burning by two-thirds in 1997. Ecology adopted changes to the agricultural burning

regulation using the emergency rule process in order to carry out the emission reductions in 1996 and is in the process of revising the agricultural burning regulation again to extend the 1996 emission reductions and to establish emission reductions for 1997 and beyond.

Additionally, Ecology is in the midst of a related process concerning grass seed field burning. That process is the certification of practical alternatives to grass seed field burning. Ecology has been gathering information about grass burning but has not yet conducted the public hearing which is a required step in the certification process. Ecology intends to continue the certification process with the target of having reasonably available, certified alternatives in use during 1998.

While the process of certifying alternatives to grass seed field burning is closely related to reducing the amount of burning, the reduction in burning allowed under RCW 70.94.656(4) is not dependent on the process of certifying alternatives.

III. FOCUS

On July 24, 1996, the Department of Ecology issued a Determination of Nonsignificance (DNS) under WAC 197-11-340 for proposed amendments to the WAC 173-430 -- Agricultural Burning. The DNS invited public comment on the proposal through September 20, 1996. Over 1,600 comments were received: many of those concerned environmental topics.

The focus of this memorandum is to summarize the reconsideration of the DNS based on timely comments and other new information. Responses to the comments are included in the Concise Explanatory Statement (often called "Responsiveness Summary"). Also considered was the information contained in the economic analysis conducted as part of the regulation development process. Except as may be directly related to the purpose --- this memorandum is <u>not</u> intended to evaluate or summarize: the health effects of grass field burning emissions; alternatives to grass field burning; the economics of burning; the economic impacts of the proposed rule changes; the cost/benefit or benefit/cost analysis; public concerns and opinions; or, stakeholder concerns and opinions.

IV. PROPOSAL

The proposal for which potential adverse environmental consequences are evaluated is basically:

> Changing a regulation (Chapter 173-430 -- Agricultural Burning of the Washington Administrative Code (WAC)) to establish a limit, effective in 1997 and beyond, on the number of acres of grass seed fields which may be burned. The limit being one-third of the amount burned during 1995.
>
> Changes also include provisions for individual exemptions to the limit in unusual or special circumstances. Exemptions would be capped at five percent of the individual 1995 burning amount.

Changes also include provisions for the optional establishment of procedures allowing trading permissible burning amounts from grower to grower.

Changes include provisions for potential changes in how emissions may be measured and ways alternative burning methods may be included.

V. METHOD

A. Overview -- Standard agency methods are used throughout this evaluation. Since the proposal is a change to a regulation, the standard method in the environmental analysis is the evaluation of a "non-project action." The environmental checklist is structured in a way to more clearly describe projects (a new road, a new shopping mall, a new baseball stadium, for example). Evaluations are made based on the full scope of the proposal. This is appropriate for at least four reasons: the proposal is a non-project action, its scope is “statewide”; there is a wide variation in farms with respect to soil type, rainfall, topography, farm management systems, etc.; and, grass fields locations are not permanently fixed.

B. Determining Consequences -- The method used to evaluate environmental consequences included a framing of the environmental concerns by the work group formed as part of the rule development process. A critical step in evaluating consequences is determining the size of effects. For example, the number of acres which won’t be burned or the number of acres which switch from growing grass to growing wheat. Determinations of the magnitude of effects are based on reported acreage figures, the grass burning reduction requirement in the proposal, and typical/common farming practices.

C. Qualitative Evaluation Methods -- The direct and indirect consequences of the proposal are qualitatively evaluated by comparing the net change with baseline conditions. In other words a comparison of estimated conditions before and projected conditions after implementation of the proposal. Determining consequences in this manner is appropriate for evaluating significance of the effect or impact. This type of evaluation is most often expressed as a percentage change in existing conditions which is projected to be directly or indirectly due to the proposal.

D. Quantitative Evaluation Methods -- The direct and indirect consequences of the proposal are quantified in some cases, using standard methods and reasoned assumptions as necessary. For example, air emissions are typically calculated using published emission factors for a particular activity and estimates of the occurrence/frequency of the activity. This type of evaluation is most often listed as representing the statewide effect on an annual basis.

E. Types of Effects -- There are different types of effects associated with the proposal and differing degrees of association. Direct effects are those potentially caused by the proposal (Example: less smoke from burning fewer acres of grass seed fields). Indirect effects are those associated with actions indirectly resulting from the proposal. An example is the potential increase in air emissions due to increased tillage which may result from switching from growing grass seed to growing other crops. This evaluation looks at direct and indirect effects.

F. Reconsideration -- The potential environmental impacts of the proposal have been reevaluated after having considered all the comments received during the comment period and additional information included in the economic analysis. (Details of the reevaluation such as calculation notes are contained in program files.) The review, which this memorandum summarizes, included (among other topics) a re-evaluation of the following elements of the environmental analysis based on comments and additional information received by Ecology: estimates of soil erosion rates including rates provided by additional sources; estimates of the number of acres shifting to replacement crops, going to idle ground, staying in grass, staying in grass without burning; estimates of the amount of residue burned on both dryland grass and irrigated grass; increased estimates of the replacement crop acreage which is likely to burn based on more detailed information from the Ag Burning Task Force reflecting actual farm management systems (including conservation residue requirements); an increased emission factor for burning replacement crops based on headfire burning (22#/ton); increased estimates of surface silt content in soils in calculating emission during tillage; increased estimates of number of tillage operations (including a high and low range); and, estimates of the differing rates of chemical use between grass and replacement crops.

PART TWO -- POTENTIAL ENVIRONMENTAL CONSEQUENCES

I. AIR

A. Potential emissions increases related to growing grass seed with reduced burning -- There is a potential for an increase in emissions from activities associated with straw/thatch removal. Removing the straw is not done if the field is burned but would be part of a non-burning alternative. Estimates of emissions of PM10 resulting from straw handling range from less than one ton to 95 tons. The estimates are based on AP42 emission factors for harvesting (increased by two orders of magnitude) at the low end and tilling at the high end. The acreage level is based on the projection contained in the economic analysis. Some growers may choose to compost the straw that is not burned. The regulated emissions from composting are considered to be negligible.

B. Potential emissions increases related to switching from growing grass to growing other crops -- There is a potential for increases in air emissions from switching to growing crops other than grass seed. The estimate of the number of grass acres switching to non-grass crops is 22,342. This estimate is based on the amount of grass, the effect of the proposal, and the projections of the economic analysis. Emission increases may come from increases in several activities: tillage of non-grass crops, burning of non-grass crops, potential wind erosion, and equipment exhaust emissions.

The increases in emissions (PM for mechanical processes, PM & CO & VOCs for combustion sources) are directly related to the increase in the acreage of non-grass crops. Those potential emission increases (based on a typical wheat, barley, dry peas, lentils type rotation) are estimated to be:

* An increase of less than one-half to one and one-half percent relative to pre-proposal conditions from potential increased tillage operations.

* An increase of less than one percent relative to pre-proposal conditions from potential increased non-grass crop burning. The relative increase applies to particulate matter, carbon monoxide, volatile organic compounds, etc.

* An increase of less than one percent relative to pre-proposal conditions from potential blowing dust erosion.

* An increase of less than one-half to one and one-half percent relative to pre-proposal conditions from potential increased tractor exhaust.

Mass potential emission estimates can, in some cases, be quantified and expressed in tons per year of PM10:

* An increase of 229 to 496 tons relative to pre-proposal conditions from potential increased tillage operations.

* An increase of 52 tons relative to pre-proposal conditions from potential increased non-grass crop burning.

When considering the significance of emission increases related to switching crops, one should consider that the estimate of acreage shifting (22,342 acres) indirectly due to the proposal represents:

* An increase of less than one percent in the acreage of the typical non-grass, "replacement" crops currently in the region where grass seed is grown.

* Less than five percent of the typical annual fluctuation in wheat production (one of the principle “replacement” crops).

* Less than three percent of the greatest two-year fluctuation in wheat acreage (over the last ten years).

C. Potential emissions reductions related to burning a lesser amount of grass seed fields -- The objective of the proposal is to reduce the emissions from the open burning of grass seed fields. The estimate of emission reductions is based on the nature of the proposal in that it limits the number of acres which may be burned.

* A decrease of between 62 and 67 percent relative to pre-proposal conditions due to reduced burning of grass seed fields. The relative decrease applies to particulate matter, carbon monoxide (CO), volatile organic compounds (VOCs), etc.

Mass potential emission estimates can be quantified and expressed in tons per year:

* A decrease of 1077 tons of PM10 relative to pre-proposal conditions due to reduced grass seed field burning.

D. SUMMARY OF AIR QUALITY IMPACTS -- Slight increases in dust may come from changes in farming practices indirectly due to the proposal. These increases are well within the variation one sees in farming practices from year to year. Significant reductions in smoke will result from the proposal.

While dust and smoke are both types of particulate air pollution, there are some important differences. One key difference is that of size. Dust particles range in size from about one micron up to 200 microns. (The upper regulatory limit for particulate matter is 100 microns per WAC 174-400-030(55).) Smoke particles, created as a byproduct of incomplete combustion, range in size from less that 0.01 micron up to one micron. Of the dust generated by tillage operations, 79 percent is greater than PM10 in size (90 percent is greater than PM2.5). On the other hand, grass burning smoke is all sub-micron (PM1) in size. There are several characteristics of this difference in sizes which are important from an environmental impact perspective. One characteristic is the difference in settling velocity or how fast the particles fall back to the ground and are therefore no longer "air pollution." Larger particles settle faster. Particles less than one micron are for practical purposes suspended permanently. The environmental effect is the dust settling nearer the source and the smoke traveling long distances. This leads to a disproportionate impact with smoke having the greater potential for impact. (This difference is borne out by environmental complaints from grass burning smoke far outnumbering those from tillage dust.)

Another difference is the potential impact on visibility. Impacts on visibility in the region are potentially proportional (depending on dispersion) to the changes in emissions which affect visibility. Particulate matter in the size range of 0.1 to one micron has the greatest negative impact on visibility. Smoke is a significant factor in visibility because the particulate matter in smoke is sub-micron (<1) in size. The net reduction in agricultural burning smoke resulting from the proposal will favor improved regional visibility.

A third difference between smoke and dust which is related to particle sizes is the difference in health effects. Current research and thinking suggest more serious health effects are associated with smaller particle sizes. In other words, the smaller particles (PM2.5) have greater risk.

Besides size, there is a difference in the composition of the particles themselves. Smoke particles are comprised of combustion by-products including a mixture of poly-aromatic hydrocarbons (PAHs). This class of compounds includes carcinogens, mutagens, and irritants. "Dust" particles are primarily mineral in nature.

There are other types of air contaminant emissions from burning. These will be reduced as a direct result of the proposal:

* A decrease of 6,797 tons of CO relative to pre-proposal conditions due to reduced field burning.

* A decrease of 1,010 tons of VOCs relative to pre-proposal conditions due to reduced field burning.

II. LAND

The proposal has the potential to indirectly change how agricultural land is farmed. The principal change being a shift in crop type from grass seed to non-grass crops. These other crops are commonly grown in the region. The shift is projected to mean more acres in non-grass production and fewer acres in grass production. The potential environmental consequences are related to the magnitude of this shift and to the difference in environmental characteristics between grass and the other crop types. One difference potentially affecting the land is the difference in potential for soil erosion.

Potential increases in soil erosion related to switching from growing grass to growing other crops -- There is a potential for increases in soil erosion from switching to growing crops other than grass seed. The estimate of the number of grass acres switching to non-grass crops, most subject to differences in erosion, is 8,220. This estimate is based on the amount of grass, the effect of the proposal, and the projections of the economic analysis. Potential erosion increases are based on estimates suggesting that the soil erosion potential for the non-grass crops is about two times greater than that of grass. This difference is applicable to the acreage in grass production which would shift to non-grass production because of the proposal. The increases in erosion potential are directly related to twice the increase in the acreage of non-grass crops. That potential increase (based on a typical wheat, barley, dry peas, lentils type rotation) is estimated to be:

* An increase in soil erosion of less than one-half to less than two percent relative to pre-proposal conditions.

Potential soil erosion can be estimated and expressed in tons per year:

* An increase of approximately 67,000 to 313,000 tons relative to pre-proposal conditions.

When considering the significance of erosion increases related to switching crops one should consider that the estimate of twice the acreage shifting indirectly due to the proposal represents:

* An increase of less than two percent in the acreage of the typical non-grass, "replacement" crops currently in the region where grass seed is grown.

* Less than nine percent of the typical annual fluctuation in wheat production (one of the principle non-grass crops).

* Less than five percent of the greatest two-year fluctuation in wheat acreage (over the last ten years).

To help establish perspective when considering the significance of erosion increases related to switching crops, one should also consider the estimate of soil erosion for non-grass farming. Estimates of annual soil erosion have a wide range (one source shows five tons per acre to 31 tons per acre). Applying an erosion rate estimate for Spokane County yields an estimate of soil erosion for the non-grass crops of 26.4 million tons. The increase in soil erosion due to switching crops (because of the proposal) amounts to less than one-half to less than two percent.

III. WATER

Potential water quality impacts indirectly due to the proposal are related to the potential changes in how agricultural land is farmed. The principal change being a shift in crop type from grass seed to non-grass crops. These other crops are commonly grown in the region. The shift is projected to mean more acres in non-grass production and fewer acres in grass production. The potential environmental consequences are related to the magnitude of this shift and to the difference in environmental characteristics between grass and the other crop types. One difference potentially affecting water quality is the difference in potential for soil erosion which is described above. Other potential water quality impacts would also be directly related to the shift in acreage and therefore be on a similar scale as described below.

Potential changes in water quality due to soil erosion related to switching from growing grass to growing other crops -- There is a potential for decreases in water quality (because of increases in soil erosion) from switching to growing crops other than grass seed. The estimate of the number of grass acres switching to non-grass crops, most subject to differences in erosion, is 8,220. This estimate is based on the amount of grass, the effect of the proposal, and the projections of the economic analysis. Potential water quality impacts are due to increased soil erosion. The increased soil erosion is applicable to the acreage in grass production which would shift to non-grass production because of the proposal. The degradation in water quality is directly related to the increase in the acreage of non-grass crops. The potential change (based on a typical wheat, barley, dry peas, lentils type rotation) is estimated to be:

* A decrease in water quality of less than one-half percent relative to pre-proposal conditions because of soil erosion.

Water quality would have the potential to be degraded, indirectly due to the proposal, by an estimated 6,839 to 20,244 additional tons of soil erosion contributed to ditches waterways and streams. When considering the significance of water quality impacts related to switching crops one should consider that the estimate of the acreage shifting indirectly due to the proposal represents:

* An increase of less than one percent in the acreage of the typical non-grass "replacement" crops currently in the region where grass seed is grown.

* Less than five percent of the typical annual fluctuation in wheat production (one of the principle non-grass crops).

* Less than two percent of the greatest two-year fluctuation in wheat acreage (over the last ten years).

To help establish perspective in considering the significance of water quality degradation due to erosion increases related to switching crops, one should also consider the estimate of soil erosion for non-grass farming. Water quality is potentially affected by an estimated 3.6 million tons of soil erosion currently contributed to ditches waterways and streams. The increase in potential water quality impacts due to switching crops (because of the proposal) amounts to one-half percent.

PART THREE -- CONCLUSIONS

I. SUMMARY OF POTENTIAL ENVIRONMENTAL CONSEQUENCES

The potential adverse environmental impacts resulting from the proposal are related to changes in farming practices in the region where grass seed is now grown. The principal changes are expected to be a shift or switch from grass seed production to other crops which are common to the region and farming grass seed fields without burning. Different crop types call for different farm operations and different environmental consequences. In general, the increase in effect (relative to current or pre-proposal conditions) is closely related to, and on the same order as, the increase in production of the "replacement" non-grass crop types. The estimate of acreage shifting (indirectly due to the proposal) represents:

* An increase of less than one percent in the acreage of the typical non-grass, "replacement" crops currently in the region where grass seed is grown.

* Less than five percent of the typical annual fluctuation in wheat production (one of the principle "replacement" crops).

* Less than three percent of the greatest two-year fluctuation in wheat acreage (over the last ten years).

More specifically, slight increases in dust may come from changes in farming practices indirectly due to the proposal. These increases are well within the variation one sees in farming practices from year to year. Significant reductions in smoke will result from the proposal.

Slight increases in soil erosion may come from changes in farming practices indirectly due to the proposal. Slight decreases in water quality may come from the increases in soil erosion. Again, both conditions are well within the variations expected from year to year.

II. MITIGATION

Most of the potential adverse environmental consequences indirectly related to the proposal are currently commonplace. As such, mitigating practices are also in common usage. Because systems are already in place to identify, encourage and/or require the use of appropriate conservation and best management practices: Additional requirements for mitigation are not needed as part of this proposal.

III. RECOMMENDATION

Following careful consideration of all comments and additional information which provide new information of interest...

Following thorough reconsideration of the DNS in light of the comments and additional information...

Following a reevaluation of the environmental analysis, based on comments and new information, determining that there will be no probable significant adverse environmental impacts from the proposal...

Following careful review of comments and evaluations and finding no reason to withdraw the DNS pursuant to WAC 197-11-340(3)(a)...

Following responding to comments through the Concise Explanatory Statement prepared for the proposal as deemed appropriate by Ecology:

With respect to the potential adverse environmental consequences likely to result from adoption of the proposed regulation changes limiting grass seed field burning, I recommend that the Department of Ecology:

> maintain the Determination of Nonsignificance (DNS); and,
>
> adopt/issue an ADDENDUM which includes the Concise Explanatory Statement and the Economic Analysis prepared for the proposal.

As always, please call if you have questions or need more information.

GDP:gp

APPENDIX E:

TESTIMONY

(Appendix E totals several hundred pages and, in order to conserve resources, has not been included in this publication. The testimony is available for public review as part of the rule making file. The original of the rule-making file is located at the Department of Ecology Headquarters Office in Olympia. A duplicate copy is available at The Eastern Regional Office in Spokane.)