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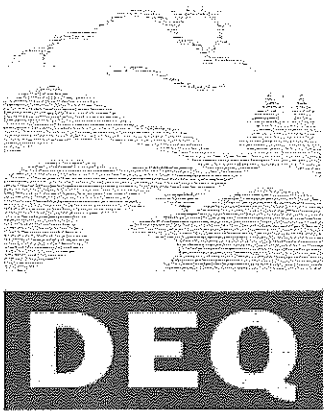
7/10/1975

OREGON
ENVIRONMENTAL QUALITY
COMMISSION MEETING
MATERIALS



State of Oregon
Department of Environmental Quality

A G E N D A

Oregon Environmental Quality Commission

July 10, 1975

Auditorium, Employment Building
875 Union Street N.E.
Salem, Oregon

9:00 a.m.

- -

A. Union Carbide, Ferro Alloy Division, Rivergate, Portland
Request 4-month variance to exceed particulate emission limits from one furnace

B. SUBSURFACE SEWAGE - Adoption of temporary rules

C. SEWAGE WORKS CONSTRUCTION GRANT PRIORITY LIST FOR FISCAL YEAR 1976 - Adoption of project needs list and consideration of procedures to ensure conformance with local and state plans and planning goals and objectives

10:00 a.m. D. PUBLIC HEARING - To consider feasible alternatives to field burning relative to acreage allocation for 1975 and to adopt temporary field burning rules for 1975

- -

The Commission will meet for breakfast in the 3rd floor cafeteria of the Employment Building at 7:30 a.m. Lunch will be in the 3rd floor Conference Room (cafeteria) of the Employment Building.

ROBERT W. STRAUB
GOVERNOR

DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, OREGON • 97205 • (503) 229-5301

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. A, July 10, 1975 EQC Meeting

Union Carbide Ferroalloy Division
Emergency Variance Request

The Union Carbide Ferroalloy Division, located in North Portland, has advised the Department on July 2, 1975, that they are presently confronted with an emergency situation which threatens the employment of approximately forty people.

In order to prevent the economic crisis, the Company has requested a four month variance to process material in one of their electric furnaces which has previously resulted in particulate emissions in excess of permit limits. Personnel lay-offs could take place due to furnace shut downs as early as July 14, 1975 unless a variance is granted.

The Air Quality Control Division staff is evaluating the air quality impact if this variance is granted.

Therefore, we wish to advise the Commission that a complete staff report relative to this matter will be mailed to you by July 7, 1975, for your consideration at the July 10, 1975 meeting.

LOREN KRAMER
Director

JAP:h 7/3/75

ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. A, July 10, 1975, EQC Meeting

Emergency Variance Request - Union Carbide Ferroalloy Division Multnomah County

Background

Union Carbide Corporation operates an electrometallurgical plant at 11920 North Burgard, Portland, which produces ferromanganese, silicomanganese and ferrosilicon as alloys to be used in the manufacture of steel.

By industry standards, this is a small plant. It has operated continuously since 1942 and presently employs 170 people.

During the process of melting and tapping of raw materials particulate matter can escape from each of three electric arc furnaces.

In 1970 Union Carbide completed the installation of air contaminant control equipment and reduced annual particulate emissions to 36 tons per year at a cost in excess of one million dollars. This control installation resulted in total compliance with Department regulations.

In July 1972 the company requested and received a 30 day variance to process 50 percent ferrosilicon in No. 4 furnace. Producing 50 percent ferrosilicon causes violent reactions which result in excessive particulate emissions and the variance was granted on an experimental basis.

Since the termination of the above variance the company has produced only standard products and has generally maintained compliance.

Analysis

On May 30, 1975, representatives of Union Carbide met with the Department and stated that due to severe cutbacks in the steel industry they were over-stocked with standard ferromanganese and would like to process 50 percent ferrosilicon for three to four months in order to avoid the layoff of 30 to 40 men. Based upon the results of processing 50 percent ferrosilicon in 1972 which resulted in excessive emissions, the Department advised that some manner of improved particulate control would have to be incorporated into any major product change. At that time it was indicated by Union Carbide that an improved system of collecting and controlling fume leakage would be prepared and submitted for Department analysis.

In a letter to Union Carbide dated June 5, 1975, the Department stated that although the economic impact associated with the non-production of 50 percent ferrosilicon appeared to be sufficient grounds for a variance, the Department would process the matter under a Notice of Construction provision based on the company's belief that compliance could be attained by improved emission controls.

In a subsequent meeting, Union Carbide stated that interim controls would not be economically feasible due to a projected cost of $250,000. The company therefore advised the Department of their intent to submit a variance request. Said variance request was received on June 25, 1975, and the urgency of the situation was re-emphasized in a letter dated July 2, 1975. A copy of each letter is attached.

The Department has reviewed the subject request and determined that the production of 50 percent ferrosilicon in one furnace could increase particulate emissions in the range of 25 pounds per hour. Actual emissions are expected to essentially double the emission limitations in the company's Air Contaminant Discharge Permit. The magnitude of the projected emissions if conducted for a one year period would be equivalent to the introduction of a new 100 tons per year source within the Portland airshed. Particulate emissions in downtown Portland could be increased by as much as 0.2 ug/m^3.

In an effort to minimize emissions the company proposed to produce 50 percent ferrosilicon in furnace No. 1 (previously produced in No. 4) which utilizes larger electrodes and thus may result in reduced fume leakage. In addition, the company proposes to increase the capacity of the existing control equipment by 14 percent.

Although located in an industrial area, Union Carbide is within ½ mile of an area of high population density. Therefore, any visible or particulate emissions could result in public complaint. The Department would expect any complaints to be esthetic in nature rather than due to property damage or adverse health effects.

Considering that the subject variance would occur during periods of potentially poor air quality, the Department believes that curtailment of production may be necessitated during any periods of extended air stagnation.

Oregon Revised Statutes (ORS), Chapter 468.345, 1974 Replacement Part, Variances from air contaminant rules and regulations, paragraph (1) states that:

> The Environmental Quality Commission may grant specific variances which may be limited in time from the particular requirements of any rule, regulation or order . . . if it finds that special circumstances render strict compliance unreasonable, burdensome or impractical due to special conditions or cause; or strict compliance would result in substantial curtailment or closing down of the business, plant or operation.

Conclusions

1. Union Carbide operates an electrometallurgical plant in North Portland, adjacent to the Rivergate Industrial Area and within ½ mile of private residences.

2. Union Carbide states that current economics in the steel industry has resulted in a surplus of standard ferro-manganese alloy.

3. To prevent the displacement of up to 40 people, Union Carbide has requested a variance from the emission limitations in their existing Air Contaminant Discharge Permit for a three to four month period to produce 50 percent ferrosilicon in No. 1 furnace. The earliest date for personnel layoff is projected for no later than August 1, 1975.

4. Past operation with 50 percent ferrosilicon has resulted in the emission of excessive particulate matter.

5. To minimize emissions the company proposes to process the subject material in No. 1 furnace which utilizes larger electrodes and also increase the collection capacity of the existing control equipment by 14 percent.

6. From an overall environmental standpoint, the granting of the requested variance would result in some degradation of the local air quality. Specifically, particulate emissions would increase within a range of 25 pounds per hour and would be associated with a visible plume.

7. The granting of this variance by the Environmental Quality Commission would be allowable in accordance with ORS 468.345.

8. Granting of a variance not in excess of 90 days is permitted by the Environmental Protection Agency without amending the Oregon Implementation Plan and conducting the associated hearings.

Recommendations

It is the Director's recommendation that the Commission finds that strict compliance would result in substantial curtailment or closing down of a business, plant, or operation and that a variance be granted to Union Carbide subject to the following conditions:

1. The variance period shall extend from August 1, 1975 to November 1, 1975, and shall be subject to review upon actual operation and may be terminated if emissions occur substantially in excess of those anticipated herein.

2. Production of 50 percent ferrosilicon shall be conducted only in furnace No. 1 which shall have been modified as stated in the company's letter of June 25, 1975.

3. Production of 50 percent ferrosilicon shall be terminated upon notification from the Department that adverse meterological conditions in association with subject production may result in adverse air quality.

4. Union Carbide shall conduct or have conducted three particulate source tests. The tests shall be conducted over a two month period beginning within two weeks of start up of the furnace. Tests shall be run from tap to tap at maximum production rate, simultaneously sampling the control equipment exhaust and roof vent emissions. The test method shall be submitted to the Department prior to testing for review and approval. The Department shall be notified 48 hours prior to each test.

5. Union Carbide shall install as soon as possible a roof vent transmissometer with continuous recorder capable of spanning the entire distance across the exhaust stack of No. 1 furnace. This unit shall have automatic zero and span capabilities. Accuracy shall be plus or minus 3 percent. The unit shall be operational at least 30 days during the variance period. The location and type of transmissometer is subject to prior review by the Department.

LOREN KRAMER
Director

See Attachments
pd 7/7/75

UNION CARBIDE CORPORATION
FERROALLOYS DIVISION
PORTLAND WORKS, POST OFFICE BOX 03070, PORTLAND, OREGON 97203

July 2, 1975

Mr. R. E. Gilbert
Administrator, Portland Region
Oregon Dept. of Environmental Quality
1010 N. E. Couch Street
Portland, Oregon 97232

Re: Air Contaminant Discharge Permit No. 26-1873

In connection with our letter of 6/25/75 (copy attached) requesting a variance to operate our #1 furnace on 50% ferrosilicon, the demand for our normal products has further deteriorated. It now appears that a curtailment of ferromanganese production is imminent and will result in shutting down a furnace no later than August 1.

We, therefore, seek your good offices in supporting our request for a variance from the E.Q.C. as soon as possible. The sense of urgency results from the lead time necessary to procure the required reducing agent which is shipped from West Virginia.

If the variance is granted we will plan a production run of 3-5 months, depending upon the demand for ferromanganese.

R. D. Forgeng
Manager Portland Works

/ir

Encl.

cc: Loren Kramer
J. J. Armour

UNION CARBIDE CORPORATION
FERROALLOYS DIVISION
PORTLAND WORKS, P. O. BOX 03070, PORTLAND, OREGON 97203

June 25, 1975

Mr. Kessler Cannon
Dept. of Environmental Quality
1234 S. W. Morrison
Portland, Oregon 97205

Re: Air Contaminant Discharge Permit No. 26-1873

Due to the recent drop in ferromanganese sales it appears that, in a few months, our inventory position will force us to shut down one of the two furnaces now producing this product. By operating this furnace to produce 50% ferrosilicon we can prevent the lay off of 30 to 40 men. The Portland plant, therefore, desires a variance in our air quality permit which would enable us to produce 50% ferrosilicon in furnace #1 for a period of 3 to 4 months starting in August or September 1975.

A review has been made of several suggested changes to the existing emission control system which may reduce potential particulate emissions from 50% ferrosilicon operation to the compliance level normally achieved during manganese alloy production. The following actions have been selected and will be undertaken immediately upon approval by the Department of Environmental Quality to permit production of 50% ferrosilicon in furnace No. 1:

1. The current fan speed of the existing Buffalo scrubber system will be increased from ~1590 to 1820 RPM which will increase the scrubber gas handling capacity by about 14% from ~1420 to 1625 ACFM.

2. The current innercones on the furnace allow an approximate thirteen inch wide opening around the 35 inch diameter electrodes for feeding mix. Innercones are available for installation that will allow an eleven inch wide opening which will decrease the total open area around the electrode by about 20%. Although mix addition to the furnace will be more difficult, it is expected that the reduction in potential fume escape area, coupled with increased gas removal by the Buffalo scrubber will significantly reduce particulate emission to the atmosphere.
   (Enclosed diagrams illustrate the possible change in open area around electrode.)

R. D. Forgeng
Manager Portland Works

/ir
Encl.

cc: Mr. J. Kowalczyk
Mr. R. Gilbert
Mr. J. J. Armour

ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item B, July 10, 1975, EQC Meeting

Consideration of Adoption of Proposed Temporary Rules Regarding Subsurface Sewage Disposal and Pertaining Specifically to (1) Granting of Variances, (2) Regional Modifications, (3) Reduced Setback from Intermittent Streams, and (4) Prior Approvals.

Background

Two recently enacted Bills, SB 297 which is now Chapter 167, Oregon Laws 1975, and SB 34, Chapter 309, Oregon Laws 1975, are now in effect and require early adoption of administrative rules for implementation of certain provisions contained therein.

SB 34 provides that the Commission may grant variances from the particular requirements of any rule or standard pertaining to subsurface sewage disposal under such conditions as it may consider necessary to protect the public health and welfare and to protect the waters of the state. The Commission is required to delegate the power to grant variances to special variance officers appointed by the Director. A maximum fee of $150 can be charged each applicant for a variance. Counties may enter into agreements with the Department to perform the variance duties.

SB 297 also contains a provision which allows the Commission to adopt rules for subsurface sewage disposal that may vary in different areas or regions of the state in order to take advantage of differences in local conditions.

There are two other sections of the existing rules pertaining to subsurface sewage disposal which need to be considered further at this time. One of them pertains to prior approvals and the other

to the minimum required setback from intermittent streams. At the May 23, 1975 Commission meeting the deadline date for applications for permits based on prior approval was changed from July 1, 1975 to September 1, 1975 and the date for completion of the installation of the systems under prior approval permits was changed from July 1, 1976 to September 1, 1976. The proposal that the minimum required setback from intermittent streams be changed from 100 feet to 50 feet was not acted on at the May 23rd Commission meeting.

At the Commission meeting on June 27, 1975 consideration was given to the adoption of the four proposed temporary rules listed above but final action was deferred until the July 10, 1975 meeting.

Conclusions

1. Pursuant to the provisions of SB 34 (Chapter 309, Oregon Laws 1975) which became effective on June 12, 1975 it is necessary that rules be adopted to establish criteria for the granting of variances, the appointment of variance officers, the submission of applications and the charging of fees. The proposed rules are contained in Attachment 2. The OAR references in Section III have been revised to cover only subsurface systems as recommended in the testimony of Mr. Tam Moore, Chairman of the Jackson County Board of Commissioners.

2. Pursuant to authority granted in Section 2 of SB 297, which became effective on May 19, 1975, it is advisable that regional rules be adopted to permit installation of subsurface sewage disposal systems in low rainfall areas where certain types of soils exist over shallow restrictive or impervious layers. Observations of systems previously installed under such conditions have indicated that with certain modifications they can be expected to operate satisfactorily. The proposed rules are contained in Attachment 3. The adoption of these rules was strongly supported at the June 27 Commission meeting by a representative of the Jefferson County Health Department.

3. It has been determined that the required setback of subsurface systems from intermittent streams can be reduced from 100 feet to 50 feet without causing water pollution or creating a health hazard. This change will permit the development of certain parcels or lots which are not large enough to meet the present requirements. The change in this rule needs to be approved without delay in order to take advantage of the current building season. The proposed rule change is contained in Item A of Attachment 1.

4. It is the conclusion of the Department that the deadlines for prior approval permits and completion of construction adopted by the Commission on May 23, 1975, namely September 1, 1975 and September 1, 1976, respectively, should not be further extended. With the adoption by September 1, 1975 as mandated in SB 297 of alternative systems rules and the proposed adoption at this meeting of provisions for granting of variances pursuant to SB 34 there

should no longer be any compelling reason for granting of permits based on prior approvals. It is recommended, however, that the present rule be amended to allow prior approval construction permits to be transferable during the life of the permit. This, for example, would allow a developer who had obtained a prior approval permit to transfer it to a new buyer before the deadline date. This proposed rule change is contained in Item B of Attachment 1.

5. Failure to act promptly in the adoption of rules pertaining to the aforementioned items will result in serious prejudice to the public interest for the specific reasons that the Department will be without proper criteria or standards for the granting of variances as authorized by legislative action, property owners in low rainfall areas with certain soil conditions or with small lots adjacent to intermittent streams will be prevented or unduly delayed in developing their properties, and the transfer of prior approval permits will be prohibited. Pursuant to ORS 183.335(2) the Commission may adopt temporary rules to be effective immediately upon filing with the Secretary of State and for a period of 120 days thereafter.

6. Testimony received at the June 27 Commission meeting supported adoption of these four temporary rules.

Recommendations

It is the Director's recommendation that the Commission take the following actions:

1. Enter a finding that failure to act promptly in the above matters will result in serious prejudice to the public interest for the specific reasons stated above, and

2. Adopt the proposals contained in attachments 1, 2 and 3 as temporary rules to be filed immediately with the Secretary of State and to become effective on July 15, 1975.

LOREN KRAMER
Director

KHS:vt
7/2/75
Attachments 1, 2 and 3

Attachment 1

Proposed

Temporary Rules

Oregon Administrative Rules Chapter 340

Division 7

Item A

71-020(2) Table of minimum separation distances. In subsection (c) of the table delete the following:

"or intermittent streams including groundwater interceptors and cut banks or ditches which intercept groundwater".

Add a new subsection (g) to read as follows:

"(g) Intermittent streams including groundwater interceptors and cut banks or ditches which intercept groundwater"

Sewage Disposal Area	Septic Tanks and Other Treatment Units
"50 ft."	"50 ft."

Item B

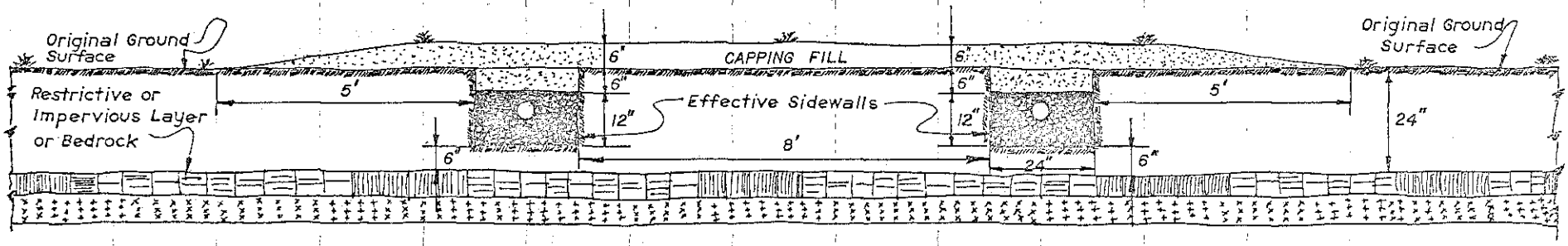
71-015(8) At the end of this subsection add the following sentence:

"Construction permits issued under this subsection are transferrable during the life of the permit".

BY..... DATE..... SUBJECT..... SHEET NO..... OF.....

CHKD. BY..... DATE..... JOB NO.....

DIAGRAM 1



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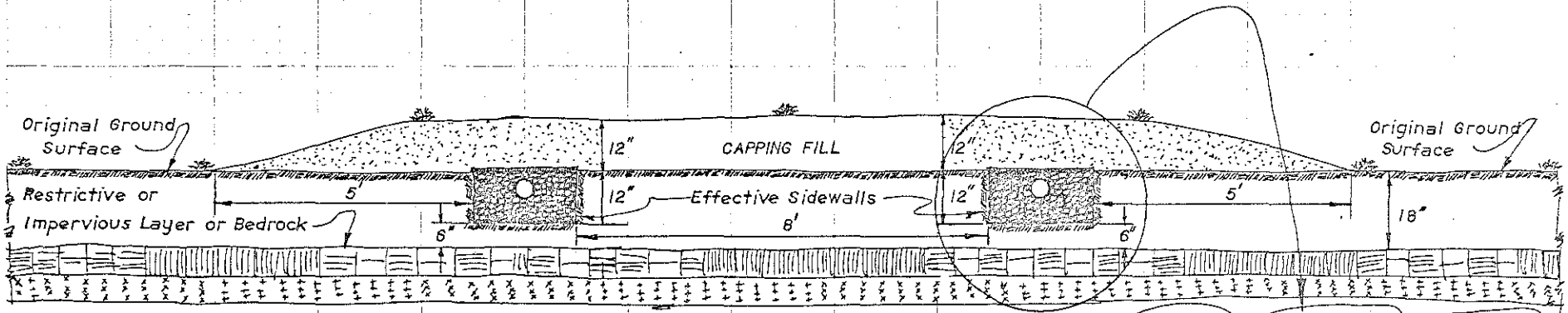

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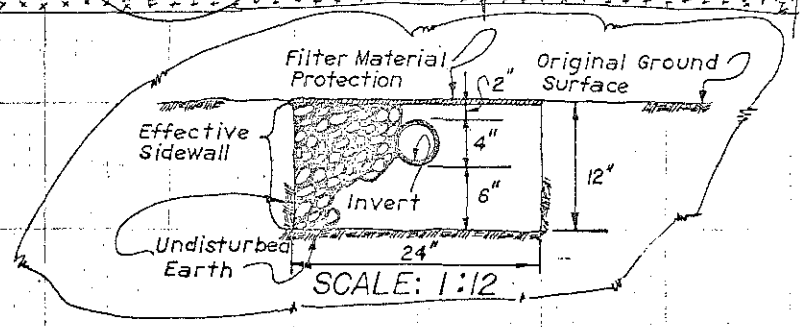

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ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. C, July 10, 1975, EQC Meeting

Sewage Works Construction Grant Priority List for Fiscal Year 1976 - Adoption of Project Needs List and Consideration of Procedures to Ensure Conformance with Local and State Plans and Planning Goals and Objectives.

On Monday, June 30, 1975, DEQ staff met with Hal Brauner, Director of the Land Conservation and Development Department (LCDD) and a member of his staff to discuss their concerns regarding the Department's proposed Sewage Works Construction Grant Priority List.

The LCDD staff seemed to be interpreting the priority list improperly as "the final action to authorize construction" rather than "the initial action which starts the systematic process of trying to satisfy the planning and application requirement so that DEQ can grant approval of plans and EPA can award the federal grants to proceed." Thus, discussion centered on alternative procedures for satisfying LCDC that projects do not proceed to construction (after meeting all other requirements) without an acceptable determination that LCDC goals will not be violated.

It is apparent that LCDC must develop a uniform clearcut procedure for DEQ and other state agencies to follow until comprehensive plans are adopted by cities and counties and approved by LCDC (sometime after January 1, 1976). It is also apparent that care must be exercised in developing such a procedure in order to insure that local planning efforts are not unduly impaired by a time-consuming process of trying to evaluate each immediately proposed action against the goals and guidelines of LCDC.

The DEQ staff met with LCDC staff again on Wednesday July 2, 1975 to continue discussions and review selected projects on the proposed list. LCDD staff has indicated that a letter will be forthcoming to withdraw their earlier request for delayed action on the priority list. They further want to pursue a memorandum of understanding as a means of clarifying and establishing review and coordination procedures between now and LCDC approval of comprehensive plans.

LOREN KRAMER
Director

HLS:ak
July 3, 1975

July 10, 1975 EQC Meeting, Salem

Item D. PUBLIC HEARING - To consider feasible alternatives to field burning relative to acreage allocation for 1975 and to adopt temporary field burning rules for 1975.

Air Quality Control has this item.

ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

Robert W. Straub
GOVERNOR

Joe B. Richards
Chairman, Eugene

GRACE S. PHINNEY
Corvallis

JACKLYN L. HALLOCK
Portland

MORRIS K. CROTHERS
Salem

RONALD M. SOMERS
The Dalles

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item D, July 10, 1975

Public Hearing to Allocate Acreages and Consider Adoption of Temporary Rules

I. Background

The open burning of grass fields in the Willamette Valley has in the past been managed under a statutorily established field burning program which in addition to the Department responsibilities relied upon cooperative efforts of the State Fire Marshal, local fire permit issuing agents, the Field Burning Committee, the Seed Council, and the individual grower. The Department's primary responsibilities under previous ORS 468.450 through 468.485 involved the issuance of the daily advisories relative to burning of fields to the State Fire Marshal, tabulation of the weekly burning statistics and the preparation of the annual field burning report. The communication systems, sky-watch by aircraft, fire permit issuance coordination and other support services necessary to the operation of the smoke management system has been the responsibility of the Seed Council.

The permit required under this system was solely a fire control permit.

ORS 468.475 banned open burning of perennial and annual grass seed crops used for grass seed production after January 1, 1975 in Benton, Clackamas, Lane, Linn, Marion, Multnomah, Polk, Washington and Yamhill Counties.

Oregon Law 559, 1975 (SB 311) passed by the 58th Legislative Assembly amends sections of ORS 468 dealing with field burning and lifts the January 1, 1975 ban on open field burning.

II. Discussion

Oregon Law 559, 1975, provides the following significant changes to the law:

1. Lifts the ban on open burning of grass seed fields in the Willamette Valley;

2. Provides for a phased reduction which specifies the maximum allowable acreages by year that can be open burned;

   a) During 1975, not more than 235,000 acres may be burned.

   b) During 1976, not more than 195,000 acres may be burned.

   c) During 1977, not more than 95,000 acres may be burned.

   d) During 1978, and each year thereafter, the Commission, after taking into consideration the factors listed in subsection (2) of ORS 468.460, may by order issue permits for the burning of not more than 50,000 acres;

3. Provides for the issuance of an open field burning permit by the Department in the nine valley counties;

4. Specifies the registration fee by year;

5. Specifies the responsibilities of the Commission, the Department, Executive Department, Oregon Field Sanitation Committee, Seed Council and fire permit issuing agencies; and

6. Creates the Oregon Field Sanitation Committee to replace the present Field Burning Committee.

As specified in Oregon Law 559, 1975, it is the responsibility of the Commission to (1) consult with Oregon State University and the Field Sanitation Committee and to hold public hearing to receive testimony on whether:

(a) There are insufficient numbers of workable machines that can reasonably be made available to sanitize the acreage if an acreage reduction is ordered;

(b) There are insufficient methods available for straw utilization and disposal; and

(c) Reasonable efforts have been made to develop alternative methods of field sanitation and straw utilization and disposal, and such methods have been utilized to the maximum reasonable extent.

(2) Based on the testimony received, the Commission shall adopt field burning rules for Multnomah, Washington, Clackamas, Marion, Polk, Yamhill, Linn, Benton and Lane Counties, which provide for a more rapid phased reduction by certain permit areas, depending on particular local air quality conditions and soil characteristics, the extent, type or amount

of open field burning of perennial grass seed crops, annual grass seed crops, and grain crops and the availability of alternative methods of field sanitation and straw utilization and disposal.

The Commission shall authorize issuance of permits up to the statutorily set maximum acreage only if the Commission finds a, b, and c above, after hearing.

Following the establishment of the maximum total registered acreage allowed to be burned, the Commission must consider the adoption of temporary rules pursuant to the provisions of Oregon Law 559, 1975.

The proposed field burning rules attached include the maximum statutory allowable acreages to be open burned. Prior to the adoption of these rules, those acreages must be amended, if a lower limitation is established, to coincide with the findings of the Commission.

On June 20, 1975, the Department's staff met with representatives of the following agencies to discuss their respective roles regarding allocations of acreages as specified in Section 4, Subsection (3) of, at that time, SB 311 and to request that they participate in the public hearing.

Oregon State University
Agricultural Extension Service
Department of Crop Service

Oregon State University
Department of Crop Science

Oregon State University
School of Agriculture

Oregon State University
Dept. of Botany and Plant Pathology

Oregon Field Sanitation Committee

Oregon Seed Council

Soil and Water Conservation Commission

Department of Agriculture

Soil Conservation Service

Agricultural Stabilization Commission

The following summarizes the written comments received through July 9, 1975, from the above agencies. Copies of the correspondence received are attached.

Oregon State University:

1. John R. Hardison - letter of June 23, 1975:

   He has determined that diseases will cause serious damage in one or two years if burning is interrupted or discontinued. Ergot is already a problem with open burning. Chemical substitutes for disease control won't be available for several years.

   There are no alternatives to grass seed crops on the 150,000 acres of poorly drained wetlands.

   Thermal sanitation is the cornerstone in grass seed production because it is broadly effective against diseases, weeds, and insects while also improving seed yields.

   He believes that mobile sanitizers can provide the necessary thermal treatment without generating the smoke. They may even provide a better treatment than open burning.

2. John R. Hardison - testimony before Special House Committee 3/5/75:

   Chemicals are not yet available for disease control. Removal of straw before burning grass seed fields may result in an increase in blind seed disease. There is a need for good distribution of the straw for a good fire. Blind seed disease wiped out the perennial ryegrass seed industry in New Zealand.

   Ergot disease is the most heat resistant and needs a good thermal sanitation. Ergot will become a serious problem in many grass fields after just one year without burning.

   It is possible that chemical controls of some of the diseases will be available in 3 to 5 years.

   Breeding for disease resistance is impractical due to the large number of grasses and diseases involved. Seed pre-treatments have only limited value.

   The use of burning is world-wide as a means of plant disease control. California, alone, burns over 850,000 acres annually of rice and barley.

3. Harold Youngberg - letter of June 24, 1975:

   It is recommended that each grower identify 10% of his acreage that he would consider to have the lowest priority for burning during 1975. This would facilitate the lowering of allowable acreage to the 235,000 level should more acreage be registered.

4. Wilbur Cooney - letter of June 27, 1975:

   Referred to earlier communications.

5. W. O. Lee - letter of June 30, 1975:

   At this time there are no markets available to utilize straw that must be removed from the fields and no proven mechanical burners available to sanitize fields. Chemical weed control in annuals may be possible in a few years, but not for perennial grasses.

6. D. O. Chilcote and H. W. Youngberg - "Report on Alternate Year Burning" - received July 3, 1975:

   Mechanical residue removal in perennial grasses appears to be practical in younger crop stands and in older stands if burning could be alternated with mechanical removal. The more complete the removal of the residue the greater the benefit to subsequent seed yields. Alternate year burning of grass fields may allow the maintenance of acceptable pest control. Alternate year burning would also reduce yield losses compared to strictly mechanical removal. Of the perennials, orchard grass displays, the greatest tolerance to non-burning. For annuals soil incorporation of straw during seedbed preparation is an alternative to burning. Weed control problems and cost are greatly increased with this procedure. Where straw could be removed, plowing under only the stubble would facilitate soil incorporation and seedbed preparation as an alternative to burning. If a use for grass seed residue could be found which would offset the additional cost to the grower, then the feasibility of mechanical alternatives would be improved.

   He seems to recommend alternate year burning for annuals as a way of controlling the weeds and still keeping the cost down for the grower. The alternative is an effective herbicide which has yet to be determined.

7. Field Burning Committee:

   Bill Rose - letter of June 20, 1975:

   During 1975, there will be 3 burners in the early part of the season to be delivered during the week of July 14. These will not contribute significantly to reducing open burning this season. If these burners are successful more will be purchased throughout the season.

8. Oregon Seed Council:

Paul Jensen - letter of July 1, 1975:

They believe that the industry should be allowed to burn the total 235,000 acres, because all 3 criteria have been met.

Paul Jensen - letter of July 2, 1975:

If the registered acres exceed 235,000, they would want the growers within each district to have an opportunity to make the reduction in acres that may be needed.

9. Soil and Water Conservation Committee:

F. A. Svalberg - letter of June 27, 1975

He recommends using the same form as used previously by the Seed Council. Also, if the total registered acres exceed 235,000 then the number allotted to each county should be proportionate to the number of acres registered in that county.

10. Soil Conservation Service:

J. W. Mitchell - letter of June 30, 1975:

They cannot contribute to the burning permit program in 1975. There is not enough time.

11. Oregon State Agricultural Stabilization Commission:

T. D. Sehorn - letter of June 30, 1975:

They won't be of much assistance in the burning program. They could provide photos of farms and field boundaries if that would be useful.

12. State Department of Agriculture:

Leonard E. Kunzman - letter of July 3, 1975:

The success or failure of the field burning measure (SB 311) is totally dependant upon complete cooperation between DEQ, the local fire chiefs, and grass seed growers in working out administrative regulations necessary to carry out the intent of the Legislature. Therefore, for the 1975 burning season, it will be necessary to continue many of the methods previously developed by the Oregon Seed Council in issuing burning permits and monitoring programs.

What we are recommending is a program presently accepted by the growers, with special emphasis on monitoring and smoke management.....

The following table summarizes the acreage registered for field burning with the Department as of July 9, 1975. A complete summary can be found in the attached tables - Table II and Table III.

TABLE I

Area	Perennial	Annual	Cereal	Total
South Valley	85,551	99,035	7,784	192,371
North Valley	52,901	15,001	18,313	85,215
Total Valley	138,452	114,036	26,097	277,586

III. Need For Emergency Action

Failure to act promptly will result in serious prejudice to the public interest and to the interest of the parties involved for the specific reasons that field burning season is upon us and regulatory guidelines are needed immediately to implement new legislation with regard to field burning.

Director's Recommendation

It is the Director's recommendation that the Commission take the following actions:

(1) Acknowledge as of record the consultation with and recommendations of the Oregon Field Sanitation Committee, and any other parties consulted pursuant to Section 5(3) of SB 311 (1975 Act).

(2) Enter specific findings as to whether:

(a) There are insufficient numbers of workable machines that can reasonably be made available to sanitize the acreage if an acreage reduction is ordered,

(b) There are insufficient methods available for straw utilization and disposal, and

(c) Reasonable efforts have been made to develop alternative methods of field sanitation and straw utilization and disposal, and such methods have been utilized to the maximum reasonable extent.

(3) If findings with regard to the above three issues are all positive, allocate the statutory limit of 235,000 acres to be burned during 1975, or such other allocation as is deemed appropriate.

(4) If any of the above-mentioned findings are negative, allocate such reduced acreage to be burned in 1975 as is found appropriate.

(5) Enter a finding that failure to act promptly will result in serious prejudice to the public interest for the specific reason cited above.

(6) Subject to any changes found appropriate in the light of recommendations made to the Commission or findings reached after this (July 10, 1975) hearing, adopt the proposed amendments to OAR chapter 340, sections 26-005 through 26-025 as temporary rules to become effective immediately upon filing with the Secretary of State.

(7) Instruct the Department to file the adopted proposals (as altered if appropriate) and accompanied by the findings made by the Commission in this matter with the Secretary of State's office as temporary rules to become effective immediately upon such filing and to remain effective for 120 days thereafter.

LOREN KRAMER
Director

RLV:vt
7/9/75

Attachments:

1. Table II- South Valley
2. Table III- North Valley
3. Proposed Rule
4. Correspondence received
5. C-Engrossed SB 311 (Oregon Law 559, 1975)

TABLE II

South Valley Field Burning Registration Acreages

Fire District	Perennial	Priority	Regular	Annual	Priority	Regular	Cereal	Priority	Regular	Total
Albany-Linn	6836	1354	5481	6179	1772	4407	1595	237	1358	14610
Brownsville-Linn	7887	937	6950	8655	749	7907	443	-	443	16985
Halsey-Linn	18667	1337	17330	25695	2926	22769	900	35	865	45262
Harrisburg-Linn	11475	167	11308	18491	629	17862	292	-	292	30256
Lebanon-Linn	5389	4362	1027	5471	2513	2958	1343	370	973	12203
Lyons-Linn	459	-	459	-	-	-	25	-	25	484
Scio-Linn	1876	-	1876	3524	-	3524	201	-	201	5601
Tangent-Linn	10480	3762	6718	10026	3775	6251	590	198	392	20596
Totals-Linn	63069	11920	51149	78040	12364	65676	5389	840	4549	146798
Coburg-Lane	2399	224	2175	1403	170	1233	97	35	62	3899
Creswell-Lane	550	550	-	-	-	-	-	-	-	550
Eugene-Zummwalt-Lane	341	286	55	534	334	200	60	60	-	935
Junction City Lane	4136	145	3991	2919	187	2732	211	-	211	7266
Lane Rural #1	5402	1852	3550	2343	461	1822	340	40	300	8085
Lane Co. UNP	487	-	487	1399	756	643	57	47	10	1943
Santa Clara-Lane	52	-	52	70	-	70	-	-	-	122
Thurston										
Walterville-Lane	-	-	-	-	-	-	76	-	76	76
Western Lane-Lane	244	-	244	214	50	164	75	-	75	533
Totals-Lane	13611	3057	10554	8822	1958	6864	916	182	734	23349
Benton Open-Benton	2043	880	1163	5200	2483	2717	359	32	327	6702
Adair-Benton	432	15	417	428	166	262	56	25	31	916
Corvallis Rural-Benton	2066	2066	-	995	995	-	111	75	36	3132
Monroe-Benton	3126	535	2591	1914	551	1363	790	15	775	5830
Philomath-Benton	425	216	209	1562	1322	240	67	-	67	2054

Fire District	Perennial	Priority	Regular	Annual	Priority	Regular	Cereal	Priority	Regular	Total
State Forestry-Benton	780	-	780	600	-	600	96	-	96	1476
Totals-Benton	8872	3712	5160	12174	6992	5182	1479	147	1332	22525
South Valley Totals	85552	18689	66863	99036	21314	77722	7784	1169	6615	192371

TABLE III

North Valley Field Burning Registration Acreages

Fire District	Perennial	Priority	Regular	Annual	Priority	Regular	Cereal	Priority	Regular	Total
Clackamas										
Boring	40*	-	40*	-	-	-	-	-	-	40*
Canby	330	-	330	-	-	-	-	-	-	330
Clackamas 54	840	-	840	-	-	-	-	-	-	840
Clarks	-	-	-	-	-	-	-	-	-	-
Estacada	1542	-	1542	222	-	222	-	-	-	1794
Molalla	192	-	192	-	-	-	-	-	-	192
Monitor	806	-	806	-	-	-	20	-	20	826
Sandy	30*	-	30*	-	-	-	-	-	-	30*
Scotts Mills	669	-	669	-	-	-	156	-	156	825
Totals-Clackamas	4479	-	4479	222	-	222	176	-	176	4877
Marion										
Aumsville	1192	-	1192	100	-	100	-	-	-	1292
Aurora	1053	40	1013	-	-	-	-	-	-	1053
Drakes-Crossing	1539	-	1539	-	-	-	76	-	76	1615
Hubbard	104	-	104	-	-	-	-	-	-	104
Jefferson	2597	213	2384	2941	130	2811	671	90	581	6209
Marion #1	2865	-	2865	164	-	164	865	-	865	3894
Marion Unp.	1500*	-	1500*	-	-	-	-	-	-	1500*
Mt. Angel	500*	-	500*	200*	-	200*	100*	-	100*	800*
St. Paul	1653	-	1653	180	-	180	556	-	556	2389
Salem-Suburban	1300	-	1300	-	-	-	-	-	-	1300
Silverton	6223	-	6223	405	-	405	1541	-	1541	8169
Stayton	3181	-	3181	-	-	-	327	327	-	3508
Sublimity	6268	450	5818	114	-	114	383	-	383	6765
Turner	1092	134	958	50	-	50	-	-	-	1142
Woodburn	3642	237	3405	300	100	200	137	-	137	4079
Totals-Marion	34679	1074	33605	4454	230	4224	4645	493	4152	53778
Polk										
Southwest	1365	298	1067	1816	185	1631	502	75	427	3683
Southeast	7026	459	6567	5340	320	5052	3852	246	3606	16218
Polk Co. Non.	400*	-	400*	400*	-	400*	200*	-	200*	1000*
Totals-Polk	8791	757	8034	7588	505	7083	4554	321	4233	20933

Fire District	Perennial	Priority	Regular	Annual	Priority	Regular	Cereal	Priority	Regular	Total
Washington										
Cornelius	23	-	23	-	-	-	262	-	262	285
Forest Grove	186	-	186	-	-	-	945	-	945	1131
Washington-#1	-	-	-	-	-	-	880	-	880	880
Washington-#2	-	-	-	-	-	-	1842	-	1842	1842
Totals-Washington	209	-	209	-	-	-	3929	-	3929	4138
Yamhill										
Amity	843	-	843	905	110	795	800	-	800	2548
Banks	-	-	-	-	-	-	30	-	30	30
Carlton	302	-	302	-	-	-	1023	-	1023	1325
Dayton	531	-	531	932	-	932	136	136	-	1599
Dundee	20	-	20	-	-	-	-	-	-	20
Gaston	-	-	-	-	-	-	83	-	83	83
McMinnville	2120	1382	738	414	414	-	1543	509	1034	4077
Newberg	-	-	-	25	-	25	457	-	457	482
Sheridan	948	57	891	461	139	322	493	30	463	1902
Yamhill	-	-	-	-	-	-	331	-	331	331
Totals-Yamhill	4743	1439	3304	2737	663	2074	4896	675	4221	12263
North Valley Totals	52901	3270	49631	15001	1398	13603	18313	1489	16824	85215
North-South Valley Totals	138452	21958	116494	114036	22711	91325	26097	2658	23439	278585

Subdivision 6

Agricultural Operations

AGRICULTURAL ~~FIELD~~ BURNING

[ED. NOTE: Unless otherwise specified sections 26-005 through 26-020 of this chapter of the Oregon Administrative Rules Compilation were adopted by the Environmental Quality Commission June 4, 1971 and filed with the Secretary of State July 12, 1971 as DEQ 29, effective July 12, 1971. Repeals SA 46, 52 and DEQ 13.]

26-005 DEFINITIONS. As used in this general order, regulation and schedule, unless otherwise required by context:

(1) Burning seasons:

(a) "Summer Burning Season" means the four month period from July 1 through October 31.

(b) "Winter Burning Season" means the eight month period from November 1 through June 30.

(2) "Department" means the Department of Environmental Quality.

(3) "Marginal Conditions" means conditions defined in ORS 468.450(1)~~449.840~~ under which permits for agricultural open burning may be issued in accordance with this regulation and schedule.

(4) "Northerly Winds" means winds coming from directions in the north half of the compass, at the surface and aloft.

(5) "Priority Areas" means the following areas of the Willamette Valley:

(a) Areas in or within 3 miles of the city limits of incorporated cities having populations of 10,000 or greater.

(b) Areas within 1 mile of airports serving regularly scheduled airline flights.

(c) Areas in Lane County south of the line formed by U.S. Highway 126 and Oregon Highway 126.

(d) Areas in or within 3 miles of the city limits of the City of Lebanon.

(e) Areas on the west side of and within 1/4 mile of these highways; U.S. Interstate 5, 99, 99E and 99W. Areas on the south side of and within 1/4 mile of U.S. Highway 20 between Albany and Lebanon, Oregon Highway 34 between Lebanon and Corvallis, and Oregon Highway 228 from its junction south of Brownsville to its rail crossing at the community of Tulsa.

(6) "Prohibition Conditions" means atmospheric conditions under which all agricultural open burning is prohibited (except where an auxiliary fuel is used such that combustion is nearly complete, or ~~a mobile field incinerator approved by the Department is used~~) an approved sanitizer is used.

(7) "Southerly Winds" means winds coming from directions in the south half of the compass, at the surface and aloft.

(8) "Willamette Valley" means the areas of Benton, Clackamas, Lane, Linn, Marion, Polk, Washington and Yamhill Counties lying between the crest of the Coast Range and the crest of the Cascade Mountains, and includes the following:

(a) "South Valley", the areas of jurisdiction of all fire permit issuing agents or agencies in the Willamette Valley portions of the Counties of Benton, Lane or Linn.

(b) "North Valley", the areas of jurisdiction of all other fire permit issuing agents or agencies in the Willamette Valley.

(9) "Commission" means the Environmental Quality Commission.

(10) "local fire permit issuing agency" means the County Court or Board of County Commissioners or Fire Chief of a Rural Fire Protection District or other person authorized to issue fire permits pursuant to ORS 477.515, 477.530, 476.380 or 476.960.

(11) "open field burning permit" means a permit issued by the Department pursuant to Section 2 of SB 311.

(12) "fire permit" means a permit issued by a local fire permit issuing agency pursuant to ORS 477.515, 477.530, 476.380 or 478.960.

(13) "validation number" means a unique two-part number issued by a local fire permit issuing agency which validates a specific open field burning permit for a specific field on a specific day. The first part of the validation number shall indicate the number of the month and the day of issuance and the second part the hour of authorized burning based on a 24 hour clock. (e.g. a validation number issued Aug. 26 at 2:30 p.m. would be 826-1430.)

(14) "open field burning" means burning of any perennial grass seed field, annual grass seed field or cereal grain field in such manner that combustion air and combustion products are not effectively controlled. Field burning utilizing a device other than an approved field sanitizer shall constitute open field burning.

(15) "approved field sanitizer" means any field burning device that has been approved by the Field Sanitation Committee and the Department as a feasible alternative to open field burning.

26-010 GENERAL PROVISIONS. The following provisions apply during both the summer and winter burning seasons in the Willamette Valley unless otherwise specifically noted.

(1) Priority for Burning. On any marginal day, priorities for agricultural open burning shall follow those set forth in ORS 468.450 /~~449.840~~/ which give perennial grass seed fields used for grass seed production first priority, annual grass seed fields used for grass seed production second priority, grain fields third priority and all other burning fourth priority.

(2) Permits/ Required.

/~~(a) No permit shall be issued for burning with equipment using liquified petroleum gas unless such equipment complies in full with the applicable laws, rules and regulations of the Office of the State Fire Marshal./

/~~(b) As provided in Chapter 434, Oregon Laws, 1971, permits for open field burning of cereal grain crops shall only be issued under ORS 476.380 and 478.960 if the person seeking the permit submits to the issuing authority a signed statement under oath or affirmation that the acreage to be burned will be planted to fall legumes or perennial grasses:/

/~~(c) No permit issuing agency or other person authorized to grant agricultural open burning permits pursuant to ORS 478.960 and 476.380 shall give oral permission to conduct burning and all permits shall be issued in writing, on a day to day basis and shall be issued in accordance with the limits of extent, time and type of burning set forth in these regulations:/

/~~(d) Any person granted a permit for agricultural open burning shall maintain a copy of said permit at the burning site during the burning operation, for inspection by appropriate authorities:/

(a) No person shall conduct open field burning within Benton, Clackamas, Lane, Linn, Marion, Multnomah, Polk, Washington and Yamhill Counties without first obtaining a valid open field burning permit from the Department and a fire permit and validation number from the local fire permit issuing agency for any given field for the day that the field is to be burned.

(b) Applications for open field burning permits shall be filed on Registration/Application forms provided by the Department.

(c) Open field burning permits issued by the Department are not valid until acreage fees are paid pursuant to ORS 468.480(1)(b) and a validation number is obtained from the appropriate local fire permit issuing agency for each field on the day that field is to be burned.

(d) As provided in ORS 468.465(1), permits for open field burning of cereal grain crops shall be issued only if the person seeking the permit submits to the issuing authority a signed statement under oath or affirmation that the acreage to be burned will be planted to seed crops other than cereal grains which require flame sanitation for proper cultivation.

(e) Any person granted an open field burning permit under these rules shall maintain a copy of said permit at the burn site at all times during the burning operation and said permit shall be made available for at least one year after issuance for inspection upon request by appropriate authorities.

/~~(e) The staff of the Department of Environmental Quality may authorize burning on an experimental basis, and may also, on a fire district by fire district basis, issue limitations more restrictive than those contained in these regulations when in their judgment it is necessary to attain air quality:/

(f) At all times proper and accurate records of permit transactions and copies of all permits /~~granted~~/ shall be maintained by each /~~permit issuing~~/ agency or person /~~authorized to grant~~/ involved in the issuance of permits, for inspection by the proper authority. /~~No permit transaction shall be deemed completed until confirmation of actual date, time, and amount of burning conducted under said permit is furnished to the permit issuing agents. No person shall be granted additional permits until confirmation of outstanding permits is received. Such confirmation shall be on a day to day basis:/

(g) Permit agencies or persons authorized to /grant/participate in the issuance of permits shall submit to the Department ~~of Environmental Quality~~, on forms provided, weekly summaries of field burning permit data, during the period July 1 - October 15.

(h) All debris, cutting and prunings shall be dry, cleanly stacked and free of dirt and green material prior to being burned, to insure as nearly complete combustion as possible.

(i) No substance or material which normally emits dense smoke or obnoxious odors may be used for auxiliary fuel in the igniting of debris, cutting or prunings.

(j) Use of ~~/mobile/~~ approved field sanitizers ~~/incinerators approved by the Department/~~ shall require a /burning/ fire permit, and permit agencies or agents shall keep up-to-date records of all acreages burned by such /incinerators/ sanitizers. ~~/Acres burned on any day by mobile field incinerators approved by the Department shall not be applied to open field burning acreage quotas, and such incinerators may be operated under either marginal or prohibition conditions./~~

26-012 REGISTRATION AND AUTHORIZATION OF ACREAGE TO BE OPEN BURNED. (1) On or before July 1, 1975 and on or before April 1 of each subsequent year, all acreages to be open burned under this rule shall be registered with the local fire permit issuing agency or its authorized representative.

(2) Registration of acreage after July 1, 1975 and after April 1 of each subsequent year, shall require:

(a) Approval of the Department,

(b) An additional late registration fee of $1 per acre if the late registration is determined by the Department to be the fault of the late registrant.

(3) Copies of all Registration/Application forms shall be forwarded to the Department promptly by the local fire permit issuing agency.

(4) The local fire permitting agency shall maintain a record of all registered acreage by assigned field number, location, type of crop, number of acres to be burned and status of fee payment for each field.

(5) Burn authorizations shall be issued by the local fire permit issuing agency up to daily quota limitations established by the Department and shall be based on registered fee-paid acres and shall be issued in accordance with the priorities established by sub-section 26-010(1) of these rules, except that fourth priority burning shall not be permitted from July 15 to September 15 of any year unless specifically authorized by the Department.

(6) No local fire permit issuing agency shall authorize open field burning of more acreage than may be sub-allocated annually to the District by the Department pursuant to Section 26-013(5) of these rules.

26-013 LIMITATION AND ALLOCATION OF ACREAGE TO BE OPEN BURNED. (1) Maximum acreage to be open burned under these rules each year shall not exceed the following:

(a) During 1975, not more than 235,000 acres.

(b) During 1976, not more than 195,000 acres.

(c) During 1977, not more than 95,000 acres.

(d) In 1978 and each year thereafter, the Commission, after taking into consideration the factors listed in sub-section (2) of ORS 468.460, may by order issue permits for the burning of not more than 50,000 acres.

(2) On or before May 1 of any year, the Commission shall seek certification from the Field Sanitation Committee of the numbers of acres that can be sanitized by feasible alternative methods and the Committee's recommendations as to the general location and types of fields to be sanitized utilizing feasible alternative methods.

(3) On or before July 10, 1975 and June 1 of each subsequent year, the Commission shall, after public hearing, establish an allocation of registered acres that can be open burned that year. In establishing said acreage allocation, the Commission shall consult with OSU and the Oregon Field Sanitation Committee and may consult with other interested agencies and shall, pursuant to ORS 468.460(2) and ORS 468.475(4) consider means of more rapid reduction of acres burned each year than provided by ORS 468.475(2).

(4) Acres burned on any day by /~~mobile~~/ approved field /~~incinerators~~/ sanitizers /~~approved by the Department~~/shall not be

applied to open field burning acreage allocations or quotas, and such sanitizers /~~incinerators~~/ may be operated under either marginal or prohibition conditions.

(5) In the event that more than 235,000 acres are registered to be open burned in 1975, the Department shall make an effort to obtain voluntary reductions in the acres registered. If by July 17, 1975, sufficient voluntary reductions are not realized, the Department shall sub-allocate the total acreage allocation established by the Commission to the respective fire permit issuing agencies on the basis of the acreage registered within each fire permit issuing agency jurisdiction as of July 10, 1975, to the total acreage registered as of July 10, 1975.

(6) The Department may authorize burning on an experimental basis, and may also, on a fire district by fire district basis, issue limitations more restrictive than those contained in these regulations when in their judgment it is necessary to attain air quality.

26-015 WILLAMETTE VALLEY SUMMER BURNING SEASON REGULATIONS. (1) Classification of Atmospheric Conditions. All days will be classified as marginal or prohibition days under the following criteria:

(a) Marginal Class N conditions: Forecast northerly winds and maximum mixing depth greater than 3500 feet.

(b) Marginal Class S conditions: Forecast southerly winds.

(c) Prohibition conditions: Forecast northerly winds and maximum mixing depth 3500 feet or less.

(2) Quotas.

(a) Except as provided in this subsection, the total acreage of permits for open field burning shall not exceed the amount authorized by the Department for each marginal day. Daily authorizations of acreages shall be issued in terms of basic quotas or priority area quotas as listed in Table I, attached as Exhibit A and incorporated by reference into this regulation and schedule, and defined as follows:

(A) The basic quota represents the number of acres to be allowed throughout a permit jurisdiction, including fields located in priority areas, on a marginal day on which general burning is allowed in that jurisdiction.

(B) The priority area quota represents the number of acres allowed within the priority areas of a permit jurisdiction on a marginal day when only priority area burning is allowed in that jurisdiction.

(b) ~~All~~ Willamette Valley permit agencies or agents not specifically named in Table I shall have a basic quota and priority area quota of 50 acres/./only if they have registered acreage to be burned within their jurisdiction.

(c) In no instance shall the total acreage of permits issued by any permit issuing agency or agent exceed that allowed by the Department for the marginal day, except as provided for 50 acre quotas as follows: When the established daily acreage quota is 50 acres or less, a permit may be issued to include all the acreage in one field providing that field does not exceed 100 acres and provided further that no other permit is issued for that day. For those districts with a 50 acre quota, permits for more than 50 acres shall not be issued on 2 consecutive days.

(d) The /~~staff of the~~/Department /~~of Environmental Quality~~/ may designate additional areas as Priority Areas, and may adjust the basic acreage quotas or priority area quotas of any permit jurisdiction, where conditions in their judgment warrant such action.

(3) Burning Hours. Burning may begin at 9:30 a.m. PDT, and all fires must be out by one hour after sunset. Burning hours may be reduced by the fire chief or his deputy when necessary to protect from danger by fire.

(4) Extent and Type of Burning.

(a) Prohibition. Under prohibition conditions no fire permits or validation numbers for agricultural open burning shall be issued and no burning shall be conducted, except where an auxiliary liquid or gaseous fuel is used such that combustion is essentially complete, or /~~a mobile field incinerator approved by the Department~~/ an approved field sanitizer is used.

(b) Marginal Class N Conditions. Unless specifically authorized by the Department, on days classified as Marginal Class N burning shall be limited to the following:

(A) North Valley: one basic quota may be issued in accordance with Table I.

(B) South Valley: one priority area quota for priority area burning may be issued in accordance with Table I.

(c) Marginal Class S Conditions. Unless specifically authorized by the Department on days classified as Marginal Class S conditions, burning shall be limited to the following:

(A) North Valley: One basic quota may be issued in accordance with Table I in the following permit jurisdictions: Aumsville, Drakes Crossing, Marion County District 1, Silverton, Stayton, Sublimity, and the Marion County portion of the Clackamas-Marion Forest Protection District. One priority area quota may be issued in accordance with Table I for priority area burning in all other North Valley jurisdictions.

(B) South Valley: One basic quota may be issued in accordance with Table I.

(d) Special Restrictions on Priority Area Burning. No field may be burned on the upwind side of any city, airport, or highway within a priority area.

TABLE I

FIELD BURNING ACREAGE QUOTAS

NORTH VALLEY AREAS

County	Basic Quota (Acres)	Priority Area Quota (Acres)
Clackamas:		
Estacada	100	0
Monitor	100	0
All other permit issuing agencies	50	50
Marion:		
Aumsville	75	0
Marion #1 (Four corners, Brooks, Keizer)	75	50
Jefferson	175	50
St. Paul	100	50

TABLE 1 (Cont.)

County	Basic Quota (Acres)	Priority Area Quota (Acres)
Marion (cont):		
Silverton	275	0
Stayton	150	0
Sublimity	250	0
Woodburn	100	50
All other permit issuing agencies	50	50
Polk:		
Southeast Polk	225	50
Southwest Polk	200	50
Washington:		
All permit issuing agencies	50	50
Yamhill:		
McMinnville	75	50
All other permit issuing agencies	50	50
SOUTH VALLEY AREAS		
Benton:		
County jurisdiction	400	50
State Forestry jurisdiction	125	0
Corvallis	275	50
Monroe	275	50
Philomath	150	0
North Albany, Palestine	included in Albany quota	
All other permit issuing agencies	50	50
Lane:		
Alvadore	125	0
Coburg	100	50
Creswell	75	50
Irving	200	100
Junction City	250	50
Unprotected	110	50
All other permit issuing agencies	50	50
Linn:		
Albany	650	125
Brownsville	775	50
Halsey-Shedd	2150	150
Harrisburg	1475	100
Lebanon	950	50
Scio	150	0
Tangent	1050	50
All other permit issuing agencies	50	50

County/Fire District North Valley Counties	Quota Basic	 Priority
Clackamas County		
Canby RFPD	50	50
Clackamas County #54	50	0
Clackamas - Marion FPA	50	0
Estacada RFPD	75	0
Molalla RFPD	50	0
Monitor RFPD	50	0
Scotts Mills RFPD	50	0
Total	375	50
Marion County		
Aumsville RFPD	50	0
Aurora-Donald RFPD	50	50
Drakes Crossing RFPD	50	0
Hubbard RFPD	50	0
Jefferson RFPD	225	50
Marion County #1	100	50
Marion County Unprotected	50	50
Mt. Angel RFPD	50	0
St. Paul RFPD	125	0
Salem City	50	50
Silverton RFPD	300	0
Stayton RFPD	150	0
Sublimity RFPD	250	0
Turner RFPD	50	50
Woodburn RFPD	125	50
Total	1675	350

County/Fire District	Quota Basic	Quota Priority
North Valley Counties		
Polk County		
Polk County Non-District	50	0
Southeast Rural Polk	400	50
Southwest Rural Polk	125	50
Total	575	100
Washington County		
Cornelius RFPD	50	50
Forest Grove RFPD	50	0
Forest Grove, State Forestry	50	0
Hillsboro	50	50
Washington County FPD #1	50	50
Washington County FPD #2	50	50
Total	300	200
Yamhill County		
Amity RFPD	125	50
Carlton RFPD	50	50
Dayton RFPD	50	50
Dundee RFPD	50	
McMinnville RFPD	150	75
Newberg RFPD	50	0
Sheridan RFPD	75	50
Yamhill RFPD	50	0
Total	600	275
North Valley Total	3575	975

SOUTH VALLEY AREAS

County/Fire District South Valley Counties	Quota Basic	Priority
Benton County		
County Non-District & Adair	350	175
Corvallis RFPD	175	125
Monroe RFPD	325	50
Philomath RFPD	125	100
Western Oregon FPD	100	50
Total	1075	500
Lane County		
Coburg RFPD	175	50
Creswell RFPD	75	100
Eugene RFPD (Zumwalt RFPD)	50	50
Junction City RFPD	325	50
Lane County Non-District	100	50
Lane County RFPD #1	350	50
Santa Clara RFPD	50	50
Thurston-Waterville	50	50
West Lane FPD	50	0
Total	1225	450
Linn County		
Albany RFPD (inc. N. Albany, Palestine, Co. Unprotected Areas)	625	125
Brownsville RFPD	750	50
Halsey-Shedd RFPD	2050	200
Harrisburg RFPD	1350	50
Lebanon RFPD	325	325
Lyons RFPD	50	0
Scio RFPD	175	0
Tangent RFPD	925	325
Total	6250	1075
South Valley Total	8550	2025

26-020 WINTER BURNING SEASON REGULATIONS. (1) Classification of atmospheric conditions:

(a) Atmospheric conditions resulting in computed air pollution index values in the high range, values of 90 or greater, shall constitute prohibition conditions.

(b) Atmospheric conditions resulting in computed air pollution index values in the low and moderate ranges, values less than 90, shall constitute marginal conditions.

(2) Extent and Type of Burning.

(a) Burning Hours. Burning hours for all types of burning shall be from 9:00 a.m. until 4:00 p.m., but may be reduced when deemed necessary by the fire chief or his deputy. Burning hours for stumps may be increased if found necessary to do so by the permit issuing agency. All materials for burning shall be prepared and the operation conducted, subject to local fire protection regulations, to insure that it will be completed during the allotted time.

(b) Certain Burning Allowed Under Prohibition Conditions. Under prohibition conditions no permits for agricultural open burning may be issued and no burning may be conducted, except where an auxiliary liquid or gaseous fuel is used such that combustion is essentially complete, or /a/ an /~~mobile-field-incinerator~~/ approved /~~by-the-Department~~/ field sanitizer is used.

(c) Priority for Burning on Marginal Days. Permits for agricultural open burning may be issued on each marginal day in each permit jurisdiction in the Willamette Valley, following the priorities set forth in ORS /~~449.840~~/ 468.450 which gives perennial grass seed fields used for grass seed production first priority, annual grass seed fields used for grass seed production second priority, grain fields third priority and all other burning fourth priority.

26-025 CIVIL PENALTIES. In addition to any other penalty provided by law: (1) Any person who intentionally or negligently causes or permits open field burning contrary to the provisions of ORS 468.450, 468.455 to 468.485, 476,380 and 478.960 shall be assessed by the Department a civil penalty of at least $20, but not more than $40 for each acre so burned.

(2) Any person planting contrary to the restrictions of subsection (1) of ORS 468.465 shall be assessed by the Department a civil penalty of $25 for each acre planted contrary to the restrictions.

(3) Any person who violates any requirement of these rules shall be assessed a civil penalty pursuant to OAR Chapter 340, Division 1, Sub-Division 2, CIVIL PENALTIES.

ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

MEMORANDUM

To: Environmental Quality Commission

FROM: Director

SUBJECT: Agenda Item J, June 27, 1975, EQC Meeting

Field Burning Acreage Allocation and Proposed Rules

I. Background

The open burning of grass fields in the Willamette Valley has in the past been managed under a statutorily established field burning program which in addition to the Department responsibilities relied upon cooperative efforts of the State Fire Marshal, local fire permit issuing agents, the Field Burning Committee, the Seed Council, and the individual grower. The Department's primary responsibilities under existing statutes, ORS 468.450 through 468.485 involved the issuance of the daily advisories relative to burning of fields to the State Fire Marshal, tabulation of the weekly burning statistics and the preparation of the annual field burning report. The communication systems, sky-watch by aircraft, fire permit issuance coordination and other support services necessary to the operation of the smoke management system has been the responsibility of the Seed Council.

The permit required under this system was solely a fire control permit.

Existing law ORS 468.475 bans open burning of perennial and annual grass seed crops used for grass seed production after January 1, 1975 in Benton, Clackamas, Lane, Linn, Marion, Multnomah, Polk, Washington and Yamhill Counties.

The 58th Legislative Assembly recently passed SB 311 which, if it becomes law, will amend sections of ORS 468 dealing with field burning and lift the January 1, 1975 ban on open field burning.

II. DISCUSSION

A. SB 311

SB 311 as passed by the 1975 Oregon Legislature provides the following significant changes to the current law:

1. Lifts the ban on open burning of grass seed fields in the Willamette Valley;

2. Provides for a phased reduction which specifies the maximum allowable acreages by year that can be open burned;

   a) During 1975, not more than 235,000 acres may be burned.

   b) During 1976, not more than 195,000 acres may be burned.

   c) During 1977, not more than 95,000 acres may be burned.

   d) During 1978, and each year thereafter, the Commission, after taking into consideration the factors listed in subsection (2) of ORS 468.460, may by order issue permits for the burning of not more than 50,000 acres;

3. Provides for the issuance of an open field burning permit by the Department in the nine valley counties;

4. Specifies the registration fee by year;

5. Specifies the responsibilities of the Commission, the Department, Executive Department, Oregon Field Sanitation Committee, Seed Council and fire permit issuing agencies; and

6. Creates the Oregon Field Sanitation Committee to replace the present Field Burning Committee.

B. RESPONSIBILITY

The specific duties of those agencies and groups involved in the open field burning program are as follows:

1. Environmental Quality Commission:

   a) "In such areas of the state and for such periods of time as it considers necessary to carry out the policy of ORS 468.280, the Commission by rule may prohibit, restrict or limit classes, types and extent and amount of burning for perennial grass seed crops, annual grass seed crops, and grain crops."

b) In addition to but not in lieu of the provisions of ORS 468.475 and of any other rule adopted under Section 5, Subsection (1) of SB 311, "the Commission shall adopt rules for Multnomah, Washington, Clackamas, Marion, Polk, Yamhill, Linn, Benton and Lane Counties, which provide for a more rapid phased reduction by certain permit areas, depending on particular local air quality conditions and soil characteristics, the extent, type or amount of open field burning of perennial grass seed crops, annual grass seed crops, and grain crops and the availability of alternative methods of field sanitation and straw utilization and disposal."

c) Before promulgating rules, the Commission must consult with Oregon State University and the Field Sanitation Committee and may consult with other agencies as specified in Section 5 (3) of SB 311.

d) Establish emission standards for certified alternative methods to open field burning.

e) Establish annually the allowable acreage that can be open burned, up to the maximum allowable statutory limit, after appropriate consultations and hearings.

f) The Commission shall report to the Fifty-ninth Legislative Assembly (1977) their recommendations for possible modifications to the allowable burn acreages.

2. The Department shall:

a) Enforce all field burning rules adopted by the Commission and all related statutes;

b) Monitor and prevent unlawful field burning;

c) Aid fire districts in carrying out their responsibilities for administering field sanitation programs;

d) Issue open field burning permits in conjunction with required fire permits for burning conducted within the nine county area of the Willamette Valley;

e) Inspect cereal grain crop acreage burned after planting in the following spring to determine compliance with the statute and regulation; and

f) Contract with the Oregon Seed Council to provide specified elements of the smoke management program.

3. The Executive Department shall:

   a) Collect field burning fees;

   b) Disburse funds as specified by SB 311;

   c) Refund fees as prescribed by SB 311; and

   d) Approve specified actions by the Field Sanitation Committee.

4. The Field Sanitation Committee shall:

   a) Make recommendations to the EQC as specified by SB 311;

   b) Assume the responsibilities formerly held by the Field Burning Committee including:

      1) Monitor and conduct programs for development of feasible alternative methods of field sanitation and straw utilization and disposal;

      2) Make recommendations for research and development of alternative methods;

      3) Provide assistance to persons wishing to obtain the use of feasible methods of field sanitation and straw utilization and disposal and, in so doing, assist in purchasing, purchase and lease to users, and promote extensive use of such methods;

      4) Receive and disburse funds, including but not limited to voluntary contributions from within and outside this state, grants and gifts; and

      5) Report quarterly to the Legislative Committee on Trade and Economic Development on the progress being made in discovering and utilizing alternatives to open field burning.

   c) Subject to the approval of the Executive Department, the committee may:

      1) Enter into contracts with public and private agencies to carry out the purposes of demonstration of alternatives to agricultural open field burning;

      2) Apply for and obtain patents in the name of the State of Oregon and assign such rights therein as the committee considers appropriate;

3) Employ such personnel as is required to carry out the duties assigned to it; and

4) Sell and dispose of all surplus property of the committee, including but not limited to straw-based products produced or manufactured by the committee.

5. The Seed Council may contract with the Department to provide specified elements of the smoke management program.

6. The local fire permit issuing agent:

a) Must issue fire permits; and

b) May act as agent for;

1) The collection of fees; and

2) The delivery of open field burning permits.

C. Proposed Revisions to Current Rules, OAR Chapter 340 20-005 through 20-020.

The general content of the previous regulation has been retained, however, additions have been made to conform to the provisions of Senate Bill 311. The changes are summarized as follows:

1. Definitions were expanded to include new terminology;

2. Rules are proposed governing the process of issuing and delivering permits required by the bill;

3. Limitations and procedures for reduction of open burned acreages in the Willamette Valley are proposed; and

4. Provision is made for civil penalties stipulated by the bill.

D. 1975 FIELD BURNING PROGRAM

As noted SB 311 delineates several elements not previously included in the field burning program.

In an effort to outline procedures involved in the 1975 field burning program, the following walk through is provided.

1. Step 1: The grower applicant registers fields to be burned with the local fire permit issuing agent by providing required information on a Field Burning Registration/Application form provided by the Department.

2. Step 2: The grower applicant retains one copy of the Field Burning Registration/Application form; the fire permit issuing agent retains one copy of the form, forwards the original to the Department, and forwards a copy to the Executive Department.

3. Step 3: The Executive Department sends daily lists to the Department confirming the payment of acreage burning fees. Fees paid at later dates will be recorded on receipt forms provided by the Executive Department and will be distributed to appropriate offices.

4. Step 4: The Department totals the registered acres by crop type, Fire District, County, North and South Valley, and other appropriate classifications.

5. Step 5: The Commission conducts hearings as appropriate to receive testimony as specified and determines the acreage allocation.

6. Step 6: The allocation of open field burning acreage for the Valley is prorated to each fire district as warranted by findings.

7. Step 7: The Department issues open field burning permits to individual growers for registered acreage within the acreage allocation established. Copies of the open field burning permits are sent to the applicant and to the appropriate local fire permit issuing agency. Permits are not valid until acreage fees are paid and a validation number is assigned by the local fire permit issuing agent.

8. Step 8: The process is then complete until the Department determines that meteorological conditions are satisfactory to burn and notifies the State Fire Marshal of the number of quotas to be burned for the various sections of the Valley.

9. Step 9: The State Fire Marshal notifies the local fire permit issuing agencies of burn authorization.

10. Step 10: The local fire permit issuing agencies assign validation numbers up to their allowed daily quotas for fields which have been registered, paid their acreage fees and have been issued an open field burning permit. If a field is not burned on the day the validation number is issued, the grower must notify the fire permit issuing agent within 24 hours and another validation number may be assigned.

11. Step 11: Daily burning records are maintained by each fire permit issuing agent and forwarded to the Department on a weekly basis.

12. Step 12: The Department and local fire permit issuing agencies maintain updated burning records.

13. Step 13: The grower applicant may apply to the Executive Department for a refund of acreage fees for fields not burned or burned by approved alternative methods.

Open Field Burning permits may be issued by the Department for fields that are registered late, up to the allowable burning allocation or in direct proportion to other acreage registrations withdrawn. Late registrations must be approved by the Department and may be assessed an additional late registration fee.

A flow diagram showing the essential elements of the field burning program is attached.

On June 20, 1975, the Department's staff met with representatives of the following agencies as specified in Section 4, Subsection (3) of SB 311 to discuss their respective roles regarding allocations of acreages should the registered acreage exceed that allowable.

Oregon State University
Agricultural Extension Service
Department of Crop Service

Oregon State University
Department of Crop Science

Oregon State University
School of Agriculture

Oregon State University
Dept. of Botany and Plant Pathology

Oregon Field Sanitation Committee

Oregon Seed Council

Soil and Water Conservation Commission

Department of Agriculture

Soul Conservation Service

Agricultural Stabilization Commission

The Department concluded from this meeting that there was insufficient time in 1975 to gain significant information from these agencies. The Field Burning committee commented that machine sanitized fields will not be significant this year and therefore should not be considered in the allocation of acreage.

These agencies have agreed to submit their comments and have been asked to participate at the public hearing on July 10, 1975.

III. CONCLUSIONS

If SB 311 becomes law:

1) All acreages to be burned in the nine county area of the Willamette Valley in 1975 must be registered on or before July 1, 1975.

2) The Commission must adopt rules and establish 1975 open field burning acreage allocations after consulting with Oregon State University and the Oregon Field Sanitation Committee and other interested agencies, and shall issue permits for the maximum acreage allowed only if the Commission finds after hearing that:

   a) There are insufficient numbers of workable machines that can reasonably be made available to sanitize the acreage if an acreage reduction is ordered;

   b) There are insufficient methods available for straw utilization and disposal; and

   c) Reasonable efforts have been made to develop alternative methods of field sanitation and straw utilization and disposal, and such methods have been utilized to the maximum reasonable extent.

IV. DIRECTOR'S RECOMMENDATION

It is the recommendation of the Director that a public hearing before the Environmental Quality Commission be authorized for 10:00 a.m. on Thursday, July 10, 1975, at the Auditorium of the Employment Building, 875 Union Street, N.E., Salem, Oregon for the purpose of carrying out the Commission's responsibilities under SB 311, should the bill become law and is prerequisite to the allocation of allowable burn acreages and the consideration for adoption of temporary open field burning rules.

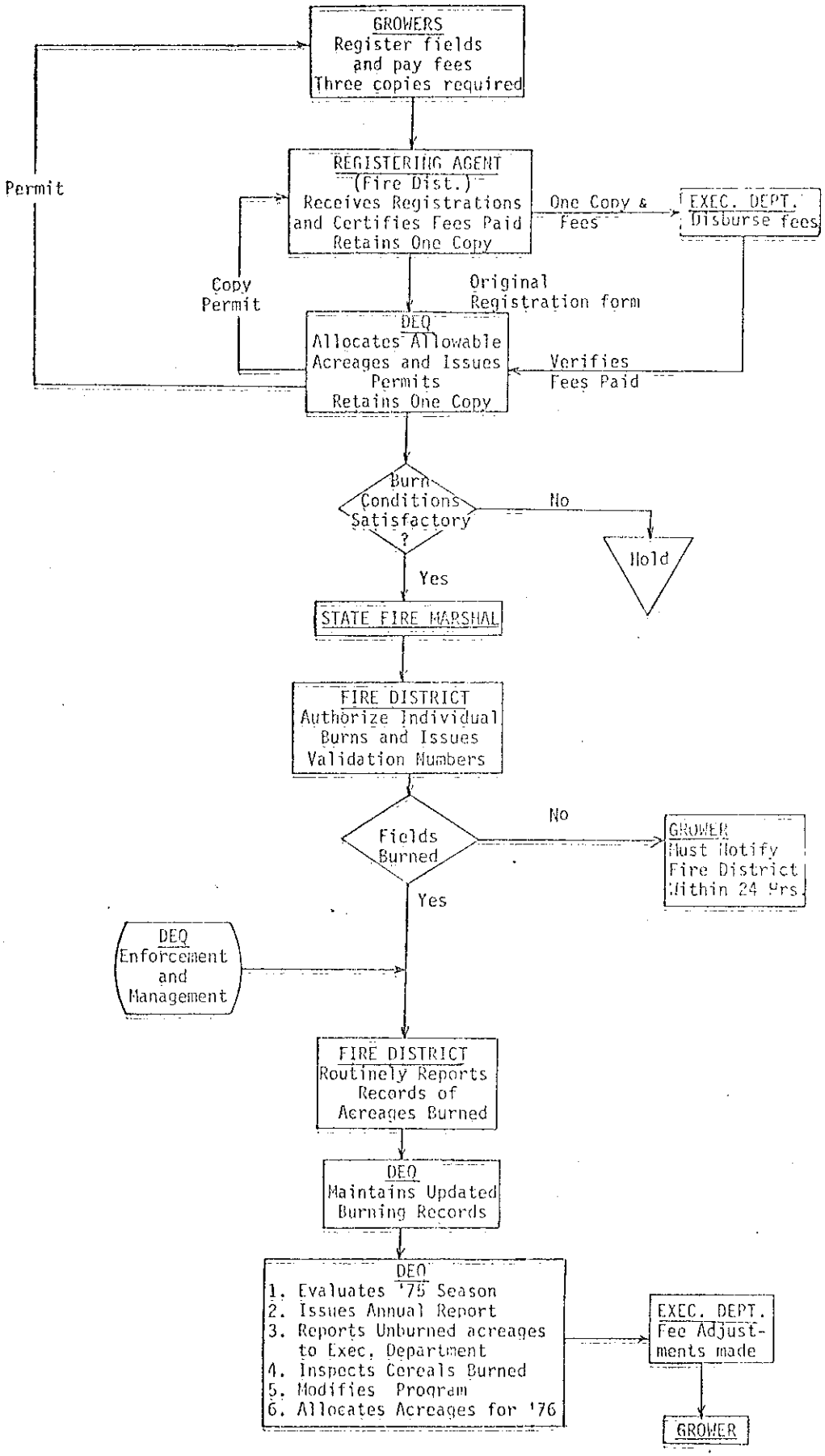
Carried

KESSLER R. CANNON
Director

RLV:pd

Attachments
Open Field Burning Program - Flow Diagram
Proposed Amended Rules, OAR Chapter 340, Section 20-005 through 20-020
Field Burning Registration/Application Form
Cereal Acreage Field Burning Registration/Application Form
C-Engrossed SB 311

OPEN FIELD BURNING PROGRAM



6/26/75

Subdivision 6

Agricultural Operations

AGRICULTURAL ~~FIELD~~ BURNING

[ED. NOTE: Unless otherwise specified sections 26-005 through 26-020 of this chapter of the Oregon Administrative Rules Compilation were adopted by the Environmental Quality Commission June 4, 1971 and filed with the Secretary of State July 12, 1971 as DEQ 29, effective July 12, 1971. Repeals SA 46, 52 and DEQ 13.]

26-005 DEFINITIONS. As used in this general order, regulation and schedule, unless otherwise required by context:

(1) Burning seasons:

(a) "Summer Burning Season" means the four month period from July 1 through October 31.

(b) "Winter Burning Season" means the eight month period from November 1 through June 30.

(2) "Department" means the Department of Environmental Quality.

(3) "Marginal Conditions" means conditions defined in ORS 468.450(1) ~~449.840~~ under which permits for agricultural open burning may be issued in accordance with this regulation and schedule.

(4) "Northerly Winds" means winds coming from directions in the north half of the compass, at the surface and aloft.

(5) "Priority Areas" means the following areas of the Willamette Valley:

(a) Areas in or within 3 miles of the city limits of incorporated cities having populations of 10,000 or greater.

(b) Areas within 1 mile of airports serving regularly scheduled airline flights.

(c) Areas in Lane County south of the line formed by U.S. Highway 126 and Oregon Highway 126.

(d) Areas in or within 3 miles of the city limits of the City of Lebanon.

(e) Areas on the west side of and within 1/4 mile of these highways; U.S. Interstate 5, 99, 99E and 99W. Areas on the south side of and within 1/4 mile of U.S. Highway 20 between Albany and Lebanon, Oregon Highway 34 between Lebanon and Corvallis, and Oregon Highway 228 from its junction south of Brownsville to its rail crossing at the community of Tulsa.

(6) "Prohibition Conditions" means atmospheric conditions under which all agricultural open burning is prohibited (except where an auxiliary fuel is used such that combustion is nearly complete, or ~~a mobile field incinerator approved by the Department is used~~) an approved sanitizer is used.

(7) "Southerly Winds means winds coming from directions in the south half of the compass, at the surface and aloft.

(8) "Willamette Valley" means the areas of Benton, Clackamas, Lane, Linn, Marion, Polk, Washington and Yamhill Counties lying between the crest of the Coast Range and the crest of the Cascade Mountains, and includes the following:

(a) "South Valley", the areas of jurisdiction of all fire permit issuing agents or agencies in the Willamette Valley portions of the Counties of Benton, Lane or Linn.

(b) "North Valley", the areas of jurisdiction of all other fire permit issuing agents or agencies in the Willamette Valley.

(9) "Commission" means the Environmental Quality Commission.

(10) "local fire permit issuing agency" means the County Court or Board of County Commissioners or Fire Chief of a Rural Fire Protection District or other person authorized to issue fire permits pursuant to ORS 477.515, 477.530, 476.380 or 478.960.

(11) "open field burning permit" means a permit issued by the Department pursuant to Section 2 of SB 311.

(12) "fire permit" means a permit issued by a local fire permit issuing agency pursuant to ORS 477.515, 477.530, 476.380 or 478.960.

(13) "validation number" means a unique two-part number issued by a local fire permit issuing agency which validates a specific open field burning permit for a specific field on a specific day. The first part of the validation number shall indicate the number of the month and the day of issuance and the second part the hour of authorized burning based on a 24 hour clock. (e.g. a validation number issued Aug. 26 at 2:30 p.m. would be 826-1430.)

(14) "open field burning" means burning of any perennial grass seed field, annual grass seed field or cereal grain field in such manner that combustion air and combustion products are not effectively controlled. Field burning utilizing a device other than an approved field sanitizer shall constitute open field burning.

(15) "approved field sanitizer" means any field burning device that has been approved by the Field Sanitation Committee and the Department as a feasible alternative to open field burning.

26-010 GENERAL PROVISIONS. The following provisions apply during both the summer and winter burning seasons in the Willamette Valley unless otherwise specifically noted.

(1) Priority for Burning. On any marginal day, priorities for agricultural open burning shall follow those set forth in ORS 468.450 /~~449.840~~/ which give perennial grass seed fields used for grass seed production first priority, annual grass seed fields used for grass seed production second priority, grain fields third priority and all other burning fourth priority.

(2) Permits/~~:~~/ Required.

/~~(a) No permit shall be issued for burning with equipment using liquified petroleum gas unless such equipment complies in full with the applicable laws, rules and regulations of the Office of the State Fire Marshal.~~/

/~~(b) As provided in Chapter 434, Oregon Laws, 1971, permits for open field burning of cereal grain crops shall only be issued under ORS 476.380 and 478.960 if the person seeking the permit submits to the issuing authority a signed statement under oath or affirmation that the acreage to be burned will be planted to fall legumes or perennial grasses;~~/

/~~(c) No permit issuing agency or other person authorized to grant agricultural open burning permits pursuant to ORS 478.960 and 476.380 shall give oral permission to conduct burning and all permits shall be issued in writing, on a day to day basis and shall be issued in accordance with the limits of extent, time and type of burning set forth in these regulations;~~/

/~~(d) Any person granted a permit for agricultural open burning shall maintain a copy of said permit at the burning site during the burning operation, for inspection by appropriate authorities;~~/

(a) No person shall conduct open field burning within Benton, Clackamas, Lane, Linn, Marion, Multnomah, Polk, Washington and Yamhill Counties without first obtaining a valid open field burning permit from the Department and a fire permit and validation number from the local fire permit issuing agency for any given field for the day that the field is to be burned.

(b) Applications for open field burning permits shall be filed on Registration/Application forms provided by the Department.

(c) Open field burning permits issued by the Department are not valid until acreage fees are paid pursuant to ORS 468.430(1)(b) and a validation number is obtained from the appropriate local fire permit issuing agency for each field on the day that field is to be burned.

(d) As provided in ORS 468.465(1), permits for open field burning of cereal grain crops shall be issued only if the person seeking the permit submits to the issuing authority a signed statement under oath or affirmation that the acreage to be burned will be planted to seed crops other than cereal grains which require flame sanitation for proper cultivation.

(e) Any person granted an open field burning permit under these rules shall maintain a copy of said permit at the burn site at all times during the burning operation and said permit shall be made available for at least one year after issuance for inspection upon request by appropriate authorities.

/~~(e) The staff of the Department of Environmental Quality may authorize burning on an experimental basis, and may also, on a fire district by fire district basis, issue limitations more restrictive than those contained in these regulations when in their judgment it is necessary to attain air quality;~~/

(f) At all times proper and accurate records of permit transactions and copies of all permits /~~granted~~/ shall be maintained by each /~~permit issuing~~/ agency or person /~~authorized to grant~~/ involved in the issuance of permits, for inspection by the proper authority. /~~No permit transaction shall be deemed completed until confirmation of actual date, time, and amount of burning conducted under said permit is furnished to the permit issuing agents. No person shall be granted additional permits until confirmation of outstanding permits is received. Such confirmation shall be on a day to day basis;~~/

(g) Permit agencies or persons authorized to /grant/participate in the issuance of permits shall submit to the Department /of Environmental Quality/, on forms provided, weekly summaries of field burning permit data, during the period July 1 - October 15.

(h) All debris, cutting and prunings shall be dry, cleanly stacked and free of dirt and green material prior to being burned, to insure as nearly complete combustion as possible.

(i) No substance or material which normally emits dense smoke or obnoxious odors may be used for auxiliary fuel in the igniting of debris, cutting or prunings.

(j) Use of /mobile/ approved field sanitizers /incinerators approved by the Department/ shall require a /burning/ fire permit, and permit agencies or agents shall keep up-to-date records of all acreages burned by such /incinerators/ sanitizers. /Acres burned on any day by mobile field incinerators approved by the Department shall not be applied to open field burning acreage quotas, and such incinerators may be operated under either final or prohibition conditions./

26-012 REGISTRATION AND AUTHORIZATION OF ACREAGE TO BE OPEN BURNED. (1) On or before July 1, 1975 and on or before April 1 of each subsequent year, all acreages to be open burned under this rule shall be registered with the local fire permit issuing agency or its authorized representative.

(2) Registration of acreage after July 1, 1975 and after April 1 of each subsequent year, shall require:

(a) Approval of the Department,

(b) An additional late registration fee of $1 per acre if the late registration is determined by the Department to be the fault of the late registrant.

(3) Copies of all Registration/Application forms shall be forwarded to the Department promptly by the local fire permit issuing agency.

(4) The local fire permitting agency shall maintain a record of all registered acreage by assigned field number, location, type of crop, number of acres to be burned and status of fee payment for each field.

(5) Burn authorizations shall be issued by the local fire permit issuing agency up to daily quota limitations established by the Department and shall be based on registered fee-paid acres and shall be issued in accordance with the priorities established by sub-section 26-010(1) of these rules, except that fourth priority burning shall not be permitted from July 15 to September 15 of any year unless specifically authorized by the Department.

(6) No local fire permit issuing agency shall authorize open field burning of more acreage than may be sub-allocated annually to the District by the Department pursuant to Section 26-013(5) of these rules.

26-013 LIMITATION AND ALLOCATION OF ACREAGE TO BE OPEN BURNED. (1) Maximum acreage to be open burned under these rules each year shall not exceed the following:

(a) During 1975, not more than 235,000 acres.

(b) During 1976, not more than 195,000 acres.

(c) During 1977, not more than 95,000 acres.

(d) In 1978 and each year thereafter, the Commission, after taking into consideration the factors listed in sub-section (2) of ORS 468.460, may by order issue permits for the burning of not more than 50,000 acres.

(2) On or before May 1 of any year, the Commission shall seek certification from the Field Sanitation Committee of the numbers of acres that can be sanitized by feasible alternative methods and the Committee's recommendations as to the general location and types of fields to be sanitized utilizing feasible alternative methods.

(3) On or before July 10, 1975 and June 1 of each subsequent year, the Commission shall, after public hearing, establish an allocation of registered acres that can be open burned that year. In establishing said acreage allocation, the Commission shall consult with OSU and the Oregon Field Sanitation Committee and may consult with other interested agencies and shall, pursuant to ORS 468.460(2) and ORS 468.475(4) consider means of more rapid reduction of acres burned each year than provided by ORS 468.475(2).

(4) Acres burned on any day by /mobile/ approved field /incinerators/ sanitizers /approved by the Department/ shall not be

applied to open field burning acreage allocations or quotas, and such sanitizers /~~incinerators~~/ may be operated under either marginal or prohibition conditions.

(5) In the event that more than 235,000 acres are registered to be open burned in 1975, the Department shall make an effort to obtain voluntary reductions in the acres registered. If by July 17, 1975, sufficient voluntary reductions are not realized, the Department shall sub-allocate the total acreage allocation established by the Commission to the respective fire permit issuing agencies on the basis of the acreage registered within each fire permit issuing agency jurisdiction as of July 10, 1975, to the total acreage registered as of July 10, 1975.

(6) The Department may authorize burning on an experimental basis, and may also, on a fire district by fire district basis, issue limitations more restrictive than those contained in these regulations when in their judgment it is necessary to attain air quality.

26-015 WILLAMETTE VALLEY SUMMER BURNING SEASON REGULATIONS. (1) Classification of Atmospheric Conditions. All days will be classified as marginal or prohibition days under the following criteria:

(a) Marginal Class N conditions: Forecast northerly winds and maximum mixing depth greater than 3500 feet.

(b) Marginal Class S conditions: Forecast southerly winds.

(c) Prohibition conditions: Forecast northerly winds and maximum mixing depth 3500 feet or less.

(2) Quotas.

(a) Except as provided in this subsection, the total acreage of permits for open field burning shall not exceed the amount authorized by the Department for each marginal day. Daily authorizations of acreages shall be issued in terms of basic quotas or priority area quotas as listed in Table I, attached as Exhibit A and incorporated by reference into this regulation and schedule, and defined as follows:

(A) The basic quota represents the number of acres to be allowed throughout a permit jurisdiction, including fields located in priority areas, on a marginal day on which general burning is allowed in that jurisdiction.

(B) The priority area quota represents the number of acres allowed within the priority areas of a permit jurisdiction on a marginal day when only priority area burning is allowed in that jurisdiction.

(b) ~~All~~ Willamette Valley permit agencies or agents not specifically named in Table I shall have a basic quota and priority area quota of 50 acres/./only if they have registered acreage to be burned within their jurisdiction.

(c) In no instance shall the total acreage of permits issued by any permit issuing agency or agent exceed that allowed by the Department for the marginal day, except as provided for 50 acre quotas as follows: When the established daily acreage quota is 50 acres or less, a permit may be issued to include all the acreage in one field providing that field does not exceed 100 acres and provided further that no other permit is issued for that day. For those districts with a 50 acre quota, permits for more than 50 acres shall not be issued on 2 consecutive days.

(d) The /~~staff of the~~/Department ~~of Environmental Quality~~/may designate additional areas as Priority Areas, and may adjust the basic acreage quotas or priority area quotas of any permit jurisdiction, where conditions in their judgment warrant such action.

(3) Burning Hours. Burning may begin at 9:30 a.m. PDT, and all fires must be out by one hour after sunset. Burning hours may be reduced by the fire chief or his deputy when necessary to protect from danger by fire.

(4) Extent and Type of Burning.

(a) Prohibition. Under prohibition conditions no fire permits or validation numbers for agricultural open burning shall be issued and no burning shall be conducted, except where an auxiliary liquid or gaseous fuel is used such that combustion is essentially complete, or /~~a mobile field incinerator approved by the Department~~/ an approved field sanitizer is used.

(b) Marginal Class N Conditions. Unless specifically authorized by the Department, on days classified as Marginal Class N burning shall be limited to the following:

(A) North Valley: one basic quota may be issued in accordance with Table I.

(B) South Valley: one priority area quota for priority area burning may be issued in accordance with Table I.

(c) Marginal Class S Conditions. Unless specifically authorized by the Department on days classified as Marginal Class S conditions, burning shall be limited to the following:

(A) North Valley: One basic quota may be issued in accordance with Table I in the following permit jurisdictions: Aumsville, Drakes Crossing, Marion County District 1, Silverton, Stayton, Sublimity, and the Marion County portion of the Clackamas-Marion Forest Protection District. One priority area quota may be issued in accordance with Table I for priority area burning in all other North Valley jurisdictions.

(B) South Valley: One basic quota may be issued in accordance with Table I.

(d) Special Restrictions on Priority Area Burning. No field may be burned on the upwind side of any city, airport, or highway within a priority area.

TABLE I

FIELD BURNING ACREAGE QUOTAS

NORTH VALLEY AREAS

County	Basic Quota (Acres)	Priority Area Quota (Acres)
Clackamas:		
Estacada	100	0
Monitor	100	0
All other permit issuing agencies	50	50
Marion:		
Aumsville	75	0
Marion #1 (Four corners, Brooks, Keizer)	75	50
Jefferson	175	50
St. Paul	100	50

TABLE 1 (Cont.)

County	Basic Quota (Acres)	Priority Area Quota (Acres)
Marion (cont):		
Silverton	275	0
Stayton	150	0
Sublimity	250	0
Woodburn	100	50
All other permit issuing agencies	50	50
Polk:		
Southeast Polk	225	50
Southwest Polk	200	50
Washington:		
All permit issuing agencies	50	50
Yamhill:		
McMinnville	75	50
All other permit issuing agencies	50	50
SOUTH VALLEY AREAS		
Benton:		
County jurisdiction	400	50
State Forestry jurisdiction	125	0
Corvallis	275	50
Monroe	275	50
Philomath	150	0
North Albany) included in Albany quota		
Palestine)		
All other permit issuing agencies	50	50
Lane:		
Alvadore	125	0
Coburg	100	50
Creswell	75	50
Irving	200	100
Junction City	250	50
Unprotected	110	50
All other permit issuing agencies	50	50
Linn:		
Albany	650	125
Brownsville	775	50
Halsey-Shedd	2150	150
Harrisburg	1475	100
Lebanon	950	50
Scio	150	0
Tangent	1050	50
All other permit issuing agencies	50	50

County/Fire District	Quota	
North Valley Counties	Basic	Priority
Clackamas County		
Canby RFPD	50	50
Clackamas County #54	50	0
Clackamas - Marion FPA	50	0
Estacada RFPD	75	0
Molalla RFPD	50	0
Monitor RFPD	50	0
Scotts Mills RFPD	50	0
Total	375	50
Marion County		
Aumsville RFPD	50	0
Aurora-Donald RFPD	50	50
Drakes Crossing RFPD	50	0
Hubbard RFPD	50	0
Jefferson RFPD	225	50
Marion County #1	100	50
Marion County Unprotected	50	50
Mt. Angel RFPD	50	0
St. Paul RFPD	125	0
Salem City	50	50
Silverton RFPD	300	0
Stayton RFPD	150	0
Sublimity RFPD	250	0
Turner RFPD	50	50
Woodburn RFPD	125	50
Total	1675	350

County/Fire District	Quota	
North Valley Counties	Basic	Priority
Polk County		
Polk County Non-District	50	0
Southeast Rural Polk	400	50
Southwest Rural Polk	125	50
Total	575	100
Washington County		
Cornelius RFPD	50	50
Forest Grove RFPD	50	0
Forest Grove, State Forestry	50	0
Hillsboro	50	50
Washington County FPD #1	50	50
Washington County FPD #2	50	50
Total	300	200
Yamhill County		
Amity RFPD	125	50
Carlton RFPD	50	50
Dayton RFPD	50	50
Dundee RFPD	50	
McMinnville RFPD	150	75
Newberg RFPD	50	0
Sheridan RFPD	75	50
Yamhill RFPD	50	0
Total	600	275
North Valley Total	3575	975

SOUTH VALLEY AREAS

County/Fire District South Valley Counties	Quota Basic	 Priority
Benton County		
County Non-District & Adair	350	175
Corvallis RFPD	175	125
Monroe RFPD	325	50
Philomath RFPD	125	100
Western Oregon FPD	100	50
Total	1075	500
Lane County		
Coburg RFPD	175	50
Creswell RFPD	75	100
Eugene RFPD (Zumwalt RFPD)	50	50
Junction City RFPD	325	50
Lane County Non-District	100	50
Lane County RFPD #1	350	50
Santa Clara RFPD	50	50
Thurston-Waterville	50	50
West Lane FPD	50	0
Total	1225	450
Linn County		
Albany RFPD (inc. N. Albany, Palestine, Co. Unprotected Areas)	625	125
Brownsville RFPD	750	50
Halsey-Shedd RFPD	2050	200
Harrisburg RFPD	1350	50
Lebanon RFPD	325	325
Lyons RFPD	50	0
Scio RFPD	175	0
Tangent RFPD	925	325
Total	6250	1075
South Valley Total	8550	2025

26-020 WINTER BURNING SEASON REGULATIONS. (1) Classification of atmospheric conditions:

(a) Atmospheric conditions resulting in computed air pollution index values in the high range, values of 90 or greater, shall constitute prohibition conditions.

(b) Atmospheric conditions resulting in computed air pollution index values in the low and moderate ranges, values less than 90, shall constitute marginal conditions.

(2) Extent and Type of Burning.

(a) Burning Hours. Burning hours for all types of burning shall be from 9:00 a.m. until 4:00 p.m., but may be reduced when deemed necessary by the fire chief or his deputy. Burning hours for stumps may be increased if found necessary to do so by the permit issuing agency. All materials for burning shall be prepared and the operation conducted, subject to local fire protection regulations, to insure that it will be completed during the allotted time.

(b) Certain Burning Allowed Under Prohibition Conditions. Under prohibition conditions no permits for agricultural open burning may be issued and no burning may be conducted, except where an auxiliary liquid or gaseous fuel is used such that combustion is essentially complete, or /a/ an /~~mobile field incinerator~~/ approved /~~by the Department~~/ field sanitizer is used.

(c) Priority for Burning on Marginal Days. Permits for agricultural open burning may be issued on each marginal day in each permit jurisdiction in the Willamette Valley, following the priorities set forth in ORS /~~449.840~~/ 468.450 which gives perennial grass seed fields used for grass seed production first priority, annual grass seed fields used for grass seed production second priority, grain fields third priority and all other burning fourth priority.

26-025 CIVIL PENALTIES. In addition to any other penalty provided by law: (1) Any person who intentionally or negligently causes or permits open field burning contrary to the provisions of ORS 468.450, 468.455 to 468.485, 476,380 and 478.960 ~~shall~~ shall be assessed by the Department a civil penalty of at least $20, but not more than $40 for each acre so burned.

(2) Any person planting contrary to the restrictions of subsection (1) of ORS 468.465 shall be assessed by the Department a civil penalty of $25 for each acre planted contrary to the restrictions.

(3) Any person who violates any requirement of these rules shall be assessed a civil penalty pursuant to OAR Chapter 340, Division 1, Sub-Division 2, CIVIL PENALTIES.

State of Oregon Department of Environmental Quality

1975

FIELD REGISTRATION Nº 2115

FIELD BURNING REGISTRATION/APPLICATION FORM

(Do not use for Cereal Grains)

Grower Applicant _____ Phone _____

Address _____

Fire District _____ Phone _____

RECORD OF CROPS TO BE BURNED

	(a) Perennial grass Fire Dist. Field No.	Field Description (location)	Priority Acres (see reverse side)	Regular Acres	Fee Pd, Date, Initial	Validation Numbers (Issued by Fire Dist. on Burn Day)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
	(b) Annual grass					
11						
12						
13						
14						
15						
16						
17						
	(c) Estimated acreage to be sanitized by approved alternate methods.					

Acreage fees must be paid and a validation number must be obtained for each field before a permit to burn that field becomes valid.

_____ _____

Grower Applicant Signature Date

Paid acres _____ X $3.00 (fee) = $ _____ (paid at time of registration)

Fees Received _____ _____

Signature, Fire Dist. Rep. Date

Copy Distribution
White: DEQ
Blue: Fire Dist.
Pink: Exec. Dept.
Green: Grower

State of Oregon Department of Environmental Quality

FIELD REGISTRATION
№ C 0509

1975

CEREAL ACREAGES

FIELD BURNING REGISTRATION/APPLICATION FORM

Grower Applicant _____ Phone _____

Address _____

Fire District _____ Phone _____

Acreage fees must be paid and a validation number must be obtained for each field before a permit to burn that field becomes valid.

RECORD OF CROPS TO BE BURNED

Fire Dist. Field No.	Field Description (location)	Priority Acres (see reverse side)	Regular Acres	Fee Pd, Date, Initial	Validation Numbers (Issued by Fire Dist. on Burn Day)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

OATH OR AFFIRMATION FOR CEREAL GRAIN

I the undersigned applicant do hereby certify under oath or affirmation that the next crop planted on the cereal acreage listed on this application will be:

1) _____ (name of perennial grass for seed production) 2) _____ (name of legume crop for seed production)

3) _____ (name of other seed crop)

which crop requires flame sanitation for proper cultivation. I understand that failure to plant a crop as certified could result in a fine of $25 per acre. If the seed crop so planted fails to grow through no fault of my own, I may apply to the DEQ to plant contrary to the above certification.

_____ _____
Grower Applicant Signature Date

Paid acres _____ X $3.00 (fee) = $ _____ (paid at time of registration)

Fees Received _____ _____
Signature, Fire Dist. Rep. Date

Copy Distribution
White: DEQ
Blue: Fire Dist.
Pink: Exec. Dept.
Green: Grower

C-ENGROSSED

Senate Bill 311

Ordered by the Senate June 14
(Including Amendments by Senate March 31 and by House June 5 and by Second Conference Committee June 14)

Sponsored by Senators GROENER, THORNE, POWELL, Representatives BYERS, BUNN, GROENER, JONES, LINDQUIST, WALDEN

SUMMARY

The following summary is not prepared by the sponsors of the measure and is not a part of the body thereof subject to consideration by the Legislative Assembly. It is an editor's brief statement of the essential features of the measure.

Requires field burning permits to be issued **in certain counties** by Department of Environmental Quality. Permits Environmental Quality Commission to delegate duty to deliver permits to county governing body or fire chief of rural fire protection district.

Requires field burning, instead of being banned after January 1, 1975, to be phased down to not more than [*50,000 acres after 1977*] **95,000 acres in 1977. Thereafter, permits for the burning of not more than 50,000 acres may be issued after taking into consideration certain factors. Requires commission and legislative committee to report to Fifty-ninth Legislative Assembly recommendations for possible modifications.** Permits Governor to allow exceptions in case of extreme hardship or other specified conditions. **States legislative policy that permits are to be issued for burning maximum acreages specified only upon certain conditions.**

Requires Environmental Quality Commission, in making rules governing field burning, to consult with certain other agencies **and permits it to consult with certain other agencies.**

Requires person seeking permit for field burning to submit statement that acreage to be burned will be planted to seed crops other than cereal grains which require burning. Permits contrary planting in case of crop failure.

Continued on page 2

NOTE: Matter in **bold face** in an amended section is new; matter [*italic and bracketed*] is existing law to be omitted; complete new sections begin with **SECTION.**

Continued from page 1

Creates Oregon Field Sanitation Committee to replace present field burning committee. Prescribes membership and duties of committee. Makes committee special advisory committee to commission in adopting rules related to field burning. **Requires committee to report quarterly to Legislative Committee on Trade and Economic Development.** Authorizes committee to assist persons wishing to use alternative methods of field sanitation and straw utilization by assisting in purchase and lease.

Requires annual registration with county governing body or fire chief of rural fire protection district of acreage to be burned. Requires fee for permit by department of $3 per acre in 1975, $4 per acre in 1976, $5.50 per acre in 1977 and $8 per acre thereafter. Requires refunding of fee where burning is accomplished by mobile sanitizer. [*Requires refunding of one-half of fee where straw was removed prior to burning.*] Requires payment of 20 cents per acre of fee to county governing body or rural fire protection district for administration of registration. Requires 50 cents of acreage fees to be deposited in smoke management fund. **Includes approved alternative field sanitation and straw utilization and disposal methods within definition of "pollution control facility" for purposes of tax credits.**

Provides civil penalties.

Makes related changes.

Declares emergency.

A BILL FOR AN ACT

Relating to field burning; creating new provisions; amending ORS 468.140, 468.290, 468.455, 468.460, 468.465, 468.470, 468.475, 468.480 and 468.485; appropriating money; and declaring an emergency.

Be It Enacted by the People of the State of Oregon:

SECTION 1. Section 2 of this Act is added to and made a part of ORS 468.455 to 468.485.

SECTION 2. (1) On and after January 1, 1975, permits for open burning of perennial grass seed crops, annual grass seed crops and cereal grain crops are required in the counties listed in subsection (2) of ORS 468.460 and shall be issued by the Department of Environmental Quality in accordance with air pollution control practices and subject to the fee prescribed in ORS 468.480. The permit described in this section shall be issued in conjunction with permits required under ORS 476.380 or 478.960.

(2) The Environmental Quality Commission may by rule delegate to any county court or board of county commissioners or fire chief of a rural fire protection district the duty to deliver permits to burn acreage provided such acreage has been registered pursuant to paragraph (a) of subsection (1) of ORS 468.480 and fees have been paid pursuant to paragraph (b) of subsection (1) of ORS 468.480.

Section 3. ORS 468.290 is amended to read:

468.290. Except as provided in this section and in ORS 468.450, 476.380 and 478.960, the air pollution laws contained in [*ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.315 to 454.355, 454.405 to 454.425, 454.505 to 454.535, 454.605 to 454.745 and*] this chapter do not apply to:

(1) Agricultural operations and the growing or harvesting of crops and the raising of fowls or animals, except field burning which shall be subject to regulation [*under this section, ORS 468.455 to 468.485, 476.380, 476.990, 478.960 and 478.990*] **pursuant to this 1975 Act**;

(2) Use of equipment in agricultural operations in the growth of crops or the raising of fowls or animals, except field burning which shall be subject to regulation [*under this section, ORS 468.455 to 468.485, 476.380, 476.990, 478.960 and 478.990*] **pursuant to this 1975 Act**;

(3) Barbecue equipment used in connection with any residence;

(4) Agricultural land clearing operations or land grading;

(5) Heating equipment in or used in connection with residences used exclusively as dwellings for not more than four families;

(6) Fires set or permitted by any public agency when such fire is set or permitted in the performance of its official duty for the purpose of weed abatement, prevention or elimination of a fire hazard, or instruction of employes in the methods of fire fighting, which in the opinion of the agency is necessary; or

(7) Fires set pursuant to permit for the purpose of instruction of employes of private industrial concerns in methods of fire fighting, or for civil defense instruction.

Section 4. ORS 468.455 is amended to read:

468.455. In a concerted effort by agricultural interests and the public to overcome problems of air pollution, it is the purpose of [*ORS 468.455 to 468.485, 476.380 and 478.960 to phase out open field burning in the counties listed in subsection (2) of ORS 468.460 when a feasible alternative method of field sanitation becomes available, to fix a specified date for termination of open field burning and, further, to encourage stabilized acreage until feasible alternative methods of field sanitation become available*] **this 1975 Act to provide incentives for development of alternatives to open field burning, to phase out open field burning and to develop feasible alternative methods of field sanitation and straw utilization and disposal.**

Section 5. ORS 468.460 is amended to read:

468.460. [*After an alternative method of field sanitation is certfied under ORS 468.470, and becomes available as provided in subsection (2) of ORS 468.470;*] **in order to regulate open field burning pursuant to ORS 468.475:**

(1) In such areas of the state and for such periods of time as it considers necessary to carry out the policy of ORS 468.280, the commission by rule may prohibit, restrict or limit classes, types and extent and amount of burning for perennial grass seed crops, annual grass seed crops [,] and grain crops [*and other burning*] .

(2) In addition to but not in lieu of the provisions of ORS 468.475 and of any other rule adopted under subsection (1) of this section, the commission shall adopt rules for Multnomah, Washington, Clackamas, Marion, Polk, Yamhill, Linn, Benton and Lane Counties, which provide for a more rapid phased reduction by certain permit areas, depending on particular local air quality conditions and soil characteristics, [*of*] the extent, type or amount of open field burning of perennial grass seed crops, annual grass seed crops and grain crops [*after an*] and the availability of alternative [*method is*] methods of field sanitation and straw utilization and disposal. [*certified under ORS 468.470.*]

(3) Before promulgating rules pursuant to subsections (1) and (2) of this section, the commission shall consult with Oregon State University and the Oregon Field Sanitation Committee and may consult with the Soil Conservation Service, the Agricultural Stabilization Commission, the State Soil and Water Conservation Commission and other interested agencies. The Oregon Field Sanitation Committee shall act as a special advisory committee to the commission in the promulgation of such rules. The commission must review and show on the record the recommendations of the Oregon Field Sanitation Committee in promulgating such rules.

[*(3)*] (4) No regional air quality control authority shall have authority to regulate burning of perennial grass seed crops, annual grass seed crops and grain crops.

Section 6. ORS 468.465 is amended to read:

468.465. (1) Permits under [*ORS 476.380 and 478.960*] section 2 of this 1975 Act for open field burning of cereal grain crops shall be issued in the counties listed in subsection (2) of ORS 468.460 only if the person seeking the permit submits to the issuing authority a signed statement under oath or affirmation that the acreage to be burned will be planted to seed crops other than cereal grains which require flame sanitation for proper cultivation. [*fall legumes or perennial grasses. However, no open field burning of cereal crops shall be permitted in the counties listed in subsection (2) of ORS 468.460 after January 1, 1975.*]

(2) The department shall inspect cereal grain crop acreage burned pursuant to subsection (1) of this section after planting in the following spring to determine compliance with subsection (1) of this section.

(3) Any person planting contrary to the restrictions of subsection (1) of this section shall be assessed by the department a civil penalty of $25 for each acre planted contrary to the restrictions. Any fines collected by the department pursuant to this subsection shall be used by the department for a smoke management program in cooperation with the Oregon Seed Council and for administration of this section.

(4) Any person planting seed crops after burning cereal grain crops pursuant to subsection (1) of this section may apply to the department for permission to plant contrary to the restrictions of subsection (1) of this section if the seed crop fails to grow. The department may allow planting contrary to the restrictions of subsection (1) of this section if the crop failure occurred by reasons other than the negligence or intentional act of the person planting the crop or one under his control.

Section 7. ORS 468.470 is amended to read:

468.470. [*(1) Except as provided in ORS 468.475, open field burning of perennial grass seed crops and annual grass seed crops shall be subject to regulation under ORS 468.450, 476.380 and 478.960 only until a committee described in subsection (3) of this section certifies the availability of a successful, feasible alternative to open field burning in sufficient quantity to sanitize grass fields. For the purposes of ORS 468.450, 476.380 and 478.960, annual grass seed crops, perennial grass seed crops and grain or grass stubble shall be considered to be combustible material.*]

[*(2) As such alternative methods become available in quantity sufficient to allow phased reduction in burning, the commission may begin to phase out in proportion to such availability the burning described in ORS 468.460.*]

[*(3) The committee shall consist of two members representing agriculture appointed by the Director of Agriculture from a list of five nominees submitted by the Oregon Seed Council, two members representing the public appointed by the director of the department and a fifth member*

appointed by the Governor. Members shall be persons knowledgeable concerning agricultural practices and air quality control practices which are the subject of ORS 468.455 to 468.485.]

[*(4) In addition to its other duties under this section, the committee shall monitor the programs for development of feasible alternative methods of field sanitation, shall make recommendations for the research and development of such methods to the Joint Committee on Ways and Means during the legislative session or to the Emergency Board during interim periods and, after consultation with the department, shall establish standards under which certified alternatives are to operate as long as the committee is in existence.*]

[*(5) In exercising its duties under subsections (1) and (4) of this section, the committee shall certify alternatives and establish standards only after public hearing at which interested persons are afforded an opportunity to be heard and for which notice is given in a manner reasonably calculated to notify interested persons of the time, place and subject of the hearing.*]

(1) The Oregon Field Sanitation Committee is established and for the purposes of this 1975 Act shall be referred to as the "committee." The committee shall consist of two members representing agriculture appointed by the Director of Agriculture from a list of five nominees submitted by the Oregon Seed Council, two members representing the public appointed by the director of the department and a fifth member appointed by the Governor. Members shall be persons knowledgeable concerning agricultural practices and air quality control practices which are the subject of ORS 468.455 to 468.485.

(2) The committee shall assume the duties and responsibilities formerly held by the field burning committtee established pursuant to section 4, chapter 563, Oregon Laws 1971 (regular session), which committee is abolished. However, members of the field burning committee shall be the members of the field sanitation committee until their terms expire pursuant to subsection (3) of this section.

(3) The term of office of each member of the committee is four years,

but a member may be removed for cause. By lot, the committee shall select two of its members whose terms expire on December 31, 1976 and one of its members whose term expires December 31, 1977. The remaining members' terms shall expire on December 31, 1978.

(4) The committee shall:

(a) Monitor and conduct programs for development of feasible alternative methods of field sanitation and straw utilization and disposal;

(b) Make recommendations for research and development of alternative methods;

(c) Provide assistance to persons wishing to obtain the use of feasible methods of field sanitation and straw utilization and disposal and, in so doing, assist in purchasing, purchase and lease to users, and promote extensive use of such methods;

(d) Receive and disburse funds, including but not limited to voluntary contributions from within and outside this state, grants and gifts; and

(e) Report quarterly to the Legislative Committtee on Trade and Economic Development on the progress being made in discovering and utilizing alternatives to open field burning.

(5) Subject to the approval of the Executive Department, the committee may:

(a) Enter into contracts with public and private agencies to carry out the purposes of demonstration of alternatives to agricultural open field burning;

(b) Apply for and obtain patents in the name of the State of Oregon and assign such rights therein as the committee considers appropriate;

(c) Employ such personnel as is required to carry out the duties assigned to it; and

(d) Sell and dispose of all surplus property of the committee, including but not limited to straw-based products produced or manufactured by the committee.

SECTION 8. Sections 9 and 10 of this Act are added to and made a part of ORS 468.455 to 468.485.

SECTION 9. The commission shall establish emission standards for certified alternative methods to open field burning.

SECTION 10. The department, in coordinating efforts under this 1975 Act, shall:

(1) Enforce all field burning rules adopted by the commission and all related statutes;

(2) Monitor and prevent unlawful field burning; and

(3) Aid fire districts in carrying out their responsibilities for administering field sanitation programs.

Section 11. ORS 468.475 is amended to read:

468.475. [*After January 1, 1975,*] (1) No person shall open burn or cause to be open burned in the counties specified in subsection (2) of ORS 468.460, perennial [*grass seed crops used for grass seed production*] or annual grass seed crops used for grass seed production [.] or cereal grain crops, unless the acreage has been registered pursuant to ORS 468.480 and the permits required by ORS 468.450, 476.380, 478.960 and section 2 of this 1975 Act have been obtained.

(2) Except as may be provided by rule under ORS 468.460, the maximum total registered acreage allowed to be open burned pursuant to subsection (1) of this section shall be as follows:

(a) During 1975, not more than 235,000 acres may be burned.

(b) During 1976, not more than 195,000 acres may be burned.

(c) During 1977, not more than 95,000 acres may be burned.

(d) In 1978 and each year thereafter, the commission, after taking into consideration the factors listed in subsection (2) of ORS 468.460, may by order issue permits for the burning of not more than 50,000 acres.

(e) The acreage amounts provided in paragraphs (c) and (d) of this subsection are declared to be the goals of the Fifty-eighth Legislative Assembly. The commission and the Legislative Committee on Trade and Economic Development shall report to the Fifty-ninth Legislative Assembly with their recommendations for possible modifications.

(3) In the event of the registration of more than the maximum allowable acres for open burning in the counties specified in subsection (2) of ORS 468.460, the commission, after consultation with the committee, by rule or order may allocate permits for acreage based on particular local air

quality condition, soil characteristics, the type or amount of field burning or crops, the availability of alternative methods of field sanitation, the date of registration, proportional share, or any reasonable classification. Priority shall be given to use of available alternatives to open field burning in Lane County and priority areas in other counties listed in subsection (2) of ORS 468.460.

(4) It is the intention of the Legislative Assembly that permits shall be issued for the maximum acreage specified in subsection (2) of this section for each year recited therein only if the commission finds after hearing that:

(a) There are insufficient numbers of workable machines that can reasonably be made available to sanitize the acreage if an acreage reduction is ordered;

(b) There are insufficient methods available for straw utilization and disposal; and

(c) Reasonable efforts have been made to develop alternative methods of field sanitation and straw utilization and disposal, and such methods have been utilized to the maximum reasonable extent.

(5) The Governor, upon finding of extreme hardship, disease outbreak, insect infestation or irreparable damage to the land, may by order permit emergency open burning of more acreage than allowed by subsection (2) of this section. Upon a finding of extreme danger to public health or safety, the Governor may order temporary emergency cessation of all open field burning in any area of the counties listed in subsection (2) of ORS 468.460.

(6) The commission shall act on any application for a permit under section 2 of this 1975 Act within 60 days of registration and receipt of the fee provided in ORS 468.480. Such other decisions as may be required under this section must be made by the commission on or before July 10, 1975, and on or before June 1 of each subsequent year.

Section 12. ORS 468.480 is amended to read:

468.480. (1) (a) On or before July 1, 1975, and on or before April 1 of each subsequent year, the grower of a grass seed crop shall register with the county court or board of county commissioners or the fire chief of a

rural fire protection district, or his designated representative, the number of acres to be burned in the remainder of the year. Any person registering after the dates specified in this subsection shall pay an additional fee of $1 per acre registered if the late registration is due to the fault of the late registrant or one under his control. Late registrations must be approved by the department. Copies of the registration form shall be forwarded to the department. The required registration must be made and the fee paid before a permit shall be issued under section 2 of this 1975 Act.

(b) Except as provided in paragraph (c) of this subsection, after the effective date of this 1975 Act, the Executive Department shall collect a fee prior to the issuance of any permit by the Department of Environmental Quality for open burning of perennial or annual grass seed crops or cereal grain crops under this 1975 Act. The Executive Department may contract with counties and rural fire protection districts for the collection of the fees which shall be forwarded to the Executive Department. The amount of the fee shall be $3 in 1975, $4 in 1976, $5.50 in 1977, and $8 in any year thereafter, per acre of crop burned.

(c) The fee required by paragraph (b) of this subsection shall be refunded for any acreage where efficient burning of stubble is accomplished with equipment using an auxiliary fuel or mobile field sanitizer which has been approved by the committee and the department for field sanitizing purposes or for any acreage not burned.

(2) The Executive Department shall pay to the county or board of county commissioners or the fire chief of the rural fire protection district, not to exceed 20 cents per acre registered, to cover the cost of and to be used solely for the purpose of administering the program of registration of acreage to be burned, issuance of permits, keeping of records and other matters directly related to agricultural field burning. Fifty cents of the acreage fees shall be deposited in a separate fund to be used for the smoke management program which shall be conducted by the Department of Environmental Quality in cooperation with the Oregon Seed Council and other affected agencies. The Department of Environmental Quality shall contract with the Oregon Seed Council to organize rural fire protection

districts and growers, coordinate and provide communications, hire ground support personnel, provide aircraft surveillance, provide such added other support services as are mutually agreed upon and advise the department when crops in each area are ready for burning. However, if a reasonable contract cannot be agreed upon, the department shall provide such services directly or by contracting with such other entity as it reasonably shall determine.

(3) The Executive Department shall cause the balance of acreage fees received pursuant to subsection (1) of this section to be deposited in the State Treasury to be credited to the account of the committee established under ORS 468.470 for use as provided in ORS 468.485. [*Until and alternative method is certified under ORS 468.470, or until January 1, 1975, whichever occurs first, the county court, board of county commissioners or the fire chief or his designated representative shall collect a fee, except as provided in paragraph (b) of this subsection, prior to issuing any permit for the open burning of perennial or annual grass seed crops, or grain crops under ORS 476.380 or 478.960. The amount of the fee shall be determined by the committee established pursuant to ORS 468.470 and shall not exceed $1 per acre of crop burned.*]

[*(b) The fee required by paragraph (a) of this subsection shall not be collected where efficient burning of stubble is accomplished with equipment using auxiliary fuel or a mobile field sanitizer which equipment or sanitizer has been approved by the committee and the department for field sanitizing purposes.*]

[*(2) The collecting officer shall retain such portion of the acreage fees received pursuant to subsection (1) of this section as is sufficient, in the judgment of the committee, in consultation with the collecting officers, to cover the cost of and to be used solely for the purpose or administering a program of registration of fields to be burned, collection of fees, issuance of permits, keeping of records and other matters directly related to agricultural open field burning. Ten cents of the acreage fee shall be deposited in a separate fund to be used for a smoke management program which shall be conducted by the Oregon Seed Council in cooperation with the department.*]

[*(3) The collecting officer shall cause the balance of acreage fees received pursuant to subsection (1) of this section to be credited to the account of the committee established under ORS 468.470 for use as provided in ORS 468.485.*]

[*(4) Nothing in this section relieves any person from the requirements of obtaining a burning permit in accordance with ORS 476.380 and 478.960.*]

Section 13. ORS 468.485 is amended to read:

468.485. All moneys [*from acreage fees*] **collected under paragraph (b) of subsection (1) of ORS 468.480** [*and under section 2, chapter 578, Oregon Laws 1973, received by the committee established pursuant to ORS 468.470*] **or received pursuant to this 1975 Act, except fines,** shall be segregated from other funds and used solely for [*smoke management and*] **administrative expenses of the committee and for** development and demonstration of alternatives to agricultural open field burning **and methods of straw utilization and disposal**. [*The committee may enter into contracts with public and private agencies to carry out the purposes of this section. The committee shall give first priority to the development of and demonstration of the feasibility of a mobile field incinerator.*]

Section 14. ORS 468.140 is amended to read:

468.140. (1) In addition to any other penalty provided by law, any person who violates any of the following shall incur a civil penalty for each day of violation in the amount prescribed by the schedule adopted under ORS 468.130:

(a) The terms or conditions of any permit required or authorized by law and issued by the department or a regional air quality control authority.

(b) Any provision of ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.315 to 454.355, 454.405 to 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter.

(c) Any rule or standard or order of the commission adopted or issued pursuant to ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.315 to 454.355, 454.405 to 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter.

(d) Any rule or standard or order of a regional authority adopted or issued under authority of subsection (1) of ORS 468.535.

(2) Each day of violation under subsection (1) of this section constitutes a separate offense.

(3) (a) In addition to any other penalty provided by law, any person who intentionally or negligently causes or permits the discharge of oil into the waters of the state shall incur a civil penalty not to exceed the amount of $20,000 for each violation.

(b) In addition to any other penalty provided by law, any person who violates the terms or conditions of a permit authorizing waste discharge into the waters of the state or violates any law, rule, order or standard in ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.315 to 454.355, 454.405 to 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter relating to water pollution shall incur a civil penalty not to exceed the amount of $10,000 for each day of violation.

(4) Paragraphs (c) and (d) of subsection (1) of this section do not apply to violations of motor vehicle emission standards.

(5) Notwithstanding the limits of subsection (1) of ORS 468.130 and in addition to any other penalty provided by law, any person who intentionally or negligently causes or permits open field burning contrary to the provisions of ORS 468.450, 468.455 to 468.485, 476.380 and 478.960 shall be assessed by the department a civil penalty of at least $20 but not more than $40 for each acre so burned. Any fines collected by the department pursuant to this subsection shall be deposited with the State Treasurer to the credit of the General Fund and shall be available for general governmental expense.

SECTION 15. After alternative methods for field sanitation and straw utilization and disposal are approved by the committee and the department, "pollution control facility," as defined in ORS 468.155, shall include such approved alternative methods and persons purchasing and utilizing such methods shall be eligible for the benefits allowed by ORS 468.155 to 468.190.

SECTION 16. This Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this Act takes effect on its passage.

DOUGLAS A. SHEPARD
ATTORNEY AT LAW

DOUGLAS A. SHEPARD
GORDON W. STEWART

262 FIFTH STREET
MADRAS, OREGON 97741
(503) 475-2212

July 8, 1975

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED
JUL 10 1975
OFFICE OF THE DIRECTOR

Department of Environmental Quality
c/o Environmental Quality Commission
1234 S. W. Morrison
Portland, Oregon

Gentlemen:

We strongly urge your full consideration of the Proposed Regional Rules Act. We are familiar with this act and urge its immediate implementation to rectify the subsurface sewage problems in Jefferson County and Central Oregon.

Please express our support of this act at your hearing in Salem on July 10, 1975.

Very truly yours,

Douglas A Shepard

DOUGLAS A SHEPARD

Gordon W. Stewart

GORDON W. STEWART

bv

THOMAS R. MILES
CONSULTING ENGINEER

MAIL: P. O. BOX 216
BEAVERTON, OREGON 97005

5475 S. W. ARROWWOOD LANE
PORTLAND, OREGON 97225
503/292-2919

JULY 1, 1975

REVIEW OF ACTIVITIES TO DATE
OREGON FIELD BURNING COMMITTEE

HARVEST

SPONSORED AND PARTICIPATED IN VARIOUS TYPES OF STRAW REMOVAL, STACKS, STANDARD BALES, ROUND BALES, ETC.

STARTED PROGRAM OF CHAFF RECOVERY.

EXPERIMENTED WITH WHOLE HARVEST (HOT SHOT) SYSTEM, BUT NOT ECONOMICALLY PRACTICAL.

INVESTIGATED VIRTUALLY ALL SYSTEMS OF STRAW HARVEST AS THEY ARE DEVELOPED.

HAVE ESTABLISHED 2 COMPANIES CONSISTING OF GROWERS WHO ARE PREPARED TO PROVIDE A YEAR-AROUND SUPPLY OF STRAW AT A FIXED PRICE. THIS IS PERHAPS ONE OF THE MOST SIGNIFICANT STEPS TO PROVIDE A RELIABLE SUPPLY TO LARGE USERS. THIS IS A WORLD-WIDE PROBLEM.

DEVELOPED NEW "STRAWDUST" (12#/CF) FORM WHICH HAS PROMISE IN STORAGE, TRANSPORT AND MULTI-USES AS FUEL, FEED, CHEMICAL AND MICROBIOLOGICAL FEEDSTOCK.

REVIEW OF ACTIVITIES TO DATE 7-1-75
OREGON FIELD BURNING COMMITTEE

USES

FEEDS

THE OPERATION OF THE STRAW CENTER TO DEVELOP AND DEMONSTRATE THE PRODUCTION OF HYDROXIDE CUBES AND "CUBLOCKS" RESULTED IN 10,000 TON ORDER FROM JAPAN FOR 1975 SEASON (OVER 32#/CF DENSITY IN BLOCK FORM). GOLDEN B PRODUCTS PLANT NOW UNDER CONSTRUCTION TO PRODUCE THIS PRODUCT, WITH PRIVATE CAPITAL.

HYDROXIDE TREATMENT ABOVE HAS INCREASED TDN (TOTAL DIGESTIBLE NUTRIENTS) FROM APPROX. 32% TO OVER 55% ON STRAW. TWO FEEDING TRIALS NEARLY COMPLETE AT OSU, CONFIRMING FEED VALUES OF TREATED AND UNTREATED STRAWS.

SAME ABOVE HYDROXIDE CUBED MATERIAL IS AN EXCELLENT HYDROMULCH, BY COINCIDENCE.

HAVE, AND CONTINUE TO COOPERATE WITH DR. ANDERSON, OSU, ON SEMI-SOLID FERMENTATION PROJECT.

ENSILING WITH CANNERY WASTES, POTATO WASTES AND HYDROXIDE TREATMENTS IS UNDER WAY WITH NULABS IN PORTLAND.

WORKED WITH OSU AND ARS (AGRICULTURAL RESEARCH SERVICE OF USDA) ON COMPUTER COMPARISON OF STRAW IN THE FEED PICTURE, QUITE PROMISING.

COOPERATED WITH A NUMBER OF FIRMS AND INDIVIDUALS IN CONSIDERING FEED USES OF STRAW, SUCH AS FARM ECOLOGY, MR. LIEPER, VARIOUS DAIRIES AND FEEDERS.

HAVE CONCLUDED THAT, AT BEST, THE FEEDSTUFF MARKET IS LIMITED AND CURRENTLY VERY DEPRESSED AND IS A NECESSARY PARTIAL CONSUMER BUT WILL PROBABLY NOT USE A MAJOR PORTION OF THE 700,000 TONS OF STRAW FROM THE GRASS SEED INDUSTRY.

REVIEW OF ACTIVITIES TO DATE 7-1-75
OREGON FIELD BURNING COMMITTEE

USES

FUELS

THE DEVELOPMENT OF "STRAWDUST" (1/8" SCREENED) MATERIAL APPEARS VERY PROMISING AS AN ALTERNATE FUEL FOR EXISTING GAS OR OIL BURNING INSTALLATIONS.

IT APPEARS TO BE VERY PRACTICAL TO PRODUCE, STORE ON FARM, AND BULK HANDLE TO MAJOR YEAR-ROUND USERS.

PYROLYSIS WORK BY OTHERS HAS BEEN CAREFULLY MONITORED AND APPEARS TO BE MOST PRACTICAL IF ONE IS TO USE THE RESULTANT CO AND H_2 GASES FOR FURTHER SYNTHESIS INTO METHANE, METHANOL AND AMMONIA.

WE HAVE JUST SCRATCHED THE SURFACE ON THE FUEL APPLICATIONS AND JUDGING FROM THE INTEREST BY INSTITUTIONS, MUNICIPALITIES, PRIVATE ENTERPRISE, AND GOVERNMENT AGENCIES - PLUS THE ENERGY "CRUNCH" - IT APPEARS TO BE ONE OF THE MOST PROMISING VOLUME MARKETS, AND SOON.

INDUSTRIAL USE OF "COMPRESSED" LOGS OR PELLETS APPEARS QUITE UNECONOMIC FROM AN ENERGY CONSUMPTION STANDPOINT.

FIBRES

A SYSTEM OF MECHANICALLY DEFIBRIZING STRAW INTO CRUDE FIBRE FOR HYDROMULCH AND SIMILAR USES HAS BEEN ACHIEVED.

PARTICLE BOARD IS STILL PROMISING BUT STRAW HAS TO COMPETE WITH OUR SURROUNDING WOOD. IT'S READY WHEN THE ECONOMICS ARE.

OSU AND CROWN ZELLERBACH MADE A VERY GOOD 80% CORRUGATING MEDIUM SHEET AS WELL AS A 50% BLEACHED BOND FROM STRAW. CROWN IS STILL INTERESTED, BUT CHIP VALUES WILL DICTATE.

"STRAMIT" BOARD HAS BEEN INVESTIGATED AND REMAINS A POSSIBLE SMALL-VOLUME USE.

REVIEW OF ACTIVITIES TO DATE 7-1-75
OREGON FIELD BURNING COMMITTEE

USES

FEEDSTOCKS AND FERTILIZERS

QUAKER OATS HAS BEEN A CONSTANT COMPANION BUT HAS YET TO DECIDE ON LOCATING IN THE VALLEY WITH THEIR $35,000,000 PLANT.

ONE CHEMICAL FIBRE SYSTEM DOES SHOW SOME PROMISE AS A NOMINAL SOURCE OF FURFURAL.

FLAME CULTIVATORS AND ALTERNATES

A SERIES OF BURNERS HAVE BEEN DEVELOPED OVER THE PAST YEARS, EACH CONTRIBUTING ITS SHARE OF PROGRESSIVE KNOWLEDGE AND EXPERIENCE.

STARTING FAIRLY SIMPLY AND EVOLVING AS MORE COMPLICATED, THE DEVELOPMENT OF THE LAMINAR FLOW FLAMER IN 1974 AND ITS DESCENDANT, THE FAIRLY SIMPLE AND PROMISING DRAGONFLY ILLUSTRATES FULL CIRCLE.

THE AIR-INDUCED DRAFT UNIT APPEARS TO BE NOT ONLY AN EFFICIENT FLAME CULTIVATOR BUT QUITE PRACTICAL OPERATIONALLY, AND VERY MUCH CHEAPER TO BUILD. THREE 22' MACHINES ARE CURRENTLY UNDER CONSTRUCTION AND WILL BE IN USE THIS SEASON BY GROWERS, AS WELL AS THE 10' PROTOTYPE.

THREE ACRES AN HOUR WITH THE STRAW REMOVED IS THE DESIGN CAPACITY - AT A COST OF $13,200.

VARIOUS AGRONOMIC DATA HAS BEEN COLLECTED BY OSU DURING PREVIOUS YEARS AND IS BEGINNING TO SHOW TRENDS.

CREW-CUTTING, A POTENTIAL NON-BURNING STRAW REMOVAL TREATMENT FOR ALTERNATE YEAR USE WAS TRIED ON SOME 200 ACRES IN 1974 - AND SHOWS PROMISE. IT TAKES ABOUT 2-3 YEARS TO DETERMINE THE EFFECTS OF THESE TREATMENTS.

NO CHEMICALS ARE AS YET AVAILABLE - AND EVEN IF AVAILABLE APPEAR TO BE PROBABLY MORE COSTLY THAN MACHINE BURNING.

REVIEW OF ACTIVITIES TO DATE 7-1-75
OREGON FIELD BURNING COMMITTEE

CONCLUSIONS:

OUR WORK TO DATE INDICATES THAT FLAME CULTIVATION BY MACHINE IS ONLY PRACTICAL WHEN THE EXTRA (2T/A) STRAW IS REMOVED AND A STRAW MARKET IS AVAILABLE TO PAY FOR THE REMOVAL AND PROCESSING - AS WELL AS THE EXTRA COSTS OF MACHINE BURNING, OR EVEN TO USE THE STRAW, SINCE THERE IS NO OTHER DISPOSAL METHOD ALLOWED, AGRONOMICALLY OR ENVIRONMENTALLY.

THE VALUE OF STRAW CURRENTLY IS IN THE ORDER OF $30-$32/TON FOR BALES.

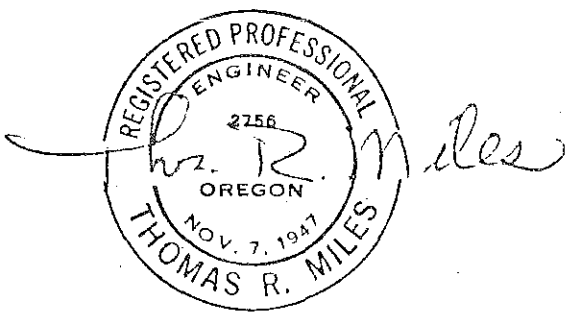
THUS A MARKET FOR THE STRAW IS THE KEY.

A COMPREHENSIVE REPORT OF THE 1974 WORK WAS PUBLISHED.

A WORLD STRAW CONFERENCE, SPONSORED PRINCIPALLY BY THE COMMITTEE, WAS A SUCCESS WITH 310 REGISTRANTS, 28 FROM OUTSIDE THE U.S. AND APPROXIMATELY 100 FROM OUTSIDE OREGON IN THE U. S.

WE LEARNED WE WERE NOT ALONE WITH STRAW PROBLEMS AND HAVE ESTABLISHED A WORLD-WIDE COMMUNICATIONS SYSTEM OF INFORMATION EXCHANGE.

RESPECTFULLY SUBMITTED,



THOMAS R. MILES, CONSULTING ENGINEER
TO THE OREGON FIELD BURNING COMMITTEE

30 JUN 1975

SUBJECT: Information on the question of whether "(c) Reasonable efforts have been made to develop alternative methods of field sanitation and straw utilization and disposal, and such methods have been utilized to the maximum reasonable extent."

TO: Oregon Environmental Quality Commission
Special Public Meeting (Field Burning)
Auditorium of the Employment Building
875 Union Street N.E., Salem, Oregon
July 10, 1975, 10 a.m.

I believe a reasonable effort has been made to develop alternative methods of field sanitation for disease control. Details to support this viewpoint are contained in the testimony I provided to the Special House Committee on Field Burning at their meeting at Albany, Oregon. A copy of that testimony is attached and made a part hereof.

I would caution that while the chemical BAY MEB 6447 has shown excellent suppression of ascocarps (see Testimony Exhibits C and F) of the ergot and blind seed disease pathogens in laboratory scale tests in the greenhouse, the chemical has not given satisfactory control in field plots as yet. We do not know what factors are involved in the unsatisfactory performance of the chemical in these preliminary field plots, but more work is planned.

Regardless of the time when chemical control of diseases becomes available we should recognize that thermal sanitation is the basis for control of diseases, weeds, and certain insects. Continuation of thermal field sanitation is vitally necessary. The main concern should be bridging the gap from now with open field burning, to the time when feasible mobile field sanitizers are perfected and become available combined with availability of feasible straw removal and utilization methods.

Continuation of thermal sanitation is highly desirable on all possible grass seed fields to maintain present control of diseases and weeds. For disease control the thermal sanitation has been reinforced by area-wide treatment that reduces disease in all fields thereby avoiding the movement of significant inoculum between fields.

It is my impression that it was the legislature's intent in SB 311 that 235,000 acres be burned in 1975 and hopefully, this will accomodate most of the grass seed fields without a problem in selection of fields. Reduced acreages in 1976 and 1977 will present selection problems, but perhaps the mobile field sanitizers will become available to treat part of the acreage and thereby provide an answer to avoid the field selection question.

John R. Hardison

John R. Hardison, Research Plant Pathologist, U. S. Department of Agriculture, Botany and Plant Pathology Department, Oregon State University, Corvallis, Oregon

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WESTERN REGION
DEPARTMENT OF BOTANY AND PLANT PATHOLOGY
OREGON STATE UNIVERSITY
CORVALLIS, OREGON 97331

June 23, 1975

Department of Environmental Quality
1234 S. W. Morrison Street
Portland, OR 97205

c/o Mr. Douglas Brannock

Pursuant to the suggestion at your June 20 meeting in Salem, here are a few inputs for the 1975 field burning season.

Diseases will cause serious crop damage in one or two years if burning is interrupted or discontinued. Ergot, for example, is already a chronic problem in many fields with open burning. Ergot, obviously, will become serious quickly if some thermal sanitation is not practiced.

Chemicals as substitutes for burning for disease control apparently will not be available for several years. One experimental chemical, BAY MEB 6447, has shown promising activity in greenhouse tests for control of ergot and blind seed disease, but it has yet to be proven satisfactory under field conditions. If the company decides to go ahead with product development, and if no problems are encountered in EPA registration, manufacture, field performance, or cost, BAY MEB 6447, under full-use registration, still is not expected to be available for three to five years or 1978-1980.

One major problem is that substitute crop rotations have not been found for the 150,000 acres of wet lands, because there are currently no alternative cropping systems that can be used as replacement for grass seed crops now grown on these poorly drained soils. Both ryegrasses, tall fescue, and white clover produce well on these wet lands, but no other cash crops have been found to substitute for grass seed crops without expensive and presently non-existing drainage.

Thermal sanitation should be regarded as the cornerstone in grass seed production, because it is broadly effective against diverse problems, such as some diseases, weeds, and insects, while also improving seed yields. It would be impossible to find feasible chemicals to do all the jobs now accomplished by field burning. Chemicals and other methods for disease, weed, and insect control should be considered as ancillary to a strong thermal sanitation program, which remains basic to all other treatments.

While thermal sanitation is vital, the smoke is unnecessary. Our evaluation tests have shown that mobile field sanitizers can supply thermal treatments that are adequate for disease control. In fact, the mobile sanitizers may supply heat treatments that are more uniform with less burn out and that are more effective for disease and weed control. The sanitizers may also provide the means to supply thermal sanitation in fields of perennial legumes such as alfalfa and perhaps other field crops besides grasses. The mobile sanitizers will require only waste plant material as fuel (a renewable resource) and they should reduce the amount of pesticides that are needed.

The key to continuation of vital thermal sanitation is development of feasible mobile sanitizers and feasible methods for removal and disposal of straw. The crucial consideration is the timeframe in which to expect the sanitizers to become operational and feasible and when straw removal and utilization will become feasible. It would appear that solutions to satisfactory sanitizer operations and straw disposal problems and availability of new chemicals to augment the basic sanitizer treatment cannot be expected for three to five years, if they do become available.

Thus for 1975, I would agree that the big problem is to get the registration and burning program under way as soon as possible as was generally agreed by everyone attending the June 20 meeting.

Sincerely yours,

John R. Hardison

John R. Hardison
Research Plant Pathologist
Legume & Grass Seed Production

Legislative Hearing at Memorial Junior High School, Albany, Oregon
Special House Committee on Field Burning
House Speaker Phil Lang, Chairman
March 5, 1975

I am John R. Hardison, Plant Pathologist, United States Department of Agriculture, Agricultural Research Service, with a courtesy faculty appointment as Professor of Plant Pathology in the Department of Botany and Plant Pathology, Oregon State University. I have been stationed at Corvallis since 1944. The work is cooperative with the Oregon Agricultural Experiment Station, and it is supported by federal, state, and industry funds. My research is concentrated to the nature and control of diseases in grass seed production in the Pacific Northwest.

Let the record show that I was requested to appear here and explain the importance of thermal sanitation for control of diseases in grass seed crops. I also wish to state that I am not testifying in favor or in opposition to any bills. Furthermore, this testimony is given with full knowledge of Wilbur T. Cooney, Dean of Agriculture, Oregon State University, and a copy of the written testimony was supplied to Dean Cooney before it was presented to this Committee.

I am here to provide you with the latest disease control information at my command relating to the development of chemicals and field incinerators, and other methods that might substitute for open field burning.

I would like to refer to several reports that explain the need for field burning and grass disease control. The first one is "Justification for Burning Grass Fields" (Proceedings of the 1964 Annual Meeting of the Oregon Seed Growers League), which you probably have seen. This report describes some of the many benefits from field burning and explains why the high temperature treatment is necessary to control several major diseases.

The second, "Prospects for Grass Seed Disease Control," was a report to the

30th Annual Meeting of the Oregon Seed Growers League. This report contains several factors that need to be considered, such as the question of fungus toxins that may be produced on old senescent leaves that perhaps have been avoided these past 26 years by field burning.

The third, "Field Burning and Grass Disease Control" recently appeared as part (p. 34-39) of Oregon State University Research on Field Burning, Circular of Information #647, and briefly outlines the results obtained with mobile field sanitizer and chemical treatments. That report was prepared rather early in 1974, so it does not include the most recent developments.

These reports explain the need for burning grass fields. I am sure you have seen these reports, but copies are included on the right-hand side of the packet for your convenience. A fourth report covers the material presented at the Oregon Seed Growers League last annual meeting December 9, in Eugene. I had printings made of the material as it will appear later in the Seed League report, hence a copy of this is included in your packet.

I have borrowed from these reports and added some new material to bring this testimony up-to-date. Discussions sometimes omit that the original purpose of field burning was for disease control. Therefore, as Exhibit A, I have attached Table 1 that lists grass diseases that are controlled and represent the reasons why burning was started. The specific years when burning was started on the various grasses is also recorded. As stated in the Table 1 footnote, "Chemicals are not yet available for control of several major diseases, especially blind seed disease, ergot, and grass seed nematode."

Because burning greatly increases the seed yield in old fields of various

grasses, and because burning is the basis for the outstanding weed control, as Dr. W. O. Lee explained in Circular of Information #647, pages 40-43, it is easy to forget that burning was originally proposed for disease control. Because several serious diseases have been controlled by burning, my concern, as a plant pathologist, is that termination of thermal sanitation will result in the loss of perhaps the most effective control of diseases in grass seed crops ever developed. Lack of control will cause direct losses in seed yield and will cause serious reduction in seed quality that will interfere with marketing.

The major seed diseases now controlled by burning in order of importance are: ergot (Claviceps purpurea), blind seed disease (Gloeotinia temulenta) and seed nematode (Anguina agrostis). This is the reverse order of their sensitivity to heat. Ergot is the most resistant, blind seed disease is intermediate, and seed nematode is most easily killed by heat.

Seed nematode has been virtually eliminated in Chewings fescue (Festuca rubra var. commutata) by burning fields since 1956, and to my knowledge this is the best and only positive control in the world. No effective chemical control is known. Without burning, seed nematode will reappear in Chewings fescue fields, because it will move into seed fields from outside sources. For example, in Clackamas County, one Chewings fescue field was severely damaged by seed nematode about 1971, and as a direct result of the discontinuation of the field burning practice. The essential details of seed nematode are portrayed in Exhibit B.

A seed nematode appeared in Wimmera ryegrass (Lolium rigidum), a volunteer grass weed, after burning of wheat fields was discontinued about 20 years ago in Australia. Many animals have died from grazing nematode-infested ryegrass

pastures in southern Australia. More recently, 4,000 steers died after grazing nematode-infested pastures in western Australia. This Lolium nematode has to be a matter for concern when we remember that blind seed disease was introduced to the United States from New Zealand. At the moment, burning would be the only weapon effective in controlling this problem if it should be introduced.

The blind seed pathogen is intermediate in sensitivity to heat, but field fires have been adequate to give excellent control. Please note the details for the fungus in Exhibit C and especially the apothecia that produce the primary spores. In cleaned seed samples from the 1974 crop of perennial ryegrass (Lolium perenne), 97% show no disease and 3% show only a trace. One must understand, however, that this disease is more prevalent than this might suggest, since some light-weight infected seeds are removed during cleaning and this infection does not show up in our tests. Unfortunately, the pathogen is also present in many areas adjacent to fields and is constantly blowing into seed production fields. The fires suppress the increase in disease each year, and that is a major function of field burning. The disease is insidious because dead seeds from late-stage infections have the same weight as healthy seeds and cannot be removed in seed cleaning. Without burning or other thermal sanitation, one would expect that within two years, there would be a significant decline or reduction in seed germination percentages to a level considerably less than minimum market standards.

It is important to understand that the practice of straw removal before burning grass fields or no burning may result in an increase in blind seed disease. A serious increase in this disease during 1956, 1957, 1958, was caused by impaired burning due to poor distribution of straw in perennial ryegrass fields. Use of

straw choppers on combines prevented the spreading of straw over the original swath. A hot fire in the streaks of chopped straw killed plants in the strips, but an inadequate fire allowed perpetuation of blind seed disease and ergot between these strips. This is graphically shown in the exhibit charts that show increased incidence of blind seed disease (Exhibit D) and increased percentage of poor quality seed due to the disease (Exhibit E). The incidence chart also shows the dramatic decrease of the disease in 1950 after most fields were burned in 1949, and recovery of control after 1958.

Blind seed disease is dangerous to perennial ryegrass, tall fescue, bluegrasses, fine fescues, and to a lesser extent to annual ryegrass. The problem in annual ryegrass is different. The old type annual is susceptible but often escapes infection because the flowering period occurs after the usual primary spore discharge. To be frank, annual fields in the past were a mixture with perennial, and these perennial plants are subject to the disease. Eventually newer varieties will dominate this annual acreage, and these newer varieties will be subject to infection, because their flowering period is similar to that in perennial ryegrass.

Blind seed disease wiped out the perennial ryegrass seed industry in New Zealand. Their ryegrass cannot be burned because it is grown primarily for pasture in a mix with white clover, a plant species that cannot tolerate the heat to which it would be subject under field burning conditions.

Of all the diseases now controlled by field burning, ergot is probably the most dangerous. The main details for ergot are shown in Exhibit F, and please note the ascocarps at letter E. Ergot is the most resistant to heat, and no chemical control is yet feasible. Excepting Sudan grass, all grasses grown in

Oregon are susceptible. Damage from ergot is usually much greater than is apparent, because many infected florets are blank without formation of a seed or a sclerotium. An increase in ergot, similar to that for blind seed disease, occurred during 1956-58 when poor straw distribution resulted in ineffective fires. More recently during 1969, severe infestations occurred in turf-type perennial ryegrass fields that could not be burned in 1968 because of unusual late summer rainfall. As a result of this failure to burn for only one year, the level of ergot present the following year was the greatest seen in a span of 20 years.

In two fields of turf-type perennial ryegrass, straw was removed before the stubble was burned in 1973. The 1974 seed crop in both fields was severely damaged by ergot, and this infection resulted from spores discharged from ascocarps that were stimulated by rain on three days, June 25, 26, and 27.

Any interruption in burning grass fields will result in a rapid increase in ergot. The reason is fairly simple. In fields of several grasses, particularly bluegrasses, there exists considerable ergot every year and the control by fire, while the best treatment known, regrettably is only a partial control. Thus, each year there is an increase of ergot, but through the use of fire its increase is reduced and thus held to manageable bounds. And in effect, this is the way field burning works to control several diseases. Therefore, it would be totally irresponsible to suggest that ergot will not be serious for two years without burning. Unfortunately, ergot will become a serious problem in many grass fields after just one year without burning.

Blind seed disease and ergot are two diseases that cannot be eliminated with any currently known techniques because the diseases are prevalent in areas

beyond the treated fields. Carrier plants, such as perennial ryegrass and tall fescue, are abundant along all roads, pastures, woods, vacant lots, parks, airports, or just anywhere. These plants serve as hosts in perpetuating diseases and thus serve as a source of spores that are carried by air currents into seed fields. One of the heaviest infections of ergot I ever saw was on a plant of perennial ryegrass growing out between the sidewalk and north wall of the Sears Roebuck tire store in Corvallis. This urban location is a long way from any seed field.

One last point about ergot is that a considerable number of heads form in perennial ryegrass fields after harvest if not treated with heat. These autumn heads invariably are heavily infected with ergot thus producing an additional secondary source of inoculum. Burning prevents this fall reheading and thereby minimizes ergot buildup and avoids possible poisoning of livestock, game animals and birds that might otherwise feed on the toxic sclerotia.

Although most attention is paid to ergot, blind seed disease, and seed nematode, we can expect trouble from certain other diseases without thermal sanitation. As indicated in the 1974 Seed League paper, for example:

> "Phleospora stem spot is a critical disease on red fescue in Canada. This disease occurs on all sides of the Willamette Valley and in eastern Oregon, Washington, and Idaho on wild fescues, but it does not occur in Oregon seed fields. Drew Smith, plant pathologist at Saskatoon, worked on this disease in our laboratory for six months during 1970, and he feels that field burning has kept this disease out of Oregon seed fields. Some bluegrass varieties develop practically no heads in northern Idaho

without burning. The possibility of a disease relationship with poor heading will be investigated in new studies at both the University of Idaho and Washington State University. We must admit that we don't know all the diseases that might have been controlled by burning in the past 26 years."

So much for the disease situation. Let us turn to the status of alternate methods for disease control to replace field burning. The pathology project in recent years has emphasized three major items of research relating to field burning: (1) Evaluation of heat treatments to aid development of field incinerators, (2) Development of chemical control for ergot and blind seed disease, and (3) Search for safe degradable chemicals to replace existing fungicides containing nickel used for grass rust control, thus permitting the use of straw for feed.

In 1973, a number of incinerator treatments did not kill the ergot fungus in all of the sclerotia tested. However, in 1974, practically all the machine treatments killed the ergot. From this we anticipate good control of the ergot pathogen by the machines being projected. Thermal treatments that kill ergot would also kill the more sensitive blind seed pathogen in infected seeds and the seed nematode in galls at the soil surface. Thus, I anticipate successful tests in 1975 on the latest modified interim flamer and on other new machines being planned. These incinerator evaluations are being supported in part by a special extramural research fund of $20,000 per year by the USDA Agricultural Research Service granted to the Oregon Agricultural Experiment Station for cooperative efforts.

Over the past 17 years, all appropriate chemicals that could be obtained

have been evaluated for suppression of both blind seed and ergot ascocarps. A few chemicals demonstrated good activity but were either too expensive (benzimidazoles), could not be registered (pyrimidines), or were otherwise not feasible (cadmium). However, as indicated in the 1974 Oregon Seed Growers League report, we found two new chemicals with strong activity during the past 15 months.

One experimental chemical, BAY MEB 6447 [1-(4-chlorophenoxy)-3, 3-dimethyl-1-(1H1,2,4-triazol-1-yl)-2 butanone], has suppressed the formation of blind seed apothecia and ergot ascocarps at the lowest rates of all chemcals tested. Further tests are in progress to determine effectivenness of BAY MEB 6447 in fall applications. In tests since November, another new chemical, EL-222 (identity still confidential), has also exerted strong suppression of blind seed disease apothecia and ergot ascocarps. Results with these two chemicals, BAY MEB 6447 and EL-222, are encouraging for eventual chemical control of ergot and blind seed disease. Although the sponsoring companies indicated they hope to bring them to the market, for a number of reasons these chemicals are not expected to be available as commercial products for use on grass seed crops for three years, and more realistically, it may be five years. The Chemagro Agricultural Division of Mobay Chemical Corporation recently furnished their best estimate on the possible time for availability of BAY MEB 6447 as a commercial product for use in grass seed fields. A copy of their letter dated February 28 is attached as Exhibit G, and I thank them for their permission to include this letter.

One of these chemicals, BAY MEB 6447, has also given excellent control of certain rust diseases, powdery mildew, stripe smut, and flag smut and is reputed to have strong activity on many leaf and stem diseases. BAY MEB 6447 has to be

regarded as a breakthrough in control of plant diseases. I am pleased to share this exciting scientific development with you, although we may have to wait three to five years for the commercial product, assuming it can be registered for use on grass seed crops.

I feel that every reasonable effort has been made to find alternate disease control by fungicides. Since 1958, we have had an intensive program to detect effective chemicals for control of rust, blind seed, ergot, stripe smut and flag smut. We have solicited chemicals from all the fungicide development companies in the world. The attached form letter (Exhibit H) was sent out December 2, 1974, to 63 companies that are active in fungicide development or marketing. From this latest request we have thus far obtained samples or promises for 18 new chemicals from 10 companies. One additional strong candidate chemical will perhaps be available this fall. A few additional chemicals may be received as a result of the December 2 letter, but this is about the number that we have come to expect each six months or so. Of course, some chemicals would be received without the letter, because companies know of our interest. However, we plan to send a similar request periodically to remind chemical companies of the urgent need for chemical control of the several grass diseases now controlled by field burning.

As described in the 1974 Seed League report, two new chemicals, BAY MEB 6447 and BAS 31702F, gave good control of stripe rust last summer. Omitting the details, these results offer real hope that rusts and other foliar diseases may be controlled by chemicals without residue problems that will permit use of the straw for feed.

An explanation of the need for thermal sanitation to control diseases in grass seed production could begin with the nature of the problem to explain why

burning was started and why some kind of thermal sanitation is still necessary. The disease problem as described in earlier reports is still appropriate with slight updating.

Several hundred diseases attack the more than 200 varieties of grasses grown commercially for seed in the Pacific Northwest. Seed production is inherently trashy farming that unavoidably creates conditions favorable for maximum development of diseases. A buildup of diseases in fields is inevitable when inoculum is allowed to accumulate during several years of continuous grass culture. These unavoidable difficulties are compounded by the impracticality of major methods used for control of diseases of other plants. Breeding for disease resistance is usually impractical due to the large number of grasses and diseases involved, and because nearly all varieties grown are developed in other states or countries and must be returned to the seed-consuming area without change. Crop rotation is not possible in culture of long-term perennials or in continuous culture of annuals. Seed treatments have only limited value. Except for our chemical control of rust diseases, the chemical control of grass diseases generally has not been feasible. All of this is complicated in most grass crops, because low-acre returns dictate that control methods must be inexpensive. Under these circumstances maximum sanitation is imperative, and simple removal of straw would be inadequate. Burning fulfills the low-cost requirement, and by generation of sterilizing heat, furnishes the most effective field hygiene ever developed in the culture of perennial field crops.

To update this, the prospects for grass disease control have improved somewhat. Some new grass varieties are resistant to certain foliar diseases, but we still

have no resistance to blind seed disease, ergot, and grass seed nematode. Chemicals have been improved, and a few appear to be highly promising for control of certain diseases in three to five years, if they can be registered for use on grass seed crops. It is quite possible that chemicals will be found that are even better than the ones I am reporting to you. I would add that we will continue our intensive effort to find additional chemicals for control of our most serious diseases. The mobile field sanitizers have been demonstrated to supply the thermal sanitation needed when they become operational.

I look forward to tests of a combination flamer-incinerator for disease control in other crops, such as alfalfa and certain other perennial forage crops. Although Oregon has done most of the work and provided most of the money, a successful field sanitizer is likely to be used around the world in many different field crops. Perhaps such machines will function with plant refuse as the main fuel, hopefully because it is a renewable energy resource, to provide the heat treatments for control of insects, weeds, and diseases in the effort to increase food supplies.

In preparation of a chapter on use of fire and flame for plant disease control around the world, I have learned of an extensive use of burning. A few major examples include the burning of sugarcane in southern United States, Hawaii, Cuba, and other world production areas, burning of low-bush blueberries in north-eastern United States and Canada, burning of Bermuda grass pastures in the South, and understory burning of several million acres of pine forests in the South and East. We should also acknowledge that 1974 saw a big shift in policy by the U. S. Forest Service. Suppression of all fires has changed to management of wildfires

and prescribed burning in forests for vegetation control and reduction of fire-hazardous fuel where possible.

Apparently Oregon is the only state that has banned burning of grass seed fields. However, extensive acreages of grass seed fields are burned in Washington, Idaho, and Minnesota by permit under smoke-management systems. In Califonria, more than 400,000 acres of rice straw and stubble and about 450,000 acres of barley are burned every year under permit. Authorities have indicated that they expect field burning would continue in these four states until feasible alternatives become available.

The success of the smoke-management program, the significant progress in field sanitizers, especially toward the end of the summer in 1974, developments in handling and marketing of the straw, and development of an effective herbicide that can be used in annual ryegrass illustrate that a very big and serious effort has been made to find alternatives. This commendable progress is matched by the discovery of some exciting new experimental chemicals that will help control major grass diseases. These developments offer real encouragement that alternatives to open field burning may soon be available.

Although thermal sanitation is highly desirable in grass seed production for maintaining high seed yields and quality, and for weed and disease control, the smoke is unnecessary. The incinerators, when perfected, would eliminate most of the smoke and would provide even better thermal sanitation than from open burning.

Whatever field burning program is adopted, it is desirable that thermal sanitation be continued to maintain the excellent control of diseases and weeds for another three or four years. Then, hopefully, sanitation with an incinerator-

flamer and possibly new chemicals may be available to improve disease control. Combining these elements and others that still may be developed should lead to efficient production of essentially disease-free seed which has been our long-time goal. I would be happy to provide additional information to any group that is discussing these questions. I would like to state that the testimony presented herein represents the best information I have. Furthermore, this is the only testimony on disease increase predictions and control for which I want responsibility. I wish, therefore, to disclaim association with any other testimony that is in disagreement. I would also add that I personally hope the smoke can be eliminated while thermal sanitation is maintained.

The search for substitutes for field burning has been a long and tedious effort, but we can be encouraged by the recent progress that has been reported. Hopefully, we can somehow bridge the gap from now to the time when feasible sanitizers, straw markets, effective herbicides, and fungicides become available, as I am confident they will if we continue the effort.

Finally, I would personally like to acknowledge and express appreciation to the Oregon Legislature for your continuing support that makes all of these agricultural research programs possible.

Thank you.

Field Burning Testimony to Special
House Committee - J. R. Hardison
March 5, 1975

Exhibit A

Table 1. Significant diseases controlled and years field burning started on major perennial seed crops

Grass	Time universal burning started	Diseases controlled by field burning	
		Good control	Partial control
Perennial ryegrass	1948-49	Blind seed disease* Ergot* Silver top	Helminth, leaf blotch Stem rust Other leaf diseases
Tall fescue	1949-50	Blind seed* Ergot* Silver top	Cercospora leaf-spot Other leaf diseases
Bluegrasses	1950's	Ergot* Silver top*	Stripe smut Flag smut Rusts Powdery mildew Other leaf diseases
Chewings fescue	1950's	Silver top*	Red thread
Red fescue	1950's	Seed nematode* Ergot*	Septoria blotch Powdery mildew Leaf rust Other leaf diseases
Colonial bentgrass	1954	Ergot* Silver top*	Seed nematode* Rhizoctonia Leaf diseases
Orchard grass	1958	Ergot* Multiple leaf diseases* Silver top*	Stripe smut

* Diseases marked with an asterisk were original reasons for field burning. Chemical control is available and used for rust diseases based on our studies during 1957-1962. Chemicals are available for control of silver top but have not been necessary with field burning. Chemicals are not available for control of blind seed, ergot, or grass seed nematode.

Field Burning Testimony to Special
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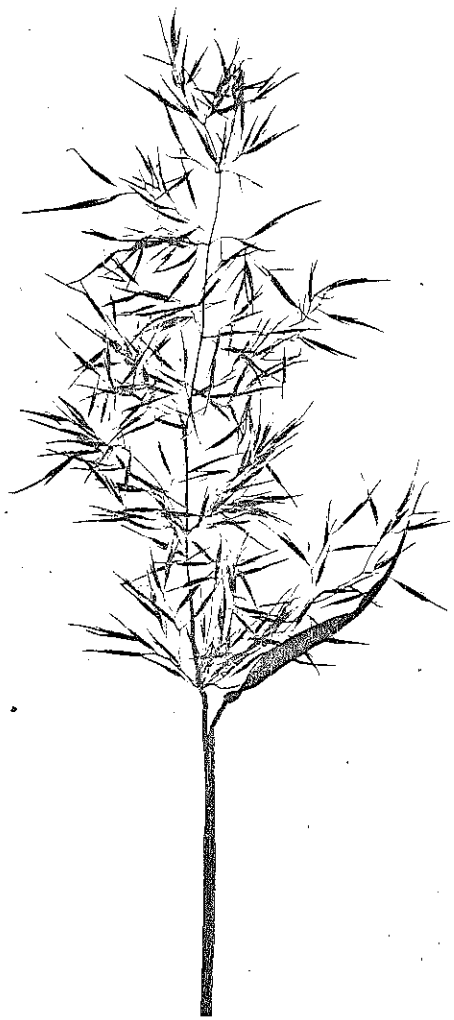
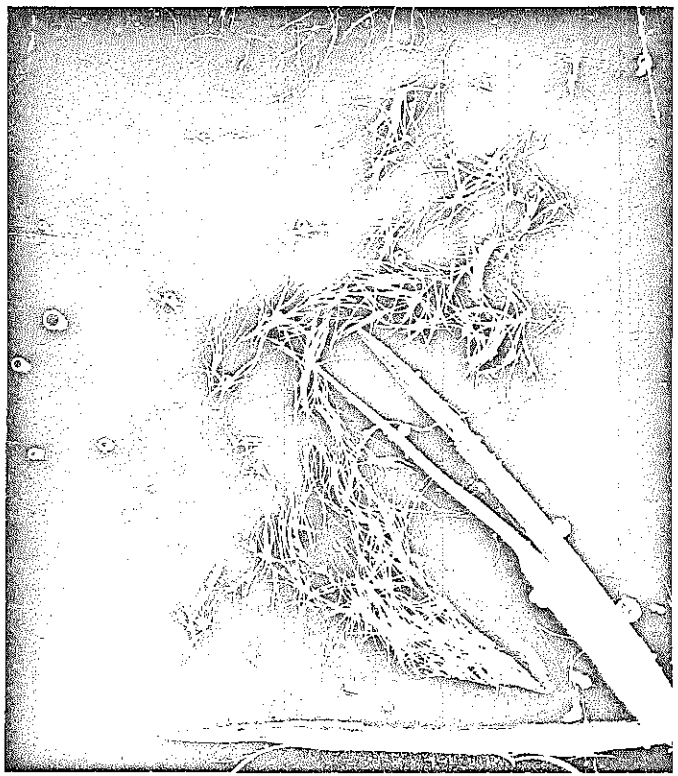
March 5, 1975
Exhibit B

Healthy

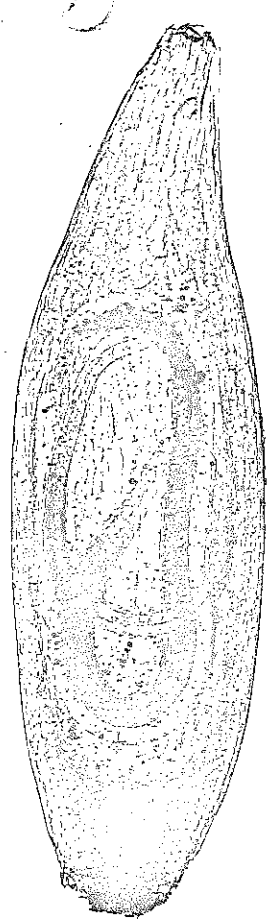


Infected with seed
seed nematode

Astoria bentgrass



A nematode gall from an infected panicle open to allow the escape of second stage larvae.



Nematodes enclosed in a developing bentgrass gall. Females are larger than transparent males.

Grass Seed Nematode

Field Burning Testimony to Special
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Exhibit C

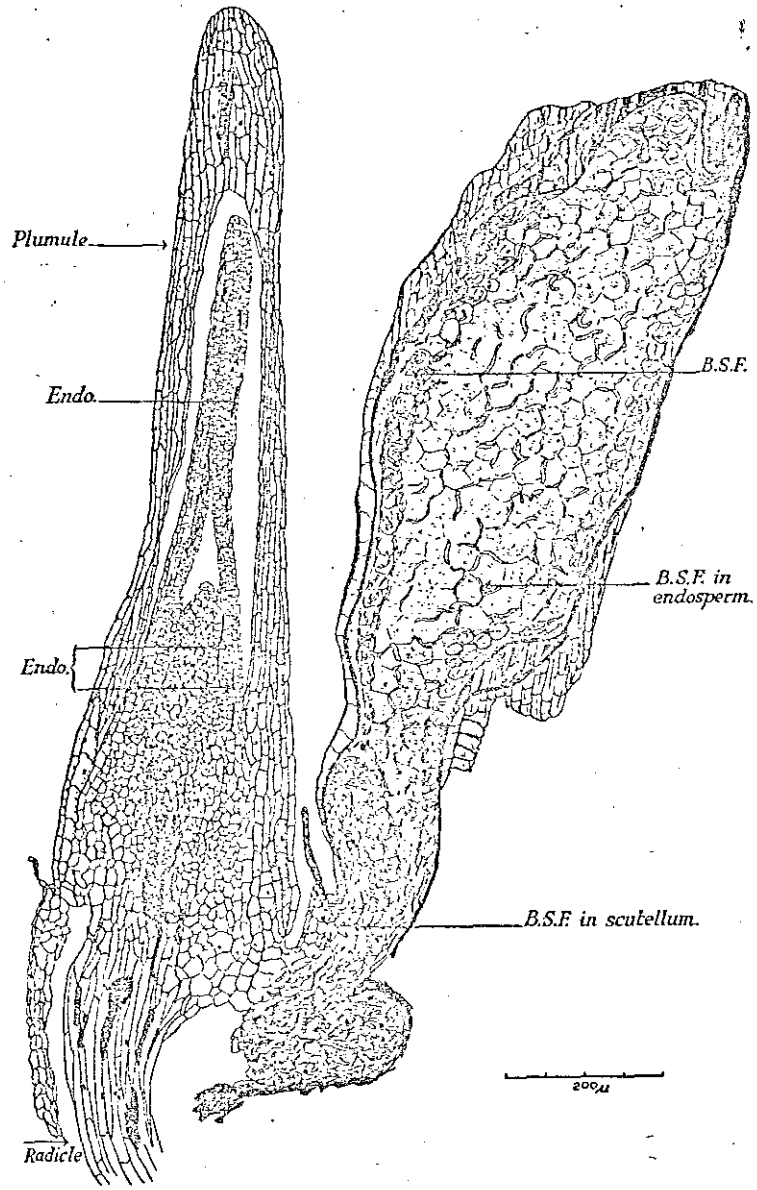


FIG. 5.—Longitudinal section through a germinating caryopsis showing hyphæ of *P. mucosa* (B.S.F.) in the endosperm and scutellum and the endophyte (endo.) in the plumule.

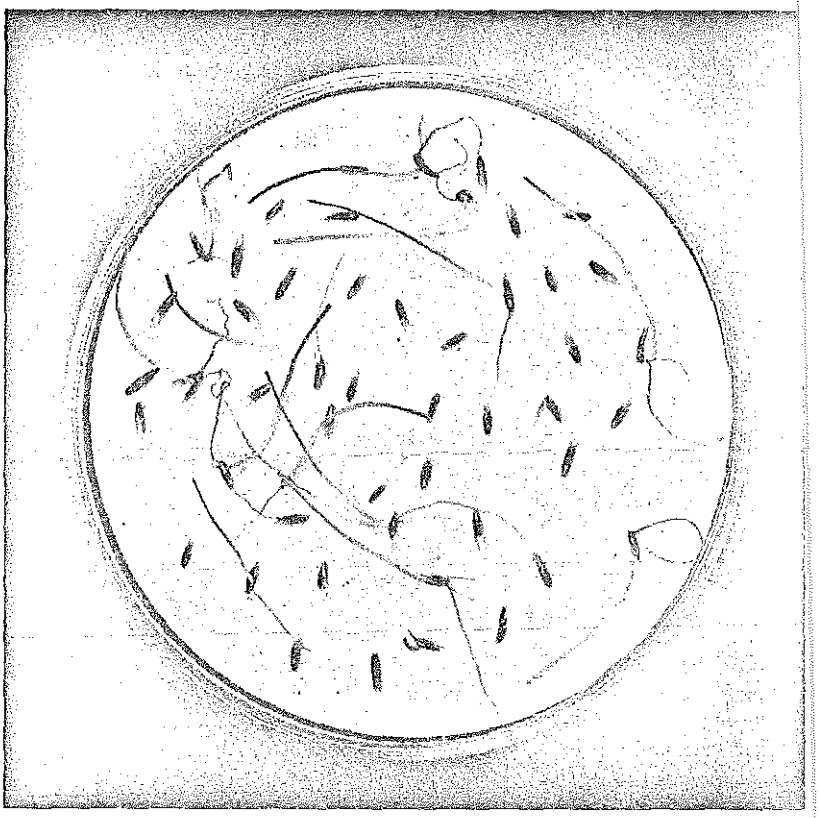
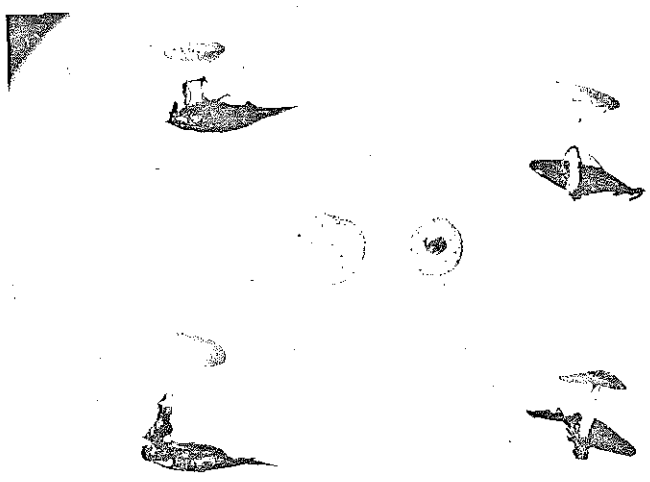


Figure 1. Blind seeds in germination test. (Sample is from a 1948, Linn County, heavily diseased crop that had an average of 27 per cent germination.)



Apothecia of blind seed fungus on infected seed of perennial ryegrass.

Field Burning Testimony to Special
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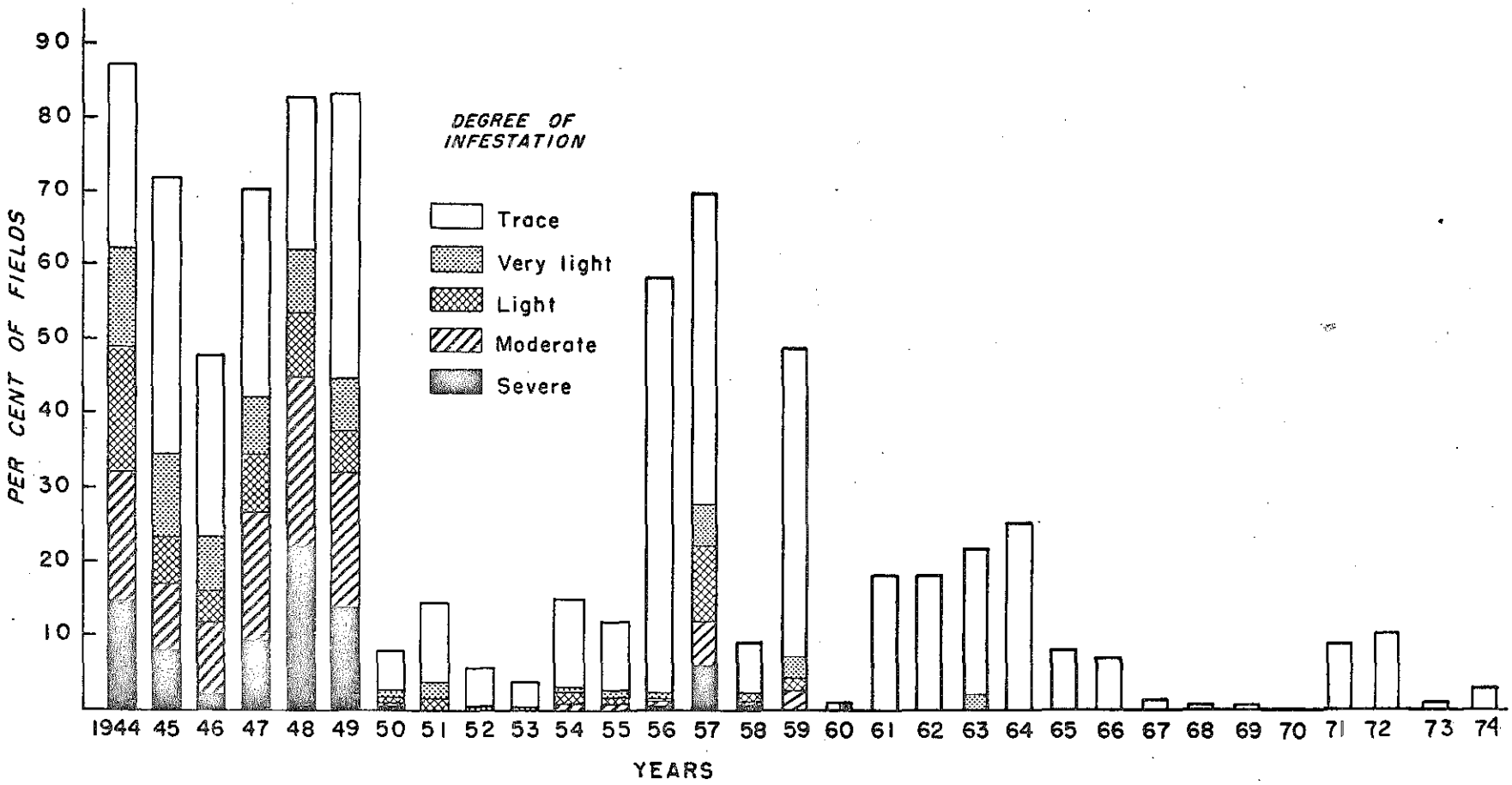
March 5, 1975

Exhibit D

INCIDENCE OF BLIND SEED DISEASE IN OREGON PERENNIAL RYEGRASS FIELDS



Field Burning Testimony to Special
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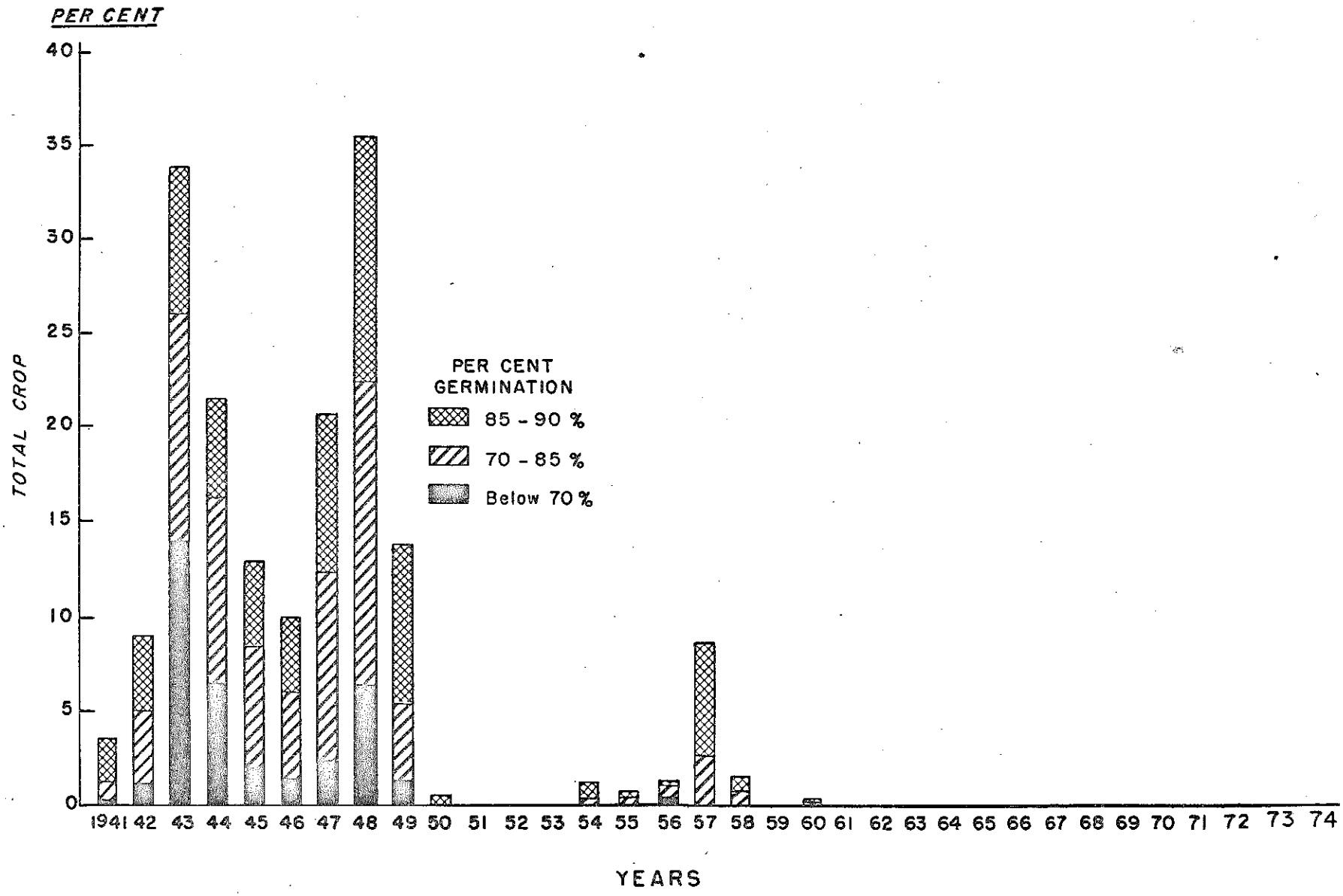
Exhibit E

LOW GERMINATION IN OREGON PERENNIAL RYEGRASS DUE TO BLIND SEED DISEASE



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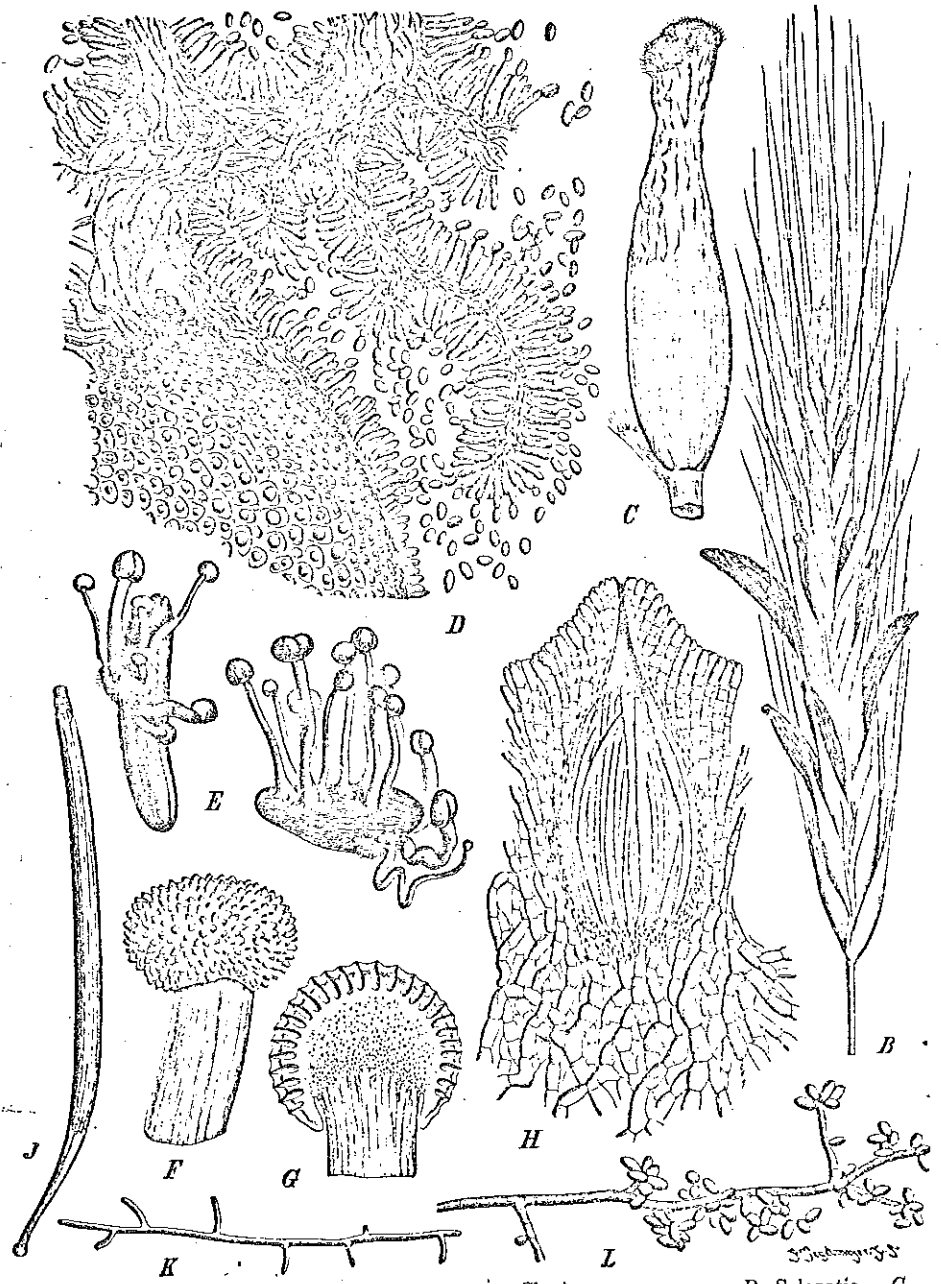
March 5, 1975

Exhibit F

ESSENTIAL FEATURES OF THE ERGOT FUNGUS

The sclerotia (ergots) (B) replace grass seeds. The fungus in Sclerotia is killed by heat from field burning or by mobile incinerators. Note the ascocarps or perithecial heads arising from sclerotia in (E) and enlarged (F and G). Chemicals are being sought to suppress ascocarp formation and thus prevent formation of the primary spores (K and L) that are forcibly discharged and infect ovaries in grass flowers and repeat the cycle.



Claviceps purpurea. *B*. Sclerotia. *C*. Young sclerotium. *D*. Section of conidial layer. *E*. Germinating sclerotia. *F*. Perithecial head. *G*. Section of perithecial head. *H*. Section of perithecium. *J*. Ascus. *K*. Germinating ascospore. *L*. Conidial hypha from culture. (*A*, *B*, *E*, natural size; *J*, *K* × 350; *L* × 200,

Chemagro

Agricultural Division

Mobay Chemical Corporation

P.O. Box 4913
Hawthorn Road
Kansas City, MO 64120

Field Burning Testimony to Special House Committee - J. R. Hardison
March 5, 1975

Exhibit G-1

Please reply to:

4515 S. W. Corbett Avenue
Portland, Oregon 97201
Telephone: 503/224-6235

February 28, 1975

Dr. John Hardison
U.S.D.A.
Dept. of Botany and
Plant Pathology
Oregon State University
Corvallis, Oregon 97331

Dear John:

Thank you for your letter of January 31, and the manuscripts attached reporting your results obtained with BAY MEB 6447 for control of certain disease pathogens of grasses grown for seed.

I have sent this information in to our home office in Kansas City along with a memo further outlining the interest of the grass seed producing industry of Oregon and requesting that we consider this possible use of BAY MEB 6447 for a priority status in the development of the compound.

Chemagro is very definitely planning an expanded research program with BAY MEB 6447 for 1975, but as we have discussed on several occasions (and as you have discussed with our Regional Sales Manager Ed Huckabee in Portland, and Dr. Glen Stetson in Kansas City), the development of a new chemical requires from 3 to 5 years, at a minimum, to gather the necessary biological performance, crop residue, toxicological and other data necessary for registration, starting from a firm commitment to go after a registration. This decision hasn't been made yet, as it will be necessary to obtain more information from the 1975 research season, and to certain other factors.

Field Burning Testimony to Special
House Committee - J. R. Hardison
March 5, 1975

Exhibit G-2

February 28, 1975

Dr. John Hardison
U.S.D.A.
Dept. of Botany and Plant
Pathology
Oregon State University
Corvallis, Oregon 97331

As I mentioned above, I appreciate your letter and reports, and the very valuable cooperation you have given us in evaluating BAY MEB 6447. I will probably be hearing very soon from Dr. Stetson, and others in Chemagro in reply to my memo about the interest shown by the grass seed industry in BAY MEB 6447, and when I can give you a more definite answer on the possible registration plans for the compound, I will contact you as soon as possible.

Sincerely yours,

Jack

Jack W. Warren
Field Research Representative

JWW:dm
cc: M.B. Oller
A.E. Huckabee
Glen Stetson

Field Burning Testimony to Special
House Committee - J. R. Hardison
March 5, 1975

Exhibit H

OSU

OREGON STATE UNIVERSITY

DEPARTMENT OF
BOTANY AND PLANT PATHOLOGY

CORVALLIS, OREGON 97331

(Copy of letter sent December 2, 1974 to 62 chemical companies that are active in fungicide manufacture)

Gentlemen:

We are interested in testing fungicides for control of important diseases in turf grasses. Of most concern are stripe smut (Ustilago striiformis), flag smut (Urocystis agropyri), stripe rust (Puccinia striiformis), powdery mildew (Erysiphe graminis), ergot (Claviceps purpurea) and blind seed disease (Gloeotinia temulenta). Chemicals are also needed for control of various leaf and stem diseases, especially Helminthosporium spp., and for prevention of seed infections. Nematocides are needed for control of grass seed nematode, Anguina agrostis. Loss of open field burning after January 1, 1975, makes availability of chemical control particularly urgent, especially for ergot and blind seed disease.

Systemic fungicides can be tested immediately for eradication of stripe smut, flag smut, and stripe rust. Chemotherapeutic prevention of flower infection by blind seed disease and ergot can be tested in spring months. Protectant and systemic fungicides are all tested for suppression of ergot ascocarps and blind seed disease apothecia. Only a few grams of a candidate chemical would be sufficient for preliminary greenhouse evaluation against these major diseases. Decisive results usually can be obtained within 90 days.

The non-food, non-feed classification of grass seed crops and turf greatly simplify the residue problems in registration and use of new chemicals. In addition, a reasonable amount of plant injury is acceptable in these crops. Commercial use can be developed quickly as shown by the rapid use of nickel fungicides for rust control in Oregon. With the favorable outlook for use of new chemicals on grass seed crops and turf, experimentation on grass diseases is attractive.

We would appreciate suggestions for tests of presently available chemicals and any candidate chemicals that may become available in the future.

Sincerely yours,

John R. Hardison

John R. Hardison
Research Pathologist-USDA

JRH/jmf

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WESTERN REGION
DEPARTMENT OF BOTANY AND PLANT PATHOLOGY
OREGON STATE UNIVERSITY
CORVALLIS, OREGON 97331

May 1, 1975

Representative Bernard Byers
Room 324
State Capital
Salem, OR 97310

Dear Representative Byers:

Enclosed are ten copies of the letter dated March 7, 1975, from the Chemagro Division of Mobay Chemical Corporation that you requested. I have labelled this letter, Exhibit I-1, and Exhibit I-2, so that it can be inserted in the packets with my written testimony, if you so desire. In any case, this letter from G. G. Stetson will clarify the possible time of product availability of their experimental chemical BAY MEB 6447, which they predict would be the end of 1978 or later.

In my written testimony I hope I clarified that diseases will again be a problem without burning (pages 4, 5, 6, and 7). Ergot is already a problem in several grasses and will cause serious damage in many fields beginning in one and two years without burning as explained on pages 6 and 7. I am enclosing another copy of my March 5 testimony for your convenience.

I would be pleased to provide clarification on any other questions you may have. Dr. Orvid Lee could provide valuable assistance on questions concerning the necessity for burning or other thermal treatment for weed control. Dr. Lee should be requested to clarify the time when the experimental herbicide, NC-8438, might become available.

Sincerely yours,

John R. Hardison
Research Plant Pathologist

Enclosures

Chemagro

Agricultural Division

Mobay Chemical Corporation

P.O. Box 4913
Hawthorn Road
Kansas City, MO 64120

Cable: Kemagro Kansas City
Telephone: 816/483-4250

Addition to
Field Burning Testimony to Special
House Committee - J. R. Hardison
March 5, 1975

Exhibit I-1

March 7, 1975

Dr. John Hardison
U. S. Department of Agriculture
Department of Botany & Plant
Pathology
Oregon State University
Corvallis, Oregon 97331

Dear Dr. Hardison:

Our Field Research Representative in your area, Dr. Jack Warren, has requested that I write you concerning the development of BAY MEB 6447.

This candidate fungicide compound is included in an expanded schedule in our Field Research program for 1975. As you know from results of your excellent tests, this compound has shown interesting and promising activity. We are, therefore, encouraged to continue the field testing of this compound during the coming season. No decision has been made at this time, however, concerning its complete development for registration. As you know, a minimum of an additional 3 years beyond the point of decision to proceed with the studies in the areas of metabolism, residue method development, toxicology, environmental impact, etc., are required before an application to EPA for registration can be submitted. A decision to proceed with these additional expensive and time consuming studies will not likely be made before the end of the 1975 testing season. This decision will be based on the outcome of these trials and other pertinent considerations.

The above information was what I attempted to communicate to Mr. Dave Frohnmayer, Oregon State Representative, who telephoned me on February 24, 1975. If he misunderstood or misinterpreted my statements and it has caused you any difficulties, please accept my regrets. I believe that I was quite clear in relating to Mr. Frohnmayer the time constraints in putting a new pesticide product on the market. It is beyond my comprehension how the information that I gave him could have led him to think that the availability of this compound by the Fall of 1975 could be even in the realm of possibility.

There is, of course, some variation in the length of time required for development of compounds depending upon their chemical and biological characteristics

and the proposed use pattern. Three to five years beyond the point of decision to proceed with full development covers the minimum time based on our recent past history.

We appreciate your excellent cooperation in including BAY MEB 6447 in your test program and for providing us with the results of your studies. If we can be of further help to you, please let us know.

Sincerely yours,

CHEMAGRO AGRICULTURAL DIVISION
MOBAY CHEMICAL CORPORATION

G. G. Stetson, Manager
Research & Development Planning

GGS:nra

Addition to
Field Burning Testimony to Special
House Committee - J. R. Hardison
March 5, 1975

Exhibit I-2

DISEASE PROBLEMS WITHOUT BURNING[1]

Dr. John R. Hardison[2]

The reports by Bill Rose and Tom Miles described the history and necessity for field burning, the success of the smoke-management program, progress in field incinerators, developments in handling and marketing of straw, and a phase-out program for open burning. These reports illustrate that a serious effort has been made to find alternatives. A new document, "Oregon State University Research on Field Burning", will be available as a Circular of Information in January, and this includes the latest information from several research projects.

The major seed diseases now controlled by burning in order of importance are ergot (Claviceps purpurea), blind seed disease (Gloeotinia temulenta), and seed nematode (Anguina agrostis). This is the reverse order of their sensitivity to heat.

Seed nematode has been virtually eliminated in Chewings fescue (Festuca rubra var. commutata) by burning fields, and this is the best control in the world. No effective chemical control is known. Without burning, seed nematode should reappear in Chewings fescue, but probably at a much slower rate than the other two diseases.

A seed nematode appeared in Wimmera ryegrass (Lolium rigidum), a volunteer grass weed, after burning of wheat fields was discontinued about 20 years ago in Australia. Many animals have died from grazing nematode-infested ryegrass pastures in southern Australia. More recently, 4,000 steers died after grazing infested pastures in western Australia. We certainly don't need this nematode in Oregon ryegrass fields. We especially don't need it if we can't use fire to kill it. Burning should always be available as a reserve weapon to eradicate a new disease such as the seed nematode.

The blind seed pathogen is intermediate in sensitivity to heat, but field fires have been adequate to give excellent control. In cleaned seed samples from the 1974 crop of perennial ryegrass (Lolium perenne), 97% show no disease and 3% show only a trace. It is more prevalent in fields since some lightweight infected seeds would be removed in cleaning. However, the fires have suppressed the disease increase each year. Chemical control is not yet available. Without burning, a good guess is that within two years once again we would have many germination percentages less than certification minimums. The disease is insidious, because dead seeds from late-state infections have the same weight as healthy seeds. These possibilities are not pleasant to contemplate after we established the only control in the world that is nearly perfect.

Of the diseases now controlled by field burning, ergot is probably the most dangerous. Ergot is the most resistant to heat, and no chemical control is yet feasible. All perennial grasses we grow are susceptible. Damage from ergot is usually much greater than is apparent, because many infected florets are blank without a seed or sclerotium. Ergot should increase rapidly without thermal field sanitation. For example, in two fields of fine-leaf perennial ryegrass, straw was removed before the stubble was burned in 1973. The 1974 seed crop in both fields was severely damaged by ergot. The infection resulted from spores discharged from ascocarps that were stimulated by rain on three days, June 25, 26, and 27. Fields of several grasses, particularly bluegrasses, have an incidence of ergot that would cause serious damage the following year if not reduced by the annual burning. No feasible chemical control is yet available. Termination of thermal sanitation will result in serious losses from ergot infections within two years.

Many other diseases are controlled to some extent by burning. Each grass is attacked by several fungus diseases of leaves and stems. Some foliar diseases, singly or in groups, can cause defoliation, and they may infect seeds under favorable conditions. Many factors are involved in epidemiology, and it would be hazardous to predict what disease increase to expect. Suffice now to suggest that there will be an increase in incidence of foliar diseases if thermal sanitation is not applied.

---

[1] This is a report on the current status of research concerning use of chemicals that require registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended by the Federal Environmental Pesticide Control Act. Not all of the chemicals mentioned here are presently so registered with the Environmental Protection Agency. No recommendations for use of these chemicals are implied in this report.

[2] Research Plant Pathologist, Agricultural Research Service, U. S. Department of Agriculture; and Department of Botany and Plant Pathology, Oregon State University, Corvallis.

Phleospora stem spot is a critical disease on red fescue in Canada. This disease occurs on all sides of the Willamette Valley and in eastern Oregon, Washington and Idaho on wild fescues, but it does not occur in Oregon seed fields. Drew Smith, Plant Pathologist at Saskatoon, worked on this disease in our laboratory for six months during 1970, and he feels that field burning has kept this disease out of Oregon seed fields. Some bluegrass varieties develop practically no heads in northern Idaho without burning. The possibility of a disease relationship with poor heading will be investigated in new studies at both the University of Idaho and Washington State University. We must admit that we don't know all the diseases that might have been controlled by burning in the past 26 years.

The pathology project in recent years has emphasized three major items of research relating to field burning: 1) evaluation of heat treatments to aid development of field incinerators, 2) development of chemical control for ergot and blind seed disease, and 3) search for degradable chemicals to replace fungicides containing nickel for grass rust control to aid utilization of straw for feed. In 1973, a number of incinerator treatments did not kill the ergot fungus in all of the sclerotia tested. However, in 1974 practically all the machine treatments killed the ergot. From this we can anticipate good control of the ergot pathogen by the machines being projected. Thermal treatment that kills ergot would also kill the more sensitive blind seed pathogen in infected seeds and the seed nematode in galls at the soil surface. Thus, we anticipate successful tests in 1975 on the latest modified interim flamer and on other new machines being planned. These incinerator evaluations are being supported in part by a special extramural research program of the USDA Agricultural Research Service in cooperation with the Oregon Agricultural Experiment Station.

Development of chemical control of blind seed disease and ergot has been a long process. Numerous chemicals have been studied for control of blind seed disease and ergot since 1964. Chemical control can be directed to preventing flower infection, or, more realistically, to suppressing ascocarp formation for reduction or elimination of primary (ascosporic) inoculum. Protection against flower infection is difficult because the ovary is covered by the lemma and palea. Certain systemic chemicals (benzimidazoles) have prevented flower infection by root uptake after very high dosages were applied to soil. Although this approach is not yet promising, additional chemicals for preventing flower infection will be studied.

Commercial fungicides as well as many experimental chemicals have been tested for suppression of ascocarps of blind seed disease and ergot. A few chemicals suppressed apothecia of blind seed disease at fairly low rates, but much heavier dosages were needed to suppress ergot ascocarps. The most active chemicals are recent inventions. Two pyrimidines, triarimol and EL-279, were far superior to all other chemicals tested. Unfortunately, these two chemicals were not accepted for federal registration. Two other active chemicals, benomyl and thiophanatemethyl, are being used to control diseases in turf and other ornamentals. These chemicals are still too expensive for use in ergot control on grass seed crops. Cadmium chloride has been one of the chemicals with fairly good activity in suppressing ascocarps of both blind seed and ergot. However, cadmium compounds are not registered for use on food crops or crops that might be fed or grazed.

Fortunately, this past year we obtained an experimental chemical, BAY MEB 6447 [1-(4-chlorophenoxy)-3, 3-dimethyl-1-(1H-1,2,4-triazol-1-yl)-2 butanone], that has given suppression of blind seed apothecia and ergot ascocarps at the lowest rates of all chemicals tested. Tests are in progress to check effectiveness of BAY MEB 6447 in fall applications. In just the last month a confidential chemical has exerted strong suppression of blind seed disease apothecia and ergot ascocarps. These experimental chemicals could not be available for a minimum of three years, but the results are encouraging for eventual chemical control of ergot and blind seed disease.

We have made numerous individual tests with a few hundred chemicals. We constantly solicit appropriate new chemicals from fungicide manufacturers. Our latest request went out December 2 to 63 chemical companies to remind them of our great need for new chemicals. Our results are published as fast as can be arranged. Two new papers are now in press that report latest results on blind seed and ergot. We hope this information will encourage scientists to conduct tests to help evaluate chemicals under field conditions. Chemical companies also use our results to plan new molecular forms for our testing program.

The original EPA registration of nickel-maneb for grass rust control was cancelled. Dr. Paul Koepsell, Extension Plant Pathologist, and I were informed that label reinstatement would require certain wildlife feeding test data. We purchased the wildlife feeding tests with the financial support of the Manhattan Ryegrass Growers Association, Northrup King and Company, and O. M. Scott and Sons. The test data were furnished to the Rohm and Haas Company, and they have submitted a request to EPA for reinstatement of the old Dithane S-31 label. Recent reports indicate that the request is in review by EPA, and no problems are anticipated.

The search for other rust chemicals has been a tedious process that has been in operation since 1959, when we first introduced nickel to Don Hector's bluegrass fields. A few chemicals, such as oxathiin and thiazole derivatives, have looked good for control of rusts in lawns and other turf, but they were too toxic for seed crops. Luckily, in 1974 two new chemicals exerted excellent control of grass rusts. Both are still experimental. One, BAS 31702F (2-iodo-benzanilide), was inferior in our tests during

the last several years. However, in a new formulation, BAS 31702F gave full-season control of stripe and leaf rust in one-year and three-year-old Merrion bluegrass (Poa pratensis) from three sprays applied May 1, 13, and 28, at 1, 1.5 or 2 lb. per acre. The other chemical, BAY MEB 6447, gave full-season control of stripe and leaf rust by a single spray applied May 1 at either 1 or 1.5 lb. per acre on one-year-old Merion. The chemical at one-half pound per acre was sufficient for rust control in three-year-old Merion bluegrass. Hopefully these two organic compounds perhaps can be used without presenting residue problems on the straw. At present, both chemicals are being considered for market development, but a commercial product could not be ready before a minimum of three years.

BAY MEB 6447 has eradicated stripe smut (Ustilago striiformis) and flag smut (Urocystis agropyri) in Merion bluegrass, and it is very effective against powdery mildew (Erysiphe graminis). This chemical also is reputed to be effective against many leaf and stem fungi. With this unique wide-spectrum activity against rusts, smuts, and many other fungi, BAY MEB 6447 represents a breakthrough in chemical control of plant diseases. I am pleased to share these exciting chemical developments with you, and these could not come at a better time to help the grass seed industry.

It is interesting that Oregon is the only state that has banned burning of grass seed fields. This is remarkable, because extensive acreages of grass seed fields are burned in Washington, Idaho, and Minnesota by permit under smoke management systems. In California, more than 400,000 acres of rice straw and stubble and about 450,000 acres of barley are burned every year under permit. In fact, while these seed meetings are in session, the California Air Resources Board is conducting demonstration burning of rice straw to show the public how much they have improved the practice. Authorities replied last week that field burning would continue in these four states until feasible alternatives become available.

When the kind of thermal sanitation is decided (and it is unthinkable not to have thermal sanitation at the soil surface in grass seed fields), then we can work out additional plans to compliment the heat treatment. Some elements of our production system need attention. We need to provide disease-free seed stocks obtained by detection, chemical treatment, or even aerated-steam treatment if necessary. Shorter grass intervals in crop rotations would be desirable, and perhaps more legumes will become available to balance with the grass acreage. Chemical treatments of plants to reduce foliar diseases and to minimize the chances for coincidental seed infections may become feasible as the more effective chemicals become available. Monitoring the incidence of major diseases in every field may become desirable. This can be done by a spore recovery method for blind seed disease. For ergot, we will need field-run seed to determine the actual field incidence. Samples of field-run seed where any amount of ergot is seen in the heads will help determine the annual rate of increase. All possible light-weight seed should be removed during harvest to avoid blind seed disease infected seeds, nematode galls, and ergot as well as weed seeds. This should be coordinated with removal of chaff that interferes with herbicide performance. Complete crop and residue removal may become an essential pretreatment to improve transfer of heat to bare soil by mobile field incinerators.

Except for ergot the wide diversity of varieties and species of grass seed crops gives some protection against total disease infestations. Steady improvement in grass varieties is evident in improved resistance to various foliar diseases. However, seed production problems, e.g. ergot, seed nematode, blind seed disease, and some inflorescence diseases and strictly western diseases like stripe rust, are not included in most improvement programs. The incinerator may provide maximum sanitation that could be better than that from open burning. The machines may also provide a method for thermal sanitation in alfalfa and some other crops that have insufficient plant refuse to fuel an open fire.

Whatever program is adopted, it is desirable that thermal sanitation be continued on perennial grasses to maintain the excellent control of diseases and weeds for another three or four years. Then, sanitation with an incinerator-flamer, plus new chemicals, planting of disease-free seed on clean land, shorter rotations with legumes, removal of inoculum during harvest, and chemical treatment of plants and developing seeds, should improve disease control. Combining these elements and others still to be developed should lead to efficient production of essentially disease-free seed which has been our long-time goal. I would be happy to provide additional information to any group that is discussing these questions.

Reprinted from: Thirty-fourth Annual Meeting (December 1974), Oregon Seed Growers League, Proceedings.

FIELD BURNING AND GRASS DISEASE CONTROL

J. R. Hardison

Studies on effects of field burning on disease control were started in 1944 in the Department of Botany and Plant Pathology by J. R. Hardison. Effectiveness of burning in controlling blind seed disease was established during 1944 to 1948. Burning of perennial ryegrass fields was recommended in 1948 to control blind seed disease and to save the ryegrass seed industry. Later on, burning of other grasses was recommended to control various grass diseases, as shown in Table 1.

Burning immediately controlled several diseases, some weeds, certain insects, and increased seed yields. In 1949 and 1950, yields tripled in perennial ryegrass, and similar large yield increases were obtained in tall fescue, highland bentgrass, Kentucky bluegrass and other grasses.

Although work on field burning has been continuous in the Botany and Plant Pathology Department since 1944, studies on certain aspects were intensified during 1965 to 1974. Studies on evaluation of a mobile field sanitizer and development of chemical control have been emphasized since 1969.

Mobile field sanitizer

After its invention by OSU agricultural engineers, the mobile incinerator was recognized as having great potential for field sanitation and disease control. The three major diseases controlled by field burning--ergot, blind seed disease, and grass seed nematode--also can be controlled by mobile sanitizer treatments. Seed nematodes are killed readily in the galls by nearly any heat treatment. Blind seed disease is killed by most treatments. The ergot fungus is the most resistant to heat, and the pathogen was not killed in sclerotia

exposed to a number of field sanitizer treatments.

Evaluation of the mobile field sanitizer treatments during 1973 indicated that only part of the treatments at the soil surface killed propagules of blind seed disease and ergot, but all 1974 treatments were effective. All sanitizer treatments in both years killed grass seed nematodes in galls placed on the soil surface. Additional studies are needed to obtain information on the new machines.

Chemical control

Numerous chemicals have been studied for control of blind seed disease and ergot since 1965. Chemical control can be directed to preventing flower infection, or, more realistically, to suppressing ascocarp formation for reduction or elimination of primary (ascosporic) inoculum. Protection against flower infection is difficult because the ovary is covered by the lemma and palea. Certain systemic chemicals have prevented flower infection by root uptake after very high dosages were applied to soil. This approach is not considered promising, but the study of additional chemicals for preventing flower infection will be continued. Commercial fungicides as well as many experimental chemicals have been tested for suppression of ascocarps of blind seed disease and ergot. A few chemicals suppressed apothecia of blind seed disease and ergot. A few chemicals suppressed apothecia of blind seed disease at fairly low rates, but much heavier dosages were needed to suppress ergot asocarps. This places a heavier burden on control by chemicals, because ergot is the most serious disease and occurs on all perennial grasses grown.

Except for salts of cadmium, the most active chemicals are recent inventions. Two of the most active chemicals, triarimol and EL-279, from Eli Lilly & Co., were far superior to all other chemicals tested. Unfortunately, these two chemicals were not accepted for federal registration, and apparently they will not become available for use as fungicides in the foreseeable future

(Dr. D. H. Ford, personal communication Eli Lilly & Co.). Two of the more active chemicals, benomyl and thiophanate-methyl, are being used on turf and other ornamental plant disease problems. These chemicals are too expensive for use on grass seed crops. Cadmium chloride has been one of the chemicals with fairly good activity in suppressing ascocarps of both blind seed disease and ergot. However, cadmium compounds are not registered for use on food crops or crops that might be fed or grazed by livestock.

Additional protectant and systemic chemicals have been obtained from U.S. and foreign chemical companies during 1973 to 1974 in a continuing effort to find chemicals for control of major grass diseases. Hope for chemical control of the several major diseases is justified, however, because chemicals are being continually improved. Additional candidates representing entirely new chemical families are being tested. Eventually control of ergot and blind seed disease by elimination of primary inoculum will be obtained through suppression of asococarp formation with new chemicals.

Possibilities for grass disease control, 1974

Practical chemical control for ergot, blind seed disease, and grass seed nematode still is not available. Feasible chemicals may be available eventually, and such chemicals probably will be new. One chemical still in the experimental stage looks highly promising for control of ergot and blind seed disease by ascarp suppression. Additional chemicals are constantly being requested from fungicide development companies around the world. Hopefully, fungicides may be found that will provide economic chemical control for ergot and blind seed disease. However, after effectiveness of a new experimental chemical is discovered, registration for its use will require three to five years. Meanwhile the present high degree of disease control can be maintained best by field burning or by treatment with the field sanitizer if this can be developed.

Table 1. Significant diseases controlled and years field burning started on major perennial seed crops

Grass	Time universal burning started	Diseases controlled by field burning	
		Good control	Partial control
Perennial ryegrass	1948-49	Blind seed disease* Ergot* Silver top	Helminth, leaf blotch Stem rust Other leaf diseases
Tall fescue	1949-50	Blind seed* Ergot* Silver top	Cercospora leaf-spot Other leaf diseases
Bluegrasses	1950's	Ergot* Silver top*	Stripe smut Flag smut Rusts Powdery mildew Other leaf diseases
Chewings fescue	1950's	Silver top*	Red thread
Red fescue	1950's	Seed nematode* Ergot*	Septoria blotch Powdery mildew Leaf rust Other leaf diseases
Colonial bentgrass	1954	Ergot* Silver top*	Seed nematode* Rhizoctonia Leaf diseases
Orchard grass	1958	Ergot* Multiple leaf diseases* Silver top*	Stripe smut

* Diseases marked with an asterisk were original reasons for field burning. Chemical control is available and used for rust diseases based on our studies during 1957-1962. Chemicals are available for control of silver top but have not been necessary with field burning. Chemicals are not available for control of blind seed, ergot, or grass seed nematode.

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Reprinted from: Oregon State University Research on Field Burning, Circular of Information No. 647 (December 1974).

and blind seed disease and other diseases, such as rusts, foliar disease, and even stripe smut and flag smut, and seed infections. Simultaneous control of several diseases would reduce the cost that otherwise would have to be charged against separate control of ergot and blind seed disease.

Unavailability of chemical control emphasizes the need for a substitute heat treatment. Tests with field flaming 15 to 20 years ago and more recently have not been promising for disease control because of the erratic temperatures that are held for very short duration. The flash treatment from flaming apparently will not provide the many benefits now obtained from open burning besides being inferior for disease control.

Lacking chemical control and with apparent inadequacy of flaming brings us to the mobile field incinerator, which has come a long way this year. Preliminary observations suggest that the new model being planned may do everything now obtained by open burning and do it better. Higher and more uniform temperatures at the soil surface should produce better control of ergot and grass seed nematode, especially in grasses that produce too little straw for effective control by open burning. Tests are planned to determine the temperature and exposure time needed to kill the propagules of the major diseases to aid Russ Bonlie in designing minimum operation of the incinerator for disease control. Apparently the incinerator when perfected will give the first practical substitute for open field burning.

Reprinted from the "Proceedings of the Thirtieth Annual Meeting (1970) of the Oregon Seed Growers League: (Pages 65-68).

PROSPECTS FOR GRASS SEED DISEASE CONTROL

John R. Hardison

Research Pathologist, Plant Science Research Division,
Agricultural Research Service, U. S. Department of Agriculture
Corvallis, Oregon 97331

Any discussion of disease control in grass seed production must include recognition that field burning is the basis for control of numerous diseases. Field burning is the only reason that several important diseases are currently under control. Let us first consider the status of major diseases now controlled by burning.

Ergot control has been very good in perennial ryegrass for the last several years. Among the 1970 perennial ryegrass seed samples, 63% had no ergot and 30% had only a trace of ergot, based on spore recovery tests on cleaned seed. This low incidence should be maintained or even reduced further in 1971, due to the good burning conditions that prevailed after the 1970 harvest. During the last two years, ergot was not found in cleaned seed samples of tall fescue. Ergot control has been less satisfactory in several other grasses, particularly bluegrass. This inferior control seems to be directly related to the lighter volumes of straw that fuel less effective fires.

Ergot is our most dangerous disease, because most grasses are susceptible. Any interruption in burning perennial grass fields will result in a rapid increase in ergot. The potential for increase was illustrated during 1969 when severe infestations occurred in turf-type, perennial ryegrass fields that could not be burned in 1968 because of unusual late summer rainfall. In only one year without burning, the increase in ergot was evidenced by the largest spore counts in 20 years.

Control of blind seed disease has been excellent in both perennial ryegrass and in tall fescue. Even with poor burning generally in 1968, control of blind seed disease was maintained in 1969 because of the extremely low incidence in prior years. Blind seed disease was not found in the first 100 samples of cleaned seed of perennial ryegrass in 1970. This is the lowest incidence in the past 30 years. Blind seed disease has not been seen in tall fescue seed samples for the last two years.

Although it is gratifying that blind seed disease has been virtually eliminated in seed fields, inoculum continues to be perpetuated in unharvested areas. The disease will move into seed fields if burning is interrupted. Without control, heavy infestations would again severely damage perennial ryegrass and tall fescue crops, and blind seed disease infection can also be expected in fine fescues and bluegrasses.

Reprint from 1970 Oregon Seed League Proceedings

Grass seed nematode has been well controlled in chewings fescue by successive years of burning. Burning is still the only method of control available for grass seed nematode in established fields.

Silver top, now believed to be an insect disorder, has been controlled by field burning, thereby avoiding need for application of DDT as has been recommended in other areas. Thus, application of 1 lb. of DDT per acre per year was made unnecessary on most of 150,000 acres of grasses during the past 20 years by the good performance of field burning. We can point with pride to field burning as a cultural practice that has eliminated the need to apply several million pounds of DDT and other pesticides in Oregon.

Burning has partially controlled certain leaf and stem diseases, particularly Helminthosporium in perennial ryegrass and several leaf diseases in orchard grass. A stem spot disease, caused by **Phleospora idahoensis,** has recently caused severe damage to chewings fescue seed crops in Canada. J. Drew Smith, plant pathologist with Canada Department of Agriculture, Saskatoon, spent April through September, 1970, with us and devoted his time primarily to surveying for this disease. The fungus was found in wild fescues, mostly in mountain areas, but it was not found in seed production fields. Smith expressed the opinion that field burning has kept this disease out of Oregon grass fields, and he plans to experiment with field burning as a means of control in Canada.

A grass seed nematode occurs in annual ryegrass in Australia. The nematode galls are toxic to animals, and severe losses from poisoning have occurred in livestock that grazed infested pastures. Field burning would probably keep the disease out of Oregon ryegrass, although we should take care to prevent its introduction.

Excellent control of ergot and grass seed nematode in recent years tends to obscure the important fact that potential livestock poisoning has been avoided by field burning. The elimination of fall reheading in perennial ryegrass by burning is particularly significant, because the late heads formed after harvest frequently are infected with ergot. Prevention of fall reheading not only aids control of the disease by eliminating this additional source of inoculum, it also helps to avoid poisoning of game animals and birds as well as livestock.

Another feature of field burning that is not appreciated concerns the removal of old, senescent leaves and straw. In New Zealand, a very serious problem in sheep and cattle is facial eczema and acute liver damage caused by ingestion of spores containing a toxin, sporedesmin, produced by the saprophytic fungus, **Pithomyces chartarum,** that thrives on dead leaves and straw. This fungus was found in Oregon several years ago by Dr. C. M. Leach. Many other toxins are now known to be produced on old plant material by other fungi, several of which occur in Oregon. Livestock poisoning might become significant if we did not remove old trash by field burning.

At this point, everyone would agree that field burning has great merit and is indispensable for grass disease control. Unfortunately, substitutes for field burning are hard to find. The main options seem to be 1) chemical control, or preferably 2) some substitute heat treatment.

An intensive effort has been made to find chemicals for control of major disease during the last few years. Chemical companies around the world have been repeatedly solicited for candidate chemicals for our tests, and a large number have been received and evaluated. Grass seed nematode is a special case. Dr. H. J. Jensen, nematologist at Oregon State, has tested a number of nematicides against grass seed nematode without success. Any appropriate new chemical will be evaluated, but prospects seem poor for chemical control of grass seed nematode.

Ergot and blind seed disease are the most pressing problems. Both are fungus diseases, and infection is limited to the seed. Prevention of seed infection by chemicals will be difficult, because the ovary is covered by the lemma and palea. Protectant fungicides probably will be useless. Systemic chemicals sprayed on the leaves or even the inflorescences are ineffective, because most systemics do not translocate to the ovary by such applications.

Many systemic chemicals have been tested by soil application with root uptake and obvious movement into flowers. Of many chemicals tested, only one at 60 to 80 lb. a.i./acre has prevented flower infection by blind seed disease and ergot. At these rates, the cost would be exorbitant. Apparently prevention of flower infection will be unlikely by chemicals.

Prevention of the formation of blind seed apothecia or ergot ascocarps would eliminate the primary inoculum (ascospores) of both diseases. Many protectant fungicides tested by application over infected ryegrass seeds and over ergot sclerotia at the soil surface were ineffective except at high dosages. However, a few protectant and eradicant type chemicals show promise.

Several systemic chemicals suppress blind seed apothecia at fairly low dosages, but most of these are not promising for suppression of ergot ascocarps. Promising chemicals will continue to be evaluated in additional tests. While I cannot predict when, I am sure that a feasible chemical control will be available eventually.

Unfortunately, most of the promising chemicals are new, and they are not yet registered for this use. Unavoidable delays in chemical development apparently will result from the increased attention being given to pesticides and the environment. Some chemicals have been withdrawn, and others are subject to cancellation. Registration of new pesticides has become more difficult. In fact, some chemical companies have simply withdrawn from fungicide development. These untimely events have already reduced the number of candidate chemicals in our testing program and will delay commercial development.

I hope to find broad spectrum chemicals that will control ergot

burning should be restricted to grass fields and non-field or off-farm burning preferably should be avoided.

Diversion of more farm land to other uses and greater diversification of farming with an increase in row crops and livestock enterprises eventually will reduce the present concentration of grass seed fields in some problem areas, especially along major roads. Meanwhile, every means should be explored to minimize the smoke problem in the public interest and to improve the efficiency of burning grass fields to strengthen the competitive position of the grass seed industry.

Reprinted from the "Proceedings of the Twenty-Fourth Annual Meeting (1964) of the Oregon Seed Growers League" (Pages 93 to 96).

JUSTIFICATION FOR BURNING GRASS FIELDS

John R. Hardison

Research Pathologist, Crops Research Division, Agricultural Research Service, United States Department of Agriculture

Post-harvest burning of straw and stubble in grass fields is the most valuable cultural practice in grass-seed production in Oregon. Unfortunately, smoke from burning fields sometimes creates a nuisance to others who understandably question the idea. This discussion is presented to clarify the justification for burning grass fields and to suggest methods for reduction of the smoke nuisance.

A partial list of the significant advantages from burning straw and stubble in grass fields would include: (1) control of numerous diseases and particularly several serious diseases (blind-seed disease, ergot, and grass seed nematode) for which no alternative method is known, (2) elimination of the sexual stage of many pathogenic fungi thereby reducing the opportunity for production of new, more virulent races, (3) direct weed control by incineration of seeds and by heat-killing certain weed plants, (4) indirect weed control by providing a clean soil surface that is necessary for uniform distribution and root absorption of soil-active herbicides in control of winter-annual weeds, (5) return to the soil of potash and other minerals from crop residues, (6) stimulation of better yields by thinning or overcoming part of the "sod-bound" effect, (7) prevention of fall heading in perennial ryegrass thereby eliminating ergot-infested heads and avoiding ergot poisoning in livestock, game animals and birds, (8) destruction of certain mites, insects and rodents, (9) avoidance or reduction of pesticide residues by the control of numerous pests without pesticides, and (10) low-cost removal of straw which has become an economic necessity in production of many grass seed crops. Collectively, these benefits are extremely important for maintaining profitable seed production of many perennial grasses.

Additional benefits that are derived by fairly complete removal of straw and for which burning is the most economical method include: elimination of smothering, greatly improved efficiency of fertilizers, renewal of annual ryegrass fields by replanting directly with rangeland seeders, thereby eliminating plowing and several other farming operations, and preventative fire control by removing the extreme danger of uncontrolled fires in late summer.

Burning perennial grass fields in Oregon originally was proposed for disease control. Although the other benefits justify the practice, the most compelling reason for burning

perennial grass fields is still for controlling serious diseases for which **no** alternative remedy is available. Effectiveness of field burning for controlling blind-seed disease was known in 1945, but burning as a general practice was not proposed until 1948 when this method became necessary to save the perennial ryegrass seed industry. Blind-seed disease could cripple seed production of perennial ryegrass and tall fescue within two years unless burning of fields is continued, because **no** chemical control of the disease is known.

Ergot, a major disease of most cultivated grasses, was controlled for the first time in grass fields by burning straw and stubble in fields after harvest in western Oregon. Field fires kill most of the fungus sclerotia in crop residues. Prevention of fall heading of perennial ryegrass plants is a special need, because autumn inflorescences are abundantly formed in this grass and are usually severely infested with ergot. Burning eliminates fall heading and thus prevents the secondary increase of ergot sclerotia that is critically important to the total inoculum. As with blind-seed disease, no chemical control for ergot is known.

The problem of controlling the seed nematode in chewings fescue is similar, because no chemical control is known. Planting nematode- free seed on clean land delays appearance of the disease, but fields become contaminated by nematode galls that are disseminated by wind, animals, water and machinery. Burning is the only practical method for control of grass-seed nematode in established grass fields.

Because incineration or extreme heating of infected plant parts kills reproductive material of many pathogens, field burning provides partial control of silver top, most of the 125 grass rusts, and many of the 400 leaf and stem diseases of grasses. This effective annual reduction of aboveground inoculum will furnish a basis for economic use of improved fungicides for eventual control of the many leaf and stem disease pathogens that coincidentally infect seeds. Such a high degree of field control of foliar diseases can produce nearly disease-free seed and provide an outstanding improvement in seed quality.

Even in an era of rapid development of sophisticated chemicals, dependence on field burning for grass disease control can be justified by a review of the problem. Several hundred diseases attack the 75 to 100 varieties of some 35 species of grasses grown commercially in the Pacific Northwest. Seed production is inherently trashy farming that unavoidably creates conditions favorable for maximum development of diseases. A build-up of diseases in fields is inevitable when inoculum is allowed to accumulate during several years of continuous grass culture. These unavoidable difficulties are compounded by the impracticality of major methods used for control of diseases of other plants. Breeding for disease-resistance is usually impractical due to the large number of grasses and diseases involved and because nearly all varieties grown were developed in other states or countries and must be returned to the seed consuming area without change. Crop rotation is not possible in culture of long-term perennials or in continuous culture of annuals. Seed treatments have only limited value. Except for our chemical control of rust diseases, the chemical control of grass diseases generally have not been feasible. All of this is complicated by low-acre returns from most grass crops which dictate that control methods must be inexpensive. Under these circumstances maximum sanitation is imperative, and simple removal of straw would be inadequate. Burning fulfills the low-cost requirement, and by generation of sterilizing heat, furnishes the most effective field hygiene ever developed in the culture of perennial plants.

The vital need for burning grass fields and the poor prospects that alternative methods could be developed make smoke reduction of prime concern to all seed growers.

The two main corrective steps promoted by the Seed League Committee in this year's voluntary program were (1) earlier-season burning, which creates less smoke and prevents late fall concentration of burning, and (2) scheduling of burning on days when good smoke dispersal is forecast. These procedures were highly commended in August by air pollution authorities as having greatly reduced the smoke density. This program was reasonably successful until early September when the unavoidable, weather-delayed harvest caused burning of too many fields in too few days and resulted in an unfortunate concentration of smoke. Still, fairly good progress was achieved for a first-year effort. Greater progress can be expected from this program in a year more favorable for early-season burning. The cooperation of all grass-seed growers is essential to insure the success of this program.

Attention should be directed to other possibilities for reducing the volume of smoke. The optimum time of day for burning with the minimum output and maximum dispersal of smoke consistent with safe burning should be determined. Straw choppers should not be used to permit uniform spreading of straw and to enhance more complete combustion. Avoidance of late-season irrigation and use of of defoliants to avoid or to eliminate green leaves would help reduce smoke output and perhaps would be economical because of more effective burning. During August and September, the critical period for burning grass fields, on-farm

glen odell consulting engineers
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317 s.w. alder street
portland, oregon 97204
(503) 226-3921

TESTIMONY BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

SPECIAL MEETING CONCERNING FIELD BURNING

Salem, July 10, 1975

Members of the Commission:

I am Glen Odell, one of the two principal consulting engineers to the Oregon Field Sanitation Committee with which SB 311 commits you to work in carrying out your duties under the act. The Committee at its July 8 meeting authorized its consultants to make a presentation on its behalf.

I will briefly address the three specific points your meeting notice announced as the subject of this hearing, in reverse order, and conclude with an additional matter which the Committee specifically directed us to bring to your attention.

Efforts Made to Develop Alternative Methods

After several years of necessarily exploring activity, the Committee brought an organized systematic effort to bear on the problem in late 1973 with the retaining of several engineering consultants. The result was that 1974 was a year of impressive progress, to the point that for the first time we were able to clearly map out what has to happen in order for field burning to be phased out in an orderly manner with minimum disruption and economic impact on the seed industry.

The engineering report of which I have given copies to you summarizes the results of last year's program and outlines the direction we must go. It all reduces to a few basic principles:

1. Transition to a grass seed culture which does not involve open burning absolutely requires the simultaneous development of three areas of activity:

   a) Harvest methods conducive to straw removal and utilization practices, and compatible with subsequent use of mobile field sanitizers
   b) Straw utilization requiring both new technology and new markets
   c) Flame cultivation, or mobile field burning machines

2. Getting the job done in each of these three areas, especially in the straw use, requires the development, with governmental encouragement but primarily within the private sector, of a multiplicity of economically independent new business enterprises. No single industry, no single answer exists which can swoop into the Willamette Valley and solve the field burning problem for us.

Recognizing the interdependence of the three areas of activity noted above, the Committee's approved six-month budget for the period July - December 1975:

Harvest Methods	$ 69,000
Straw Uses	115,000
Flame Cultivators (exclusive of $40,000 encumbered from 1974 funds for purchase of new machines)	126,000
TOTAL	$310,000

As our engineering report indicates, much of last year's progress can be attributed to the close cooperation of individual grass seed growers who participated in many Committee projects. Thus, our conclusion is that efforts to date to develop alternative methods, both by the Field Burning Committee and by the industry, have been more than reasonable.

Methods Available for Straw Utilization and Disposal

The program of the Field Burning Committee has resulted in the coming into being of at least 3 new firms, primarily owned by growers and others in the seed industry, devoted to the development of processes and markets for straw. One firm, Golden B, was awarded a 10,000 ton contract to produce the Committee-developed "cublock" product for the Japanese dairy industry; the Committee's engineers have designed a new plant that is under construction and which we hope will be a model for similar plants throughout the valley as the market expands.

Our estimate for 1975 is that a total of as much as 70,000 tons of grass straw may be marketed in various farms--primarily conventional bales for cattle feeding--this year. This represents 10% of the estimated 700,000 tons of straw that would need to be removed in order to allow flame cultivation by our machines.

Availability of Flame Cultivators

In 1975 the Committee's flame cultivator program will be based on the operation of 3 new 22 ft. wide machines and one 10 ft. wide prototype, all based on the laminar flow design discovered toward the end of the 1974 season. We have committments from growers to operate the machines, and our role will be to coordinate the use, monitor the results, and provide a maintenance and repair mechanic.

In addition to the Committee's program, we are aware of one or two fabricators and growers who are experimenting with variations on the Committee design, who conceivably may have machines in use this season. Additionally, we are making the detailed plans for our machines available to anyone interested in building one.

We estimate that burner operations within the Committee's 4-machine program will result in machine burning from 1000 to 2000 acres in 1975. This estimate is optimistic in view of last year's accomplished acreage of about 200 acres with 4 different machines, but we feel the design improvements warrant some level of confidence. Nevertheless, we must emphasize that this year's version is only one step removed from the raw prototype stage, and cannot be expected to perform like a piece of production-line machinery.

For your reference, our design estimate is that the current machine, when fully debugged and routinely operational, can burn at a rate of 3 acres/hour for an estimated 200 suitable hours each season, for a total of 600 acres per season per machine. Thus, this year's supply represents 3 1/2 machines out of an ultimate potential requirement of some 450 machines needed to burn every acre of grass in the valley every year.

Operation of Experimental Burners

The Field Sanitation Committee at its July 8 meeting directed me to bring to your attention the need for DEQ flexibility in the operation of experimental burners, both with respect to our own machines and those which may be developed by growers and other private individuals.

The need for such flexibility is the necessity that we do nothing to impede the interest of the industry in continuing to improve upon the design of burning machines. The Committee's consultants are proud of our design, and fairly confident it will prove to be the basis of an acceptable solution, but we've been around long enough

to learn that nobody has all the answers and that there are lots of growers, mechanics and fabricators out there who are going to continue on with improving the design.

It is our understanding that DEQ and the Field Sanitation Committee have a joint responsibility for making sure that experimental burners are operated in such a manner that abuses of the law do not occur. Without going into a lot of detail or background, I would recommend the following policy and course of action for your consideration.

1. Recognize the technical expertise and program responsibility of the Field Sanitation Committee (FSC) for the development of mobile field burners.

2. DEQ at an administrative level will issue an approval for experimental use of individual machines, upon receipt of a recommendation/request from FSC or its representatives, with consultation or inspection as needed. This will include both FSC and privately-owned machines, which FSC also wishes to keep track of.

3. FSC will monitor the operation and provide reports (monthly or upon request) to DEQ regarding where experimental burners are being operated. We will verify specific fields by registration number, acreages burned, etc. in order to verify participating growers' claims for a refund of registration fees.

4. Full cooperation will be mutually extended between DEQ and FSC in observing operations, evaluating emissions, etc. We would be particularly interested in a mutual program to evaluate the particulate emissions from the Committee's machine.

5. DEQ recognizes the need for flexibility in operation of burners, in that frequent changes in location, schedules, etc. are inherent in a development program, and that a "moon shot" effort that has a 60-day period of crash effort in which to develop the basis for major design and investment decisions in the next year, needs a minimum of non-essential administrative overburden placed on it.

We would appreciate an indication of response from the Commission on this matter, so that we and your staff can proceed to finalize a procedure in the next few days.

CONSULTING ENGINEERS' REPORT

TO THE

OREGON FIELD BURNING COMMITTEE

FOR THE YEAR 1974

SUMMARY AND PROJECTIONS

BY

F. GLEN ODELL and THOMAS R. MILES

Consultants to the Committee

December 1974

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All photographs – T. R. Miles

July 10, 1975
Harold Youngberg
Oregon State University

General Statement

The effects of burning on the grass plant and on seed production is very complex. The current practices being used in the Willamette Valley are the result of nearly 40 years of practical experience and research. It is important that we recognize the complexity of the several very different seed crops, the dozens of varieties and the multitude of soil and other conditions that are involved in growing seed. The research work reported has been conducted to evaluate the impact of this practice on individual aspects of seed production.

We are concerned about the possibility of selecting some individual results of a single experiment in one year and drawing conclusions to apply to seed production in its entirety. Results should be evaluated in the light of the objectives of the experiment and the comments of the scientist conducting the work. Some variables such as diseases do not adapt themselves to small-scale experiments. For this reason, the effects of certain factors and their interactions have not been fully studied and results will not be available until large-scale field testing is conducted. As an example, alternate year burning of grass seed fields was investigated on a limited basis during the early stages of the field burning research program and prior to the more recent major effort related to development and testing of a field sanitizer. Although the results indicate that burning every other year is superior in seed yield to strictly mechanical removal techniques, it is inferior to yearly burning. No information could be gathered on disease control in these investigations and an increase in pests problems

could be anticipated in the absence of yearly burning. A use for the removed straw was also a requisite to such a program. A Further and broader evaluation of alternate year burning would be necessary since the original research was limited with respect to locations, varieties and interactions with management practices of disease, insect and weed control.

Research findings in 1974 suggest that species such as orchardgrass ~~way~~ many under certain environmental conditions react unfavorably to mechanical residue removal methods with resulting stand loss. This information emphasizes the need for additional research on mechanical residue removal programs on various grass varieties in different locations and years before conclusions on the applicability of alternatives to burning are made. There are several scientists available to provide information on the possible effects of adoption of various alternatives.

Due to limitations in time and funds most of the effort has been channeled toward the development of the field sanitizer and evaluation of its operation. At this time there are no suitable substitute methods other than field burning (or other treatments such as propane flaming or use of field sanitizer) to provide stand thinning and physiological plant stimulation. Mechanical thinning and renovating techniques have been tried, but have not proven satisfactory and in fact in some cases appear deletorious to grass stands. This may be due to the rather indiscriminant removal of part of the grass plant crown area - much different from the effect of burning. The "crew-cut" technique may prove beneficial to subsequent seed yield in the absence of burning, but the procedure has not been thoroughly evaluated and results are pending subsequent harvest of treated areas. In addition, "crew-cutting" will not provide for stand thinning as is true of burning.

Regarding Item a

I have worked with engineers from OSU and the Oregon Field Burning Committee for several years to evaluate the effectiveness of the sanitizers on the crop. The sanitizer design concept stimulates seed production as has open burning and appears to have promise as a technical alternative to open post-harvest burning. I have not seen sufficient test results of the current design being constructed for operation in 1975 to state that this design is acceptable under a range of operating conditions. The three or four machines placed in the field this next season should be considered test models and subjected to a variety of operating conditions and as much exposure as possible and modification as needed. These machines should not be expected to contribute materially to a decrease in the 1975 acreage burned below the 235,000 acres stated in the law.

Regarding Item b

Field sanitizer operation requires removal of most of the straw prior to sanitation. There are currently inadequate markets or uses for this residue even if there were a sufficient number of field machines to sanitize the fields are they were prepared.

I would like to point out one misconception regarding the ability of the seed industry to absorb a very large increase in costs in production. Much of this is based on the fact that seed prices like many other agricultural prices were high for a short time in late 1973 and early 1974. Seed prices have fallen but farmers production costs have risen, like everyone elses. Preliminary results from a cost study shows that seed growers costs in 1975 are below current prices.

Seed Production Costs - 1975

Crop	Production Cost*	Current Price
Annual ryegrass	12.9 ¢/lb	12. ¢/lb
Perennial ryegrass	21.7	18
Orchardgrass	36.9	32

*Production costs based on good seed yield

It is from the return above costs that growers pay for machines or increased production costs.

ANNUAL RYEGRASS SEED - 1975
(Grasslanding after sanitation)

Based on:

1. 300 A.
2. 1600 lb. yield
3. Labor @ $3.50/hr.
4. 90-100 h.p. tractor @ $6.50/hr.
   30-40 h.p. tractor @ $3.25/hr.
5. Plow and cultivate year 1
   Grassland drilling years 2 and 3

	INPUTS PER ACRE					
	Labor			Other		Total
YEARS 2 and 3	Hrs.	Value	Machinery	Qty.	Value	Cost
Field sanitation (burning)	.3	1.05	2.75	fees	3.00	6.80
Grassland seeding and fertilizing	.4	1.40	3.25	rent drill	1.20	
				125#16-20	13.00	
				25#seed	1.75	20.60
Fertilize (2x)				130#N	39.00	
				cus.appl.	3.25	42.25
Spray (2,4-D, 1/3/year)					1.10	1.10
Harvest Costs						
Swath	.3	1.05	4.05			5.10
Combine	.4	1.40	9.50			10.90
Hauling	.3	1.05	2.20			3.25
Processing (includes bags)					22.75	22.75
Commission (7¢/cwt.)					1.12	1.12
Certification (70¢/acre + .08/cwt.)					1.98	1.98
Other Charges						
Taxes on land					6.00	6.00
Interest on land ($800 @ 8.5%)					68.00	68.00
Interest on average operating capital @ 8%					2.80	2.80
General overhead 2/					6.25	6.25
Amortized establishment cost (2 yrs. @ 9%)					9.95	9.95
Credit for grazing (sheep)					(2.00)	(2.00)
Total costs (years 2 and 3)		5.95	21.75		179.15	206.85
Cost/100# at 1600# yield						12.93

Based on:

1. 150 acres
2. 900 bu. yield (clean seed)
3. Spring planted
4. 6 yr. stand life (after estab.)
5. Labor at $3.50/hour.
6. 90-100 h.p. tractor @ $6.50/hr.
   30-40 h.p. tractor @ $3.25/hr.

INPUTS PER ACRE

PRODUCING YEARS	Labor Hrs.	Labor Value ($)	Machinery ($)	Other Item	Other Value ($)	Total Cost ($)
Cultural operations						
Fertilize (2x)				120#N	36.00	
				30#P_2O_5	3.10	
				custom app.	3.25	42.35
Spray				1.5 atra.	5.85	
				Oth. chem.	1.60	
				cus. app.	2.00	9.45
Harvest costs						
Swath	.3	1.05	4.05			5.10
Combine	.4	1.40	9.50			10.90
Hauling	.4	1.40	3.25			4.65
Processing (includes bags)					12.45	12.45
Certification (60¢/acre + 8¢/100)					1.32	1.32
Commission (7¢/cwt.)					.63	.63
Field sanitation (burning)	.3	1.05	2.75	fees	3.00	6.80
Other Charges						
Taxes on land					6.00	6.00
Interest on land ($800 @ 8.5%)					68.00	68.00
Operating capital interest (10%)					2.70	2.70
General overhead					5.70	5.70
Amortized establishment cost (6 yrs. @ 9%)						20.50
Credit for grazing(sheep)					(1.00)	(1.00)
Total cost (Producing year + establish.)		4.90	19.55		171.10	195.55
Cost/100# at 900#/acre						21.73

Based on:

1. 250 acres.
2. Spring planted
3. 6 year life of stand
4. 750#/acre yield (clean seed)
5. Labor @ $3.50/hr (hand labor $2.50/hr.).
6. 90-100# plow tractor @ $6.50/hr.
   30-40 # plow tractor @ $3.25/hr.

INPUTS PER ACRE

PRODUCING YEARS	Labor Hrs.	Labor Value ($)	Machinery ($)	Other Item	Other Value ($)	Total Cost ($)
Cultural Operations						
Spray (herbicide in fall)				chem.	12.00	
				appl.	1.80	13.80
Spray (Broadleaf & insect control)				chem.	11.20	
				appl.	1.80	13.00
Fertilize (2x)				fert.	55.00	
				appl.	4.50	59.50
Hauling fertilizer	.2	.70	.75			1.45
Spot weed control	1.0	2.50		chem.	.80	3.30
Harvest costs						
Swath	.3	1.05	4.05			5.10
Combine	.8	2.80	16.80			19.60
Hauling seed	.8	2.80	5.85			8.65
Processing (3¢/# + 45¢/bag)				custom	28.00	28.00
Certification (90¢/acre + 4¢/50)					1.50	1.50
Field sanitation (burning)	.3	1.05	2.75	fees	3.00	6.80
Orchardgrass commission (33¢/100)					2.40	2.40
Other Charges						
Interest on investment in land ($800 @ 8.5%)					68.00	68.00
Taxes on land					6.00	6.00
Operating capital interest (10%)					5.00	5.00
General overhead					6.50	6.50
Amortized establishment costs (6 years @ 9%)					27.85	27.85
Total cost (producing year + establishment)	10.90		30.20		235.35	276.45
Cost/100# at 750#/acre						36.86

TESTIMONY OF THE OREGON ENVIRONMENTAL COUNCIL
ON ALLOCATION OF ACREAGES AND ADOPTION OF TEMPORARY
RULES FOR OPEN FIELD BURNING IN THE WILLAMETTE VALLEY
BEFORE THE EQC JULY 10, 1975

I am Roy Hemmingway, Legislative Director and staff attorney for the Oregon Environmental Council, a state-wide coalition of 75 planning and conservation groups. We also have an individual membership of 2,500 Oregonians.

First, let me say a word about the authority of the Environmental Quality Commission on the field burning issue. It is apparent from some of the material mentioned in the agenda item that there is a disagreement over the meaning of the new field burning law, formerly Senate Bill 311. The language of the bill is clear:

> "It is the intention of the Legislative Assembly that permits shall be issued for the maximum acreage specified in subsection (2) of this section for each year recited therein only if the commission finds after hearing that:
> (a) There are insufficient numbers of workable machines that can reasonably be made available to sanitize the acreage if an acreage reduction is ordered;
> (b) There are insufficient methods available for straw utilization and disposal; and
> (c) Reasonable efforts have been made to develop alternative methods of field sanitation and straw utilization and disposal, and such methods have been utilized to the maximum reasonable extent."

Thus, this year you may grant up to 235,000 acres of field burning permits only if you make those findings. But there is no restriction on your discretion if you choose to go below the 235,000 acre figure except the standard of reasonableness. If there is any doubt about your authority to limit the burning below the maximum, Section 5 of the bill reads:

> ". . .the commission by rule may prohibit, restrict or limit classes, types and extent and amount of burning for perennial grass seed crops, annual grass seed crops, and grain crops."

No doubt on the last day of the session, with only a xeroxed copy of the amendments of the bill to work from, some people mistook the language of the bill to mean that the acreage figures given for 1975, 1976, and 1977 were to be the actual acreages allowed unless the commission found that alternative methods were available for sanitizing fields and disposing of straw. But that is not what the bill says, and that was not the legislative intent, as was made clear by Rep. Magruder. In debate on the final version of the bill he stated that he opposed the bill because it allowed the EQC too much discretion in his opinion to regulate the number of acres burned each year. Magruder's vote against the conference committee report and against the bill is consistent with this position.

The OEC wishes to make the following points before you today: Field burning is a serious pollution problem; field burning creates health-threatening hazard for thousands of people in the Willamette Valley, particularly in the Eugene and Salem areas; There are alternatives to field burning, other than the use of machines, that could be instituted on much acreage this summer; there are alternatives to field burning, other than the use of machines, that could be instituted on an even greater number of acres next summer and in 1977; continuation of open field burning at the maximum levels set out in SB 311 threatens Oregon's administration of its own total air pollution program; and lowering the number of acres burned this summer to below 200,000 acres will make it more liekly that machines will be developed for the fields to be burned next summer.

Before I explain the bases for our position on the proposed rules, let me say a word about the data available to you today. In studying the field burning question all during the session and in preparing for this hearing, I have been struck by the degree to which the needed information by which a dispassionate decision-maker would like to judge the field burning question is monopolized by those either openly sympathetic to the grass seed industry or those whose institutional biases could be expected to lean toward the seed industry, such as the extension service or the agriculturally related departments at Oregon State University. I do not wish to impugn the motives of those who will testify before you today in favor of allowing the maximum acreage, but I do wish to point out that if those with "hard" data argue that there is no alternative to open field-burning, it may be because there have been few resources with an environmental bias devoted to field burning research as against those with an agricultural bias. The environmental side has not had $300,000 in the last four years to research this issue. Had we had that kind of resource, we could, I think, present a far better case on the exact extent of the health effects and the economic effects on Eugene and other communities as well as more optimistic forecasts about the availability of machines, straw utilization, soil incorporation, drainage, and alternative treatment of seed fields. And to show the extent to which we are outgunned, I only need to point out that the $150,000 that the seed industry is raising to defend its position here, in the courts, and evidently again in the legislature would fund my organization for about four years.

FIELD BURNING IS A SERIOUS POLLUTION PROBLEM

During the three month burning period, field burning accounts for 50% of all particulate matter put into the air in the 10 county area, which includes the heavily industrialized areas of Portland, Salem, and Eugene. Fourteen per cent of all organic gases come from field burning, and 32% of all carbon-monoxide. At the Eugene airport over a

four year period, there was an average 72% increase in suspended particulates on days when air quality was predicted to be influenced by field burning.

During the 90 day field burning season in 1974, Eugene had 16 days when visibility was less than six miles for at least one hour a day. Eleven of these 16 days were on a day when the field burning took place or were within two days thereafter. Salem in 1974 had some 10 days with low visibility due to field burning. Thus, this is not simply a problem for Eugene. Even Portland is affected. I spent one sunny Sunday afternoon last September indoors and on medication because of field burning smoke in my northeast Portland neighborhood. Some of the statistics presented to you put field burning pollution in the perspective of annual state-wide pollution. This obviously camouflages the local severity of the problem during the three month burning season.

The climate of the Willamette Valley contributes much to the severity of this problem. Though we are able to avoid some of the worst episodes by an effective smoke management program, we cannot alter the climate which determines the total load of pollutants the air can asorb without harmful effects. In a report on smoke management in O.S.U.'s 1974 report on field burning, Earl M. Bates reports that overloading of the Willamette Valley airshed with field burning smoke on one day results in smokiness in some part of the Valley for the next two days. For this reason, the success of this smoke management program should not be measured by looking for smokiness in Eugene on days when field burning took place. The smoke from relatively few acres may hang in the Valley air for up to three days and affect Eugene or any other area long after all burning has been stopped. For this reason, Bates recommends that even at optimum ventilation conditions the maximum capacity of the airshed should be considered to be 10,000 acres per day (an amount exceeded six times in 1974), and that normally burning should be restricted to 4,000 acres per day (last year exceeded on 13 days, including the six 10,000 acre days).

FIELD BURNING CREATES A SERIOUS HEALTH HAZARD

It is true that no one has ever died and had listed on his death certificate as cause of death "inhalation of field burning smoke", as one witness testified before the Senate Agriculture committee. Field burning smoke is not a cause of death or even disease; it is like most pollution primarily an aggravant of existing chronic disorders such as asthma, emphysema, and bronchitis. No one who has never suffered from a breath-robbing disease should ever describe an aggravation of one of those terrifying and debilitating conditions as a

"mere inconvenience" as did many seed grower witnesses during the legislature. There have been no organized studies on the exact extent of the health effects from field burning (the legislature appropriated no funds for that kind of study), but the many, many letters in the legislature's files from physicians detailing the increased incidence of treating respiratory disorders during the field burning season are ample evidence of the problem. Obviously, smoke effects the old and the very young the most, those who are the least vocal politically in our society!

THERE ARE ALTERNATIVES TO OPEN FIELD BURNING THIS SUMMER

Basically, there are two ways of avoiding open field burning this summer. First is not burning at all in some areas this year and allowing burning next summer on those fields when other fields are so restricted. The degree to which this practice can be carried out without risking significant reductions in seed yields varies particularly with the species of seed crop. The O.S.U. study on alternative year burning showed virtually no loss in orchardgrass and merion bluegrass yields with this practice and only a 14% loss for perennial ryegrass. Nevertheless, the Department does not have information on what fields are planted with these various perennials and it is probably too late to get the information for this summer. However, the prospects for seed yields for annuals with alternate year burning are good. This can be done in two ways. First, the farmer may chop the straw and plow it under. The chopping is necessary to aid in incorporation into the soil of the straw material. So long as this practice is not done too many years in a row when undecomposed straw residues may build up in the soil, particularly poorly drained, wet soils, soil incorporation of the straw should be possible. The second alternative for annuals is removal of the straw from the fields and replanting through the stubble by a soil drill. Though this method is "not a total replacement" for field burning according to the O.S.U. study, it should be sufficient for alternate year treatment, particularly if sprays are used to control weeds in the unburned fields. Since annuals make up between 125,000 and 140,000 of the grass seed fields planted, these methods ought to be able to put to use on at least 60,000 acres this summer, reducing the total needed to be burned to 175,000 acres. Restricting the alternative year burning to annuals is sensible also, because annuals are relatively resistent to ergot, the most destructive and widespread of the grass seed diseases. The primary justification for burning of annuals is weed control.

The second basic alternative to open field burning is crop rotation. Though much has been said about the poorly drained soils of the

Willamette Valley that are suitable only for grass seeds, these soils amount only to about 150,000 acres. And the soils which are too shallow and steep for annual cultivation in the Silverton hills amount to only about 50,000 acres, leaving about 40,000 acres of the 240,000 acres projected to be in grass seed this year that could be converted to other crops. Though we do not recommend that reductions below the maximum be ordered on the basis of projected crop rotations alone, it should be kept in mind that the possibility of crop rotation provides an additional cushion from any hardships that might result from the reduction ordered for annuals on the alternate year burning basis.

THERE ARE ADDITIONAL ALTERNATIVES TO OPEN FIELD BURNING NEXT YEAR

The proposed rules call for 195,000 acres to be burned in 1976. In view of the uncertainties that exist in the availability of machines and the availability of data that will make alternate year burning and crop rotations a more feasible alternative for a greater number of acres, setting the acreage to be burned next year in the temporary rules is inappropriate.

In the next six months, the Department should be gathering data on soil types and seed species grown by farmers. Then, early in 1976 we recommend that the EQC meet and order alternate year burning or machine burning for all those acres that are in seed crops which can produce at least 80% normal yields with alternate year rather than annual burning. For those acres that can be shown to be capable of sustaining another crop other than grass seed, we recommend that the EQC order no burning whatsoever next year.

FIELD BURNING JEOPARDIZES OREGON'S CLEAN AIR IMPLEMENTATION PLAN

Much testimony today will certainly focus on the relationship of the federal Clean Air Act of 1970 to the continuance of field burning. Oregon's clean air implementation plan provides that open field burning in the Willamette Valley will cease this summer. That is evidently not going to be the case. However, the probability of the federal government accepting Oregon's continuance of field burning will depend, we think, on the extent to which the EQC scales down field burning beyond the minimal schedule set by the legislature. If the maximums are adopted as proposed, Oregon will have scaled dwon field burning by only 30% by the time the next legislature meets. This 30% fiugre compares unfavorably with the 70% reduction that industry in the Willamette Valley has already achieved. We believe that a 50% reduction in 1976 is more likely to meet EPA approval; and, of course, it is the intention of the O.E.C. to see to it that Oregon lives up to its implementation plan to the maximum extent possible. If Oregon does not live up to the plan, federal implementation of the plan's provisions is a distinct possibility.

REDUCING THE NUMBER OF ACRES FOR THIS SUMMER WILL REDUCE THE NUMBER OF ACRES NEEDED TO BE OPEN-BURNED IN 1976.

If 235,000 acres are burned this summer, that would represent a reduction from the number of acres burned last summer on only 16%; and may represent virtually all of the fields planted to grass seed this summer. Next summer the reduction may amount to only 30% if the 195,000 acre maximum is adopted, and may mean that only 23% of the fields planted in 1976 are not open burned (assuming 240,000 acres planted). Since a 23% reduction can easily be achieved by crop rotation and alternate year burning, there will really be little incentive for development of machines unless the acreage allowed is reduced below the 195,000 acre figure for 1976. Unfortunately, after trying to negotiate a reasonable settlement of this controversy during the legislature, I am convinced that this industry will not believe that it is actually going to have to cut down next year and develop the machines unless they have some early indications from the EQC that the maximums contained in the act are not going to be adopted.

Let us take a look at some figures to illustrate what I mean. Estimates of the number of machines that can be produced for next year vary from 100 to 200; estimates of the amount each machine will be able to burn next year run from 600 acres to 1000 (John A. Talbott, consulting engineer). Thus, at the low estimate 60,000 acres could be machine-burned next summer; at the high estimate 200,000 acres could be machine-burned. Our fear is that the industry will not have developed enough machines during the next two years before the next legislature and will go again before the legislature in the 1977 session and ask for relief for the very real reductions mandated for the 1977 burning season. What incentive, however, will the industry have to aim for the high estimate of machine availability - to get 200 machines in the field working at top efficiency - if the commission adopts the 195,000 acre figure for 1976? More importantly, will the industry work hard at all to develop machines if they know they can bide time until the next legislature by achieving the same reductions by cheaper methods such as crop rotation or alternate year burning? With the 1977 legislature but 18 months away, these questions are crucial, for this industry has demonstrated its ability to get what it wants from the legislature, but has not demonstrated its ability to get what it wants from the machines, and like any people they will tend to put their energies in the areas where they see the possibilities for the most rewards. Will that be in machine development or in preparing their case for the 1977 legislature? You must force this industry to push the technology to its limits, by serving notice now that you are looking to a 200,000 acre machine burn next summer. Your best instrument for making your statement credible is to require the industry to use what technology is available this summer - crop rotations and alternate year burning - to reduce the number of acres burned below the maximum authorized by the legislature.

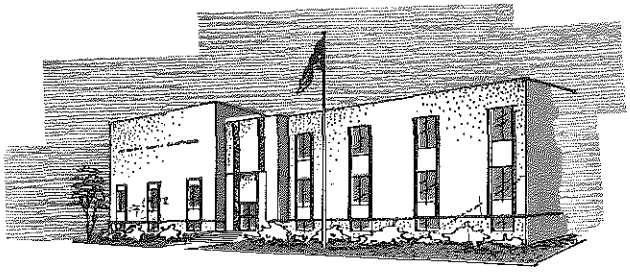
CONCLUSION

In summary, the proposed rules should be amended in the following manner:

1) No more than 175,000 acres should be allowed to be open-burned this summer. Acreage not permitted to be open-burned should be made up of those crops best able to sustain alternate year burning, and to the extent the information is available those soil areas best able to produce acceptable yields of rotated crops.

2) Reference to the acreage figures to be allowed in 1976 and 1977 should be dropped from the proposed rules. Data on seed species planted and soil types should be gathered as quickly as possible, so that those areas and species capable of sustaining crop rotations and alternate year burning can be identified early. Farmers capable of instituting alternate year burning or crop rotations should not be allowed to open burn next year. The commission should also adopt a policy statement that unless evidence is produced requiring the contrary conclusion a 200,000 acre machine-burn capability for 1976 will be assumed.

3) A maximum on the number of acres that may be open-burned on any one day this summer should be set at 4,000 acres in order to prevent overloading of the Willamette Valley airshed and to aid in smoke management.



Jefferson County

Madras, Oregon 97741

July 9, 1975

ENVIRONMENTAL QUALITY COMMISSION
1234 S. W. Morrison Street
Portland, OR 97205

RE: PROPOSED GEOGRAPHIC RULE

Dear Commission Members:

Jefferson County Court would like to go on record as urging you to approve the temporary rule - GEOGRAPHICAL REGION RULES - at your July 10, 1975 meeting as submitted for your review by the Department of Environmental Quality.

Jefferson County's support of this measure is based upon the following:

1. Observation of systems previously installed in shallow soils.
2. Knowledge of the climate in Central Oregon.
3. The need to preserve the deeper soiled farm land for farming in Central Oregon.
4. The apparent economic impact the current regulations have imposed on Jefferson County.

We believe that there should be no delay in enacting the proposed geographical rules.

JEFFERSON COUNTY COURT

Herschel Read
Herschel Read, Judge

Louis Olson
Louis Olson, Commissioner

Gordon Galbraith
Gordon Galbraith, Commissioner

HR:dc

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECEIVED
JUN 27 1975

OFFICE OF THE DIRECTOR

June 20, 1975

Dept. of Environmental Quality
1234 S.W. Morrison
Portland, Oregon 97205

Mr. Keasler R. Cannon:

At the Field Burning Committee meeting held on June 19th, 1975, I was authorized as chairman to present the following information.

During 1975 there will be three burners in the early part of the season — delivery date the week of July 14.

The committee feels that these burners will not contribute significantly to reducing open burning this season.

It is planned, if these burners are successful, to buy more and improve them throughout the season.

Sincerely yours,

Bill F Rose

Chr. Field Burning Com.
Rt 1 Bx 269
Woodburn, Oregon

School of Agriculture Oregon State University Corvallis, Oregon 97331 (503) 754-2331

June 27, 1975

Mr. L. Doug Brannock, Meteorologist
Air Quality Control Division
Department of Environmental Quality
1234 SW Morrison Street
Portland, OR 97205

Dear Mr. Brannock:

In earlier communications, both by telephone and letter, with Kess Cannon I have conveyed the thought that Dr. Harold W. Youngberg, Extension Agronomist, Oregon State University, will represent this office and serve as a liaison person between the Department of Environmental Quality and the School of Agriculture. I am sure you will find Harold an extremely helpful person as you develop and administer programs in compliance with the objectives and intent of Senate Bill 311 should it become law. Hopefully inputs from here can and will be made through Harold.

Some of our immediate thoughts were conveyed to you by Harold in a letter dated June 24, 1975. As additional and/or new thoughts are surfaced we will bring them to your attention for consideration. When and wherever it appears in your judgment that I, personally, can be helpful please do not hesitate to write or call.

Sincerely,

Wilbur T. Cooney
Dean of Agriculture

WTC:sf

cc: Harold W. Youngberg

EXTENSION SERVICE
Crop Science Dept.

Oregon State University

Corvallis, Oregon 97331

June 24, 1975

Doug Brannock
Department of Environmental Quality
1234 S.W. Morrison Street
Portland, Oregon 97205

Dear Doug:

The following remarks are in response to your question raised at the June 20 meeting with regard to establishing priorities for reduction in grass seed straw acreage burned.

In view of the facts discussed that the seed crop acreage harvested this year and ready for burning will very likely not exceed that permitted under the Legislation, and in view of the limited time available between registration and the start of the field burning season, it would seem inappropriate to establish lengthy and detailed standards for burning priorities. It would seem more appropriate to speed the registration process so that field burning can begin early in the season in order to facilitate proper smoke management.

It is most difficult to establish a set of guidelines that can be administered by an agency to decide which field or which fields should and should not be burned on a given farm. Only the seed grower is in a position to make this judgment and different producers will use different standards to make his decision. I would like to recommend that for the 1975 burning season that the seed growers be asked as they register their fields, to identify the 10% of their acreage that they would consider to have the lowest priority for burning during 1975. This would make each grower evaluate his own operation and indicate where he would make a reduction in burned acreage if required. The acreage so identified, or a portion of that acreage, could then be identified by the Department of Environmental Quality as acres not to be burned during 1975 season if it was found that the registered acreage exceeded the maximum 235,000 acres. I feel this proposal has considerable merit and should be carefully considered.

I have a number of suggestions that should be considered in establishing priorities for the 1976 and 1977 burning seasons. I trust that we will have an opportunity to consider such proposals after the critical decisions

for the 1975 season have been made. I appreciate having an opportunity to make an input in your considerations.

Sincerely,

Harold Youngberg
Extension Agronomist

HY:jlm

cc: Dean Cooney
Dr. Cowan
Fred Hagelstein

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WESTERN REGION
DEPARTMENT OF BOTANY AND PLANT PATHOLOGY
OREGON STATE UNIVERSITY
CORVALLIS, OREGON 97331

June 23, 1975

Department of Environmental Quality
1234 S. W. Morrison Street
Portland, OR 97205

c/o Mr. Douglas Brannock

Pursuant to the suggestion at your June 20 meeting in Salem, here are a few inputs for the 1975 field burning season.

Diseases will cause serious crop damage in one or two years if burning is interrupted or discontinued. Ergot, for example, is already a chronic problem in many fields with open burning. Ergot, obviously, will become serious quickly if some thermal sanitation is not practiced.

Chemicals as substitutes for burning for disease control apparently will not be available for several years. One experimental chemical, BAY MEB 6447, has shown promising activity in greenhouse tests for control of ergot and blind seed disease, but it has yet to be proven satisfactory under field conditions. If the company decides to go ahead with product development, and if no problems are encountered in EPA registration, manufacture, field performance, or cost, BAY MEB 6447, under full-use registration, still is not expected to be available for three to five years or 1978-1980.

One major problem is that substitute crop rotations have not been found for the 150,000 acres of wet lands, because there are currently no alternative cropping systems that can be used as replacement for grass seed crops now grown on these poorly drained soils. Both ryegrasses, tall fescue, and white clover produce well on these wet lands, but no other cash crops have been found to substitute for grass seed crops without expensive and presently non-existing drainage.

Thermal sanitation should be regarded as the cornerstone in grass seed production, because it is broadly effective against diverse problems, such as some diseases, weeds, and insects, while also improving seed yields. It would be impossible to find feasible chemicals to do all the jobs now accomplished by field burning. Chemicals and other methods for disease, weed, and insect control should be considered as ancillary to a strong thermal sanitation program, which remains basic to all other treatments.

While thermal sanitation is vital, the smoke is unnecessary. Our evaluation tests have shown that mobile field sanitizers can supply thermal treatments that are adequate for disease control. In fact, the mobile sanitizers may supply heat treatments that are more uniform with less burn out and that are more effective for disease and weed control. The sanitizers may also provide the means to supply thermal sanitation in fields of perennial legumes such as alfalfa and perhaps other field crops besides grasses. The mobile sanitizers will require only waste plant material as fuel (a renewable resource) and they should reduce the amount of pesticides that are needed.

The key to continuation of vital thermal sanitation is development of feasible mobile sanitizers and feasible methods for removal and disposal of straw. The crucial consideration is the timeframe in which to expect the sanitizers to become operational and feasible and when straw removal and utilization will become feasible. It would appear that solutions to satisfactory sanitizer operations and straw disposal problems and availability of new chemicals to augment the basic sanitizer treatment cannot be expected for three to five years, if they do become available.

Thus for 1975, I would agree that the big problem is to get the registration and burning program under way as soon as possible as was generally agreed by everyone attending the June 20 meeting.

Sincerely yours,

John R. Hardison

John R. Hardison
Research Plant Pathologist
Legume & Grass Seed Production

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WESTERN REGION
DEPARTMENT OF BOTANY AND PLANT PATHOLOGY
OREGON STATE UNIVERSITY
CORVALLIS, OREGON 97331

June 30, 1975

Department of Environmental Quality
1234 S. W. Morrison Street
Portland, OR 97205

Enclosed are:

Information memo to the Environmental Quality Commission of June 30, 1975.

Copy of my information letter of June 23 to the Department of Environmental Quality.

Copy of my testimony to the Special House Committee on Field Burning with Exhibits delivered at Albany, Oregon, March 5, 1975.

Could you please see that five copies are delivered to EQC for use of the five members of the Commission.

The copy is enclosed for use of DEQ.

Sincerely yours,

John R. Hardison

John R. Hardison
Research Plant Pathologist

Enclosures

SOIL AND WATER CONSERVATION COMMISSION

20 AGRICULTURE BUILDING • SALEM, OREGON • 97310 Phone 378-3810

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State Conservationist, SCS, USDA

DIRECTOR
BUD F. A. SVALBERG

June 27, 1975

Department of Environmental Quality
1234 SW Morrison St.
Portland, OR 97205

ATTENTION: L. Doug Brannock

Gentlemen:

The State Soil and Water Conservation Commission is submitting these comments relating to field buring for 1975 as you requested, providing that Senate Bill 311 becomes law.

The Commission feels, and strongly recommends, that the form used by the Seed Council in the past be utilized for the 1975 season. There are many reasons for this recommendation, but foremost among them is the fact that the growers are used to this form; and since time is critical, it will not be inefficiently used while the growers try to figure out just what is wanted and how best to get the information. They already are familiar with the process and information required by the Seed Council in the past. This is the growers busiest time of the year and to require new or different kinds of forms would only irritate an already sore subject.

As the first step, we recommend that a determination be made of the total number of acres that are to be burned. If the total number of acres to be burned exceeds the 235,000 allotted for the 1975 growing year, each county should be allotted their proportionate share of the 235,000 acres, based on the number of acres registered to be burned in that county. The local field burning representative of the Seed Council will then call a meeting of those growers having registered acres to be burned, and at this meeting the local growers will determine how they are going to meet the quota for their county. This will keep the decision that has to be made with the local growers in each county, who are the ones most affected, and it will be far more palatable than having a so-called "bureaucrat from Portland" making local decisions.

At the time of this meeting, the growers will determine how many acres each will burn and sign a register to that effect.

We know that in the eight affected counties there are lands with soils that can be used for other crops if the growers are not permitted to raise grass. However, a great deal of time--probably the remainder of this year--would be required to develop the criteria needed for developing an acceptable solution for this problem; and as we have stated before, the time element is critical.

We therefore recommend that the solution for this year be as outlined previously in this letter.

An example, of how the alloted acres in each county that can be burned is determined, is shown on the attached chart. For purposes of the example, we have used the acreage of grass seed harvested in each county of Oregon for 1974, instead of the acres registered to be burned in 1975.

Thank you for the opportunity to comment on this matter.

Sincerely,

Bud F. A. Svalberg
Director

BFAS:ms
Enclosure
cc: Stan Christensen
Paul Jensen
Bill Rose

Example: *Based on acreage figures of grass seed harvested in 1974 in Oregon.

County	(1) Acres Registered to be Burned	(2) Percentage of the Allotted 235,000 Acres	(3) Allotted Acres to be Burned
Linn	143,800	52.60	123,610
Marion	39,350	14.39	33,817
Benton	26,100	9.55	22,442
Lane	21,900	8.01	18,823
Polk	21,100	7.72	18,142
Clackamas	12,650	4.63	10,880
Yamhill	8,000	2.93	6,886
Washington	470	0.17	400
TOTAL	273,370 Acres	100.00	235,000

*For purposes of this example, we have used the acreage figures of grass seed harvested in Oregon in 1974. The actual figure to be used in Col. 1 should be the acres registered to be burned in each county.

Col. 1 - Shows acres registered to be burned in each county.

Col. 2 - Shows each county's percentage of total of registered acres to be burned.

$$\frac{\text{Acres registered to be burned in county}}{\text{Acres registered to be burned in 8 county area}}$$

Col. 3 - Shows the allotted acres that can be burned in each county.

Col. 2 X 235,000 acres

OREGON SEED COUNCIL
OFFICE OF COORDINATOR
1349 CAPITOL ST. N.E.
SALEM, OR. 97303
PHONE (503) 363-1022

July 1, 1975

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED
JUL 3 1975
AIR QUALITY CONTROL

Mr. L. Doug Brannock, Meteorologist
Air Quality Control Division
DEQ
1234 S.W. Morrison
Portland, Oregon 97205

Dear Mr. Brannock:

In regard to your letter dated June 25, 1975, it is the opinion of the Oregon Seed Council that the legislature clearly stated its intentions as to the permitted number of acres to be burned in 1975 in section 11, sub-4, where it is stated, "it is the intention of the legislative assembly that permits shall be issued for the maximum acreage specified in sub-section 2 of this section, and for each year recited therein, only if the commission finds after hearing that [a] there are insufficient numbers of workable machines that can reasonably be made available to sanitize the acreage, if an acreage reduction is ordered [b] there are insufficient methods available for straw utilization and disposal and [c] reasonable efforts have been made to develop alternative methods of field sanitation and straw utilization and disposal and such methods have been utilized to the maximum reasonable extent."

I would like to quote to you comments of Mrs. Janet McLennon, Governor Straub's administrative assistant for natural resources as reported by Bill Lynch in the Eugene Register Guard, dated June 20, 1975, where it quotes Mrs. McLennon as saying, "It appears the Environmental Quality Commission will have to make two policy decisions at separate meetings before field burning can start under the bill." "First, she said, it must rule that 235,000 acres can be burned because other alternatives are not available. Sometime in July, after fields are registered, the commission should determine how the acreage allowed to be burned will be apportioned among growers." In the same paper, on the same date, Bill Lynch again reports that Keith Burns, Executive Assistant to Governor Straub, said, "The Governor's office expects growers to burn the entire 235,000 acres this summer." These statements by Governor Straub's chief executive assistant and his administrative assistant for natural resources hinge on the language in section 11, sub-4, and recognize, very simply, the fact that the Oregon Field Sanitation Committee has, [1] made reasonable efforts over the last five years to develop alternative methods of field sanitation and straw utilization and disposal and that [2] there are insufficient numbers of workable machines at this time and [3] there are insufficient methods of straw utilization and disposal available in 1975.

It is the opinion of the Oregon Seed Council that, as provided in section 5 and section 11, and specifically in section 11, sub-4, the information is very clear that there are, in existence today, insufficient numbers of workable machines and insufficient methods available for straw utilization and disposal and that reasonable efforts to develop the same have been made, there fore the DEQ should rule that the maximum 235,000 acres allowed to be burned in 1975 should be permitted to be burned.

I am enclosing a copy of the engineers' report for the year 1974 for your information.

Sincerely,

Paul Jensen

Paul Jensen
President

PJ:te

enclosure

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1220 S. W. Third Avenue, 16th Floor Portland, OR 97204

June 30, 1975

Mr. Kessler R. Cannon, Director
Department of Environmental Quality
1234 S. W. Morrison Street
Portland, OR 97205

ATTENTION L. DOUG BRANNOCK

Dear Mr. Cannon:

Thank you for the invitation to participate in the conference on June 20, 1975, concerning promulgation of rules concerning field burning as specified in Senate Bill 311.

Discussion during the conference made it obvious that a system to use information from the soil survey program of the Soil Conservation Service cannot be put into effect in time to contribute to a field burning permit program in 1975. To use soil survey information, it would be essential that the boundaries of each field concerned in a permit be identified on a soil map. This can be done if a suitable map showing such boundaries accompanies each application for burning or if personnel under the supervision of the Department of Environmental Quality would visit each field and plot the boundaries on a soil map. Neither of these alternatives was considered attainable during 1975 by the conference participants.

If you believe it advisable, the Soil Conservation Service will provide assistance in developing a system that will enable the Department of Environmental Quality to use information on soil characteristics as one criteria for permits in 1976 and subsequent years. If a meeting of concerned personnel from both agencies can be arranged well ahead of the 1976 field burning season, our soil surveys can be interpreted to provide most if not all the information on soil characteristics needed by the Department of Environmental Quality.

Sincerely,

James W. Mitchell
State Conservationist

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
PLANT SCIENCE RESEARCH DIVISION
DEPARTMENT OF FARM CROPS
OREGON STATE UNIVERSITY
CORVALLIS, OREGON 97331

June 30, 1975

Mr. Doug Brannock
Department of Environmental Quality
1234 S.W. Morrison Street
Portland, OR 97205

Dear Doug:

Enclosed is a brief statement outlining the need for burning to achieve satisfactory weed control in annual and perennial grass seed crops. In numerous experiments conducted since 1965, we have been unable to obtain adequate weed control without a burning treatment.

At this time there are no markets available to utilize straw that must be removed from fields and no proven mechanical burners available to sanitize fields. Thus, if the grass seed acreage to be burned in 1975 exceeds the 235,000 acres allowed by Senate Bill 311, I feel that the only fair way to reduce acreage will be to let each grower burn a proportional share based on his previous acreage.

If straw markets can be developed during the coming season and if the burners prove to be satisfactory, then these factors can be taken into account in determining how reductions in acreage can be formulated in 1976 and later years. If straw utilization and field burners are not successfully developed in 1975, then it will be very difficult to determine how reductions should be made in 1976 and later years.

Sincerely yours,

William O. Lee /sdm

William O. Lee
Research Agronomist

sdm

Enclosure

WEED CONTROL IN SEED CROPS IN ABSENCE OF OPEN BURNING

Dr. W. O. Lee[1]

Field burning, initiated in grass seed fields in western Oregon to control plant diseases, also proved effective in controlling other plant pests. While it has not been recommended specifically for weed control, satisfactory weed control in grass seed fields in western Oregon depends on burning.

ANNUAL RYEGRASS

Weed control by burning. Field burning is the principal means of controlling winter annual grass weeds in annual ryegrass (Lolium multiflorum Lam.) seed fields. Burning destroys the seed source. Limited experiments have shown that a good clean burn destroys 95 to 99 percent or more of weed seeds in the field. Without burning, all these seeds return to the field to increase weed populations. Because of the increasing weed problem, it is doubtful that without burning it would be possible to raise a crop every year. Without burning, growers will have to turn to crop rotations where soil and moisture conditions permit or take the land out of production part of the time. It may be necessary to summer fallow every other year or every third year to keep weeds in check. This would reduce total ryegrass seed production and necessitate higher prices.

Chemical weed control. Even though experiments have been conducted during the past 12 years to attempt to find selective herbicides for control of winter annual grass weeds in annual ryegrass seed fields, no satisfactory treatments are available to growers.

Paraquat (1,1'-dimethyl-4,4'-bipyridinium ion), a non-selective contact herbicide, gives a degree of weed control when applied as a seedbed treatment in years when early fall rains cause weeds to sprout and emerge ahead of the crop. However, in dry years, the weeds and crop emerge at the same time and paraquat cannot be used. Even under the best conditions, paraquat does not control all weeds. Additional weed seeds germinate during the fall and winter and are not affected by the earlier paraquat application.

Research shows that NC-8438 (2-ethoxy-2,3-dihydro-3,3-dimethyl-5-benzofuranyl methanesulphonate) has potential for selective control of winter annual grass weeds in annual ryegrass. When it is applied preemergence or early postemergence, annual ryegrass is not injured at rates that are very effective in controlling troublesome weeds, particularly rattail fescue (Festuca myuros L.), annual bluegrass (Poa annua L.), and wild oats (Avena fatua L.).

The future of NC-8438 is unknown because it is still an experimental compound with no registrations. Its registration is being sought to control grass weeds in sugar beets and, if granted, the herbicide will become a commercial product and additional registrations will be sought. If the sugar beet registration is denied, the compound may be dropped.[2] EPA will be asked by the manufacturer to issue a temporary permit for use of NC-8438 in ryegrass seed fields in 1975. Such a permit will allow wider testing of this compound in western Oregon. If complications do not arise, it probably will take at least three to five years to accumulate the data required for full registration of NC-8438 in annual ryegrass. Thus, there is no hope for selective chemical control of winter annual grass weeds in annual ryegrass for several years.

PERENNIAL GRASSES

In perennial grass seed fields, open burning not only destroys most of the weed seeds on the field but also removes crop residues which interfere with the action of soil-applied herbicides that are used to selectively control winter annual grass weeds. All herbicides now registered for selective control of winter annual grass weeds in established perennial grass seed fields are adsorbed and inactivated by crop residues. Since 1965, a number of experiments comparing the effect of different methods of crop residue management on herbicidal activity have been conducted. Results show that without burning in some form, none of the herbicides gave satisfactory weed control (Table 1). Weed control has been satisfactory where fields were burned with the mobile sanitizers being tested. There are no potential herbicides being evaluated for selective grass weed control in perennial grass seed fields that are not adversely affected by crop residues.

---

[1] Research Agronomist, Agricultural Research Service, U. S. Department of Agriculture, Department of Agronomic Crop Science, Oregon State University.

[2] Personal communication with Leo Ekin, Fisons Corporation, Bedford, Massachusetts.

SUMMARY

Without field burning, it will be difficult to produce grass seeds that meet the high standards for purity demanded by the consumer. Many farmers, especially those farming land with poor drainage, excessive slope or other physical limitations, will be forced out of seed production. They will have few alternatives.

Some farmers on better land will be able to continue grass seed production without open field burning by adopting crop rotations that control weeds in alternate crops, by adopting improved practices such as chemical seedbed and charcoal banding to control weeds during crop establishment, and by adopting more effective mechanical means of collecting and removing crop residues from fields. However, much of the land now used for grass seed production is not suitable for alternate crops and improved practices at this time. Perennial grass seed production probably will be drastically curtailed in western Oregon and costs of production will be increased greatly when perennial grass seed fields can no longer be burned.

Table 1. Influence of the method of orchardgrass straw management on weed control.

Straw management treatment	No. annual ryegrass plants/3 sq. meters[3]		
	Herbicide and rate of application[4]		
	Atrazine 2.5 lb/A	Diuron 3.0 lb/A	Chlorpropham 3.0 lb/A
Straw burned on field	0	0	1
Straw removed--propane flamed	0	0	1
Straw removed--not burned	61	8	26
Straw left on field--not burned	12	1	16

[3] Experimental area overseeded with annual ryegrass, an important seed crop but also a major grass weed problem in most perennial grass seed fields.

[4] Diuron and chlorpropham are registered for use in orchardgrass. Atrazine, not registered, shows potential for this use and registration is being pursued.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WESTERN REGION
DEPARTMENT OF MICROBIOLOGY
OREGON STATE UNIVERSITY
CORVALLIS, OREGON 97331

July 3, 1975

Mr. Richard Boat
1234 S.W. Morrison
Portland, OR 97220

Dear Mr. Boat:

Per Dr. A. W. Anderson's request I am sending you a copy of the reprint concerning alternate-year field burning of grass straw. If I can be of any further assistance, please let me know.

Sincerely,

Y. W. HAN

cc: A. W. ANDERSON

AGRONOMIC CROP SCIENCE REPORT

Research Extension

NON-BURNING TECHNIQUES OF GRASS SEED RESIDUE REMOVAL 1/

D. O. Chilcote and H. W. Youngberg 2/

INTRODUCTION

Several alternatives to yearly open field burning of grass seed fields are available. These include techniques of residue removal (mechanical removal of all or part of the post-harvest residue from grass seed fields), or incorporation of the straw into the soil where cultivation is possible in annual cropping. The various methods used to accomplish these objectives will vary in cost and effect on the subsequent seed crop.

The effect of raking straw from the field (leaving the remaining stubble intact), flail-chop removal of a major portion of both straw and stubble, and a so-called "close-cut" technique of rather complete removal of all of the organic material on the surface of the soil were studied for their effect on the subsequent seed yield in perennial grasses as compared to the standard burning practice. In the "close-cut" treatment, a streetsweeper was used to loosen and remove the organic material around the crowns of the perennial grass plant. This treatment and the subsequent close rotary mowing achieved residue removal approximating an open burn.

Studies in annual ryegrass were designed to determine the feasibility of various incorporation techniques and their effect on yield and the management practices involved in production of annual ryegrass seed. Additional investigations were undertaken to compare standard plowing and drill seeding for establishing annual ryegrass with methods of seeding through the stubble alone or both the straw and stubble.

RESULTS

The results of the investigations on non-burning techniques can essentially be grouped into two categories: Those applicable to perennial grass seed crops where straw cannot be incorporated, and annual ryegrass cropping where both incorporation and establishment techniques can be varied.

1/ Progress Report EXT/ACS 9, Agricultural Experiment Station, Oregon State University.

2/ Professor of Crop Physiology and Extension Agronomist, respectively, Department of Agronomic Crop Science.

Perennial Grass Seed Crops

The research effort on non-burning alternatives in perennial grasses centered on various techniques of mechanical removal of the straw and/or stubble and a comparison of these techniques to open burning in several grass seed species. The effect of alternating mechanical removal techniques with burning over several years was also evaluated.

Mechanical removal techniques. The results of the "close-cut" treatment have not yet been evaluated in terms of seed yield, but the regrowth and tillering patterns of plants appear to be quite similar to that which occurs in a burned field.

With raking and flail-chop operations the results suggest that the greater the degree of residue removal the higher the seed yield in the subsequent harvest (see Table 1). The no-residue-removal treatment resulted in the lowest seed yields. In all instances raking and flail-chop removal of residue was found to be inferior to open burning. However, the seed yield reduction as a result of these mechanical removal techniques was very dependent upon the particular grass seed species. Orchardgrass, for example, was able to maintain seed yield under a mechanical removal program, whereas fine fescue was very sensitive and showed considerable yield reduction after just one year of non-burning. It should be noted that seed yield for each of the grass species varied with the particular year. The results presented are an average value across years comparing mechanical removal to burning.

Table 1. Comparison of seed yields for no post-harvest residue removal, mechanical removal methods, and early burning expressed as a percent of early burning in six grass species averaged over a 4-year period.

Species	Burn Early	Chop-remove 3/	Rake 4/	No Removal 5/
Chewings fescue	100	54	36	32
Creeping red fescue	100	78	71	46
Highland bentgrass	100	75	52	47
Orchardgrass	100	84	72	64
Merion bluegrass	100	75	73	62
Perennial ryegrass 6/	100	65	--	60
Mean	100	72	61	52

3/ Flail-chop remove all residue to 3" stubble height.
4/ Straw removed, stubble remaining.
5/ Straw left spread over plot area.
6/ Only a 2-year period for this species.

Results suggest that age of stand will be an important factor in determining the effect of mechanical removal. Ignoring the pest control aspect of burning, younger stands of grass do not appear to suffer yield reduction as dramatically as older stands. Information on removal methods versus stand age is continuing to be collected. The particular environmental conditions prevailing during a growing season do undoubtedly play a major role in determining the impact of method of residue removal.

Attempts were made to speed the biological breakdown of straw and stubble remaining on seed fields after harvest by application of additional fertilizer to the straw left spread on the field. Breakdown of residue was not noticeably increased and seed yields were usually not benefited by the supplemental application of fertilizer. High rainfall, cool temperatures, and leaching of fertilizer into the soil probably contributed to the ineffectiveness of this treatment.

Alternate-year burning. Alternate-year field burning with mechanical straw removal in the year of non-burning offers one method for reducing the amount of burning in any single year while providing a means of maintaining a higher level of field sanitation than is possible with mechanical straw removal methods alone. Since straw removal is more expensive than open burning, the added costs of mechanical removal could then be averaged over a two-year period, reducing the total cost to the seed grower. As may be noted (Table 2), the use of a mechanical residue removal technique without burning results in reduced seed yields when averaged over several years. The degree of yield loss over this period is, however, less where burning can be alternated with the mechanical removal technique. The problem of build-up of disease and insect populations could not be assessed in these studies. However, some increase in pest problems could be anticipated where annual burning is not practiced.

Table 2. Comparison of seed yields for annual burning, alternate-year burning and annual mechanical removal expressed as a percent of annual burning for four grass species over a three-year period.

Species	Annual Burning	Alternate-year Burning 7/	Mechanical Removal 8/
Creeping red fescue	100	88	78
Orchardgrass	100	98	84
Merion bluegrass	100	95	69
Perennial ryegrass 9/	100	86	65

7/ A mechanical removal operation was performed in the alternate year so that the treatment began and ended with burning of the residue.
8/ Usually a flail-chop removal technique.
9/ In this instance, only two years were involved.

Annual Ryegrass

The present practice of seedbed preparation is to burn the crop residue and then to seed directly into the soil without tillage using a grassland drill. In some cases, minimum tillage (chisel plow, disc and harrow) after burning and prior to seeding is also practiced, but this procedure would be more difficult if all the straw had to be incorporated.

Various residue incorporation techniques were tested 10/ on a typical Dayton soil site to determine the feasibility of different incorporation procedures at the time of seedbed preparation. The addition of fertilizer to straw prior to incorporation was compared to application after plow-down.

In addition, studies were initiated to evaluate different methods of establishing annual ryegrass (e.g., seeding through straw and stubble or through just the stubble after straw has been removed). Also included were comparisons of different seeding equipment. Application of a non-residual contact herbicide (paraquat) prior to or just after seeding to replace the weed control accomplished by thermal destruction of weed seeds in open burning was evaluated.

Incorporation studies. Yields of seed for various methods of incorporation were not greatly different (Table 3), and compared favorably with burning.

Prior chopping of straw was found to be necessary for satisfactory moldboard plowing of annual ryegrass fields. Even so, incorporation of all the straw was difficult, particularly where heavy straw loads were encountered. Plowing down as much as four tons of straw did not lower the current year's seed yield (Table 4). (Note that seed yields are from harvested small plots and may represent yields greater than expected from field scale production.) Moldboard plowing tended to layer the straw in the soil profile in such a way that intact straw could be recovered from the soil in a relatively undecomposed state even after a two-year period. Problems may therefore be expected in subsequent years where plowing returns the straw to the surface where it may cause difficulties in re-establishment of annual ryegrass stands. Experimental information on the effect of various methods of incorporation over a several-year period is lacking, but problems of straw residue accumulation and an increase in weed population can be anticipated.

Fertilizer applications to the straw at the time of incorporation had little effect on subsequent seed yield (Table 5). Breakdown of the straw was not visually increased during the production year. Biological degradation of crop residue in soil was limited by soil saturation and low temperature in the winter and by dry soil conditions in the summer.

Another problem of deep plowing was the soft soil condition which developed after fall rains and this caused difficulties in moving equipment over the soil for distribution of fertilizer and sprays for pest control during the winter and spring.

10/ Extension Service and equipment dealers' demonstrations were part of this program.

Table 3. Comparisons of different seedbed preparation techniques with particular regard to straw incorporation methods and subsequent seed yield in annual ryegrass, 1969.

Location 1		Location 2		
			Seed Yield (lbs/A)	
Treatment	Seed Yield (lbs/A)	Treatment	Straw Chopped	Straw Burned
Burn	1625			
Chopped straw + moldboard plow	1997	Moldboard plow	1852	1526
Chopped straw + chisel plow	1955			
Chopped straw + disc	1762			
Chopped straw + rototill	1943	Rototill	1748	1661
Chopped straw + disc	1501	Disc	1508	1559
Moldboard plow--straw unchopped	1813			
Disc--straw unchopped	1507			
Chisel plow--straw unchopped	1506			
		Chisel plow + disc	1921	1612

1/ Difficult and time-consuming with existing equipment.

Rototilling as an incorporation technique was found to be extremely slow because compacted dry soil conditions caused considerable equipment breakdown. Rototilling would also distribute the weed seed and straw throughout the soil profile, allowing emergence and weed infestation in the following ryegrass crop. Straw is, however, more uniformly mixed with the soil and thus decomposition is favored.

Table 4. Seed yield of annual ryegrass comparing burning with incorporation of various amounts of straw prior to seeding, 1971.

Straw Management	Average (lbs/A)
Field burn	2533
Straw 0 12/	2350
Straw 2 ton	2540
Straw 4 ton	2580

Incorporation of straw with large disc plows was also evaluated. Power requirements were large and weed problems were also accentuated as with any technique in which weed seeds are not buried but rather distributed vertically in the soil.

Table 5. Comparison of different nitrogen applications during seedbed preparation for annual ryegrass, 1970.

Treatment 13/	Seed Yield (lbs/A)
No nitrogen at plowing 14/	2190
30# N after plowing 15/	2980
30# N plowed down with straw 15/	2580

Establishment techniques. Attempts at seeding through the straw and stubble with experimental drills met with varied success. Large amounts of matted residue on the soil surface presented a problem in the subsequent establishment and survival of seedlings of annual ryegrass. Seeding through chopped straw or just the stubble after straw removal did appear to have some promise (Table 6), particularly if weeds could be controlled satisfactorily. The use of a nonresidual contact herbicide (e.g., paraquat) is a possibility

12/ Stubble only.
13/ All treatments received 80# N, April 10, 1970.
14/ 16# N at seeding.
15/ 24# N at seeding.

and could provide control of annual weeds and benefit crop quality. It may be a benefit to yield (Table 7), depending on the seedbed preparation. This type of contact herbicide is dependent upon early fall rains to germinate weed seeds prior to seeding. In a dry fall season the late weed seed germination would delay the operation and result in very late crop seeding. Annual ryegrass must be well established before freezing winter weather or poor winter survival and reduced seed yields will result. This dependency on early rainfall limits the use of the alternative of seeding through stubble and it cannot be viewed as a total replacement for the present practice of burning off the residue and establishing the annual ryegrass crop with minimum tillage.

Table 6. Seed yield of annual ryegrass comparing seedbed preparation and crop establishment techniques.

Straw Management	Seed Yield (lbs/A)		
	Normal 15/	Billston 16/ No tillage	Experimental drill 17/ No tillage
Field burn	2504	2524	2471
Straw 0	2482	2417	2286
Straw 2 tons	2437	2676	2608
Straw 4 tons	2674	2368	2990

Weed control problems. Weed control in annual ryegrass depends mainly on burning of the residue and concomitant destruction of most weed seed on the soil surface. The increase in weeds where burning is not practiced would certainly contribute to a reduction in the quality of ryegrass seed because of inseparable weed seed. Weed seeds that fall into cracks in the soil are generally not destroyed by thermal treatment and must be controlled by herbicides. These weeds are, however, generally restricted in number and delayed in emergence so that they do not present a serious problem in the production of annual ryegrass crops, at least over a three- or four-year period between deep plowing operations. Moldboard plowing of residue serves to place weed seeds deep enough in the soil to prevent many of them from emerging. Other techniques of seedbed establishment which involve vertical distribution of straw in the soil intensify weed problems since more seeds are in a position near the soil surface to emerge easily. Over a period of years, these reduce the yield as well as the quality of seed produced on these fields.

The availability of a herbicide which could selectively remove the winter annual weeds from annual ryegrass would greatly facilitate the utilization of incorporation techniques in production of annual ryegrass seed. However, the added costs of the herbicide and the tillage operations would be an important factor to seed growers. A program of alternate-year burning and

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15/ Grassland drill.
16/ Weighted coulter drill.
17/ Fluted coulter drill.

mechanical removal might also be considered as a technique of controlling weed populations and yet reducing the amount of burning required in any one year. Total cost to the grower would be reduced by virtue of the biennial availability of burning as a low cost seedbed preparation and weed control measure. Experimental information on results of this kind of program is not available.

Table 7. The effect of seedbed preparation and weed control practice on seed yield of annual ryegrass.

Straw Treatment	Seed Yield (lbs/A)	
	No Herbicide	Paraquat Pre-emergence
Spread	1879	1975
Chopped and spread	2845	2770
Burned	1865	2423

CONCLUSIONS

Mechanical residue removal in perennial grasses appears to be practical in younger crop stands and in older stands if burning could be alternated with mechanical removal. Results suggest that the more complete the residue removal, the greater the benefit to subsequent seed yield. However, the utilization or disposition of removed residue remains an important problem, as does pest control.

Alternate-year burning of grass fields may allow the maintenance of acceptable pest control and would reduce yield losses compared to strictly mechanical removal methods in perennial grasses.

Perennial grass species do show a difference in response to mechanical removal techniques, with orchardgrass displaying the greatest tolerance to non-burning. The effect will undoubtedly be conditioned by variety as well as the environmental conditions in a particular season.

Soil incorporation of straw during seedbed preparation in annual ryegrass production is an alternative to burning. However, weed control problems and cost are greatly increased with this procedure. Non-tillage, non-burning annual crop establishment requires chopping or removal of straw and presents the added problem of adequate weed control. Where straw could be removed, plowing under only the stubble would certainly facilitate soil incorporation and seedbed preparation as an alternative to burning in annual ryegrass production.

If a use for grass seed residue could be found which would offset the additional cost to the grower, then the feasibility of mechanical alternatives would be improved.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE
Oregon State Office, 1524 Federal Building
1220 S. W. Third Avenue, Portland, Oregon 97204

June 30, 1975

Loren Cramer, Director
Department of Environmental Quality
1234 S. W. Morrison Street
Portland, Oregon 97205

Attention: Mr. L. Doug Brannock

Dear Mr. Cramer:

We appreciate the opportunity to comment on DEQ responsibility for controlling field burning. Comments are based primarily on our own experience and may be incompatible with your program for some requirements of law that we may not fully understand or appreciate.

The lack of time would seem to make the proportional share method the most practical way of complying with the 235,000 acres limitation for 1975 if producers' intentions exceed the limitation. The total acreage to be burned in a given district could be controlled by DEQ by issuance of permits for acreages less than requested to individual producers. Fire chiefs would control the acreage burned on a given day by authorization from DEQ. The biggest job for DEQ for 1975 is determining the amount of burning producers would burn if they aren't restricted.

We are not in a position to become directly involved in your program, nor could we become a party to any controversy between the producers and DEQ. However, our county ASCS offices could provide assistance to producers in identifying cropland uses and making acreage determinations. We could furnish producers' photo copies which would show farm and field boundaries with field acreages recorded on the photo copy. The photo copy could supplement the producer's application to whomever you select as the control office for a burning permit and be the basis for checking compliance. Photo copies are free of charge to operators of farms. Copies are available to others at a charge of $1.00 per copy.

Cropland uses and acreage determinations would be based on information furnished by the producer. We would not be able to visit farms to verify the accuracy of information furnished by producers.

Producers certify compliance in our programs and the system has been quite satisfactory. Compliance with our program requirements are determined by making farm spot checks following a predetermined sampling system and following up on complaints. The spot check system reduces workload and costs and is as effective in obtaining compliance as was the 100 percent compliance checking system we used several years ago.

Sincerely,

T. D. Sehorn
Acting State Executive Director
Oregon State ASC Committee

OREGON SEED COUNCIL

OFFICE OF THE COORDINATOR
Telephone 503 363-1022

1249 CAPITOL ST. N.E.
SALEM, OREGON 97303

July 2, 1975

Mr. L. Doug Brannock, Meteorologist
Air Quality Control Division
DEQ
1234 S. W. Morrison
Portland, Oregon 97205

Dear Mr. Brannock:

It is our understanding the Environmental Quality Commission may promulgate rules to decide on curbing the acreage of grass seed straw to be burned in the Willamette valley this summer. Since the law specifies 235,000 acres will be allowed, we doubt there will be a problem in that area. If the acreage registered surpasses the 235,000 acres, the Oregon Seed Council urges the Commission to allow growers within each district to have an opportunity tomake any reduction in acres that may be needed.

We believe such a program would present the fewest problems in reducing acreage and make the program work much better than any arbitrary cut in acres based on other criteria. Thank you for any consideration that may be given such a voluntary reduction program.

Sincerely,

Paul Jensen

Paul Jensen, President

PJ:te

ROBERT W. STRAUB
GOVERNOR

STATE DEPARTMENT
OF AGRICULTURE

AGRICULTURE BUILDING • • SALEM, OREGON • • 97310

July 3, 1975

Director Loren Kramer
DEPARTMENT OF ENVIRONMENTAL QUALITY
1234 SW Morrison Street
Portland, Oregon 97205

Dear Mr. Kramer:

The Department of Environmental Quality was given a great deal of authority under Senate Bill 311 and by statute is required to promulgate rules and regulations to carry out the intent of the Act.

In reality, you are responsible for developing a workable set of regulations to meet the spirit of the law and carry forth legislative intent.

Since we are nearing the field burning season, the immediate problem is the registration of acres to be burned for 1975 as set forth in Section 11 Line 19 in the final version of SB 311. Should the total acreage exceed the legislative limit, it would be necessary to pro rate, or require a voluntary reduction in acres to be burned. The success or failure of the field burning measure (SB 311) is totally dependent upon complete cooperation between DEQ, the local fire chiefs, and grass seed growers in working out administrative regulations necessary to carry out the intent of the Legislature.

Therefore, for the 1975 burning season, it will be necessary to continue many of the methods previously developed by the Oregon Seed Council in issuing burning permits and monitoring programs.

The success or failure of controlled open field burning is totally dependent upon a sound workable method of smoke management to inform growers that burning in a certain area of the valley may not be practical due to local climatic conditions or air inversion.

From our contact with legislators during the legislative session, SB 311 was needed to maintain a grass seed industry in the Willamette Valley. The measure also established acreage

limits on open field burning, reducing the number of acres from 235,000 in 1975 down to 195,000 in 1976, based upon the premise that field sanitizers for field burning would be available and reduce open field burning to a minimum.

The real crunch relative to open field burning will come in 1976 because of the severe reduction in acres to be burned. However, the experience gained in 1975 will give your agency great insight in meeting the challenge next year.

Perhaps for next year a good set of up-to-date aerial photos should be used for identifying tracts to be burned and acreage involved. I believe the USDA-ASCS has such photos that could be rerun for your program.

What we are recommending is a program presently accepted by the growers, with special emphasis on monitoring and smoke management necessary to improve any program designed to reduce air pollution in the Willamette Valley, mainly in the Eugene area.

In summarizing, we should remember the whole field burning problem is in many cases judged by emotion rather than good reasoning and those who understand field burning are often criticized by the press for their stand.

The intent of SB 311 was to enable grass seed growers to maintain a viable grass seed industry while phasing out open field burning -- this is a case where technology has fallen behind the needs of our time.

SB 311 can and will work if those responsible for carrying out the provisions of the act take a positive approach to a workable solution.

Sincerely,

Leonard E. Kunzman
Director

bl
cc L. Douglas Brannock, Meteorologist

C-ENGROSSED

Senate Bill 311

Ordered by the Senate June 14
(Including Amendments by Senate March 31 and by House June 5
and by Second Conference Committee June 14)

Sponsored by Senators GROENER, THORNE, POWELL, Representatives BYERS, BUNN, GROENER, JONES, LINDQUIST, WALDEN

SUMMARY

The following summary is not prepared by the sponsors of the measure and is not a part of the body thereof subject to consideration by the Legislative Assembly. It is an editor's brief statement of the essential features of the measure.

Requires field burning permits to be issued **in certain counties** by Department of Environmental Quality. Permits Environmental Quality Commission to delegate duty to deliver permits to county governing body or fire chief of rural fire protection district.

Requires field burning, instead of being banned after January 1, 1975, to be phased down to not more than [*50,000 acres after 1977*] **95,000 acres in 1977. Thereafter, permits for the burning of not more than 50,000 acres may be issued after taking into consideration certain factors. Requires commission and legislative committee to report to Fifty-ninth Legislative Assembly recommendations for possible modifications.** Permits Governor to allow exceptions in case of extreme hardship or other specified conditions. **States legislative policy that permits are to be issued for burning maximum acreages specified only upon certain conditions.**

Requires Environmental Quality Commission, in making rules governing field burning, to consult with certain other agencies **and permits it to consult with certain other agencies.**

Requires person seeking permit for field burning to submit statement that acreage to be burned will be planted to seed crops other than cereal grains which require burning. Permits contrary planting in case of crop failure.

Continued on page 2

NOTE: Matter in **bold face** in an amended section is new; matter [*italic and bracketed*] is existing law to be omitted; complete new sections begin with **SECTION.**

Continued from page 1

Creates Oregon Field Sanitation Committee to replace present field burning committee. Prescribes membership and duties of committee. Makes committee special advisory committee to commission in adopting rules related to field burning. **Requires committee to report quarterly to Legislative Committee on Trade and Economic Development.** Authorizes committee to assist persons wishing to use alternative methods of field sanitation and straw utilization by assisting in purchase and lease.

Requires annual registration with county governing body or fire chief of rural fire protection district of acreage to be burned. Requires fee for permit by department of $3 per acre in 1975, $4 per acre in 1976, $5.50 per acre in 1977 and $8 per acre thereafter. Requires refunding of fee where burning is accomplished by mobile sanitizer. [*Requires refunding of one-half of fee where straw was removed prior to burning.*] Requires payment of 20 cents per acre of fee to county governing body or rural fire protection district for administration of registration. Requires 50 cents of acreage fees to be deposited in smoke management fund. **Includes approved alternative field sanitation and straw utilization and disposal methods within definition of "pollution control facility" for purposes of tax credits.**

Provides civil penalties.

Makes related changes.

Declares emergency.

A BILL FOR AN ACT

Relating to field burning; creating new provisions; amending ORS 468.140, 468.290, 468.455, 468.460, 468.465, 468.470, 468.475, 468.480 and 468.485; appropriating money; and declaring an emergency.

Be It Enacted by the People of the State of Oregon:

SECTION 1. Section 2 of this Act is added to and made a part of ORS 468.455 to 468.485.

SECTION 2. (1) On and after January 1, 1975, permits for open burning of perennial grass seed crops, annual grass seed crops and cereal grain crops are required in the counties listed in subsection (2) of ORS 468.460 and shall be issued by the Department of Environmental Quality in accordance with air pollution control practices and subject to the fee prescribed in ORS 468.480. The permit described in this section shall be issued in conjunction with permits required under ORS 476.380 or 478.960.

(2) The Environmental Quality Commission may by rule delegate to any county court or board of county commissioners or fire chief of a rural fire protection district the duty to deliver permits to burn acreage provided such acreage has been registered pursuant to paragraph (a) of subsection (1) of ORS 468.480 and fees have been paid pursuant to paragraph (b) of subsection (1) of ORS 468.480.

Section 3. ORS 468.290 is amended to read:

468.290. Except as provided in this section and in ORS 468.450, 476.380 and 478.960, the air pollution laws contained in [*ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.315 to 454.355, 454.405 to 454.425, 454.505 to 454.535, 454.605 to 454.745 and*] this chapter do not apply to:

(1) Agricultural operations and the growing or harvesting of crops and the raising of fowls or animals, except field burning which shall be subject to regulation [*under this section, ORS 468.455 to 468.485, 476.380, 476.990, 478.960 and 478.990*] **pursuant to this 1975 Act ;**

(2) Use of equipment in agricultural operations in the growth of crops or the raising of fowls or animals, except field burning which shall be subject to regulation [*under this section, ORS 468.455 to 468.485, 476.380, 476.990, 478.960 and 478.990*] **pursuant to this 1975 Act ;**

(3) Barbecue equipment used in connection with any residence;

(4) Agricultural land clearing operations or land grading;

(5) Heating equipment in or used in connection with residences used exclusively as dwellings for not more than four families;

(6) Fires set or permitted by any public agency when such fire is set or permitted in the performance of its official duty for the purpose of weed abatement, prevention or elimination of a fire hazard, or instruction of employes in the methods of fire fighting, which in the opinion of the agency is necessary; or

(7) Fires set pursuant to permit for the purpose of instruction of employes of private industrial concerns in methods of fire fighting, or for civil defense instruction.

Section 4. ORS 468.455 is amended to read:

468.455. In a concerted effort by agricultural interests and the public to overcome problems of air pollution, it is the purpose of [*ORS 468.455 to 468.485, 476.380 and 478.960 to phase out open field burning in the counties listed in subsection (2) of ORS 468.460 when a feasible alternative method of field sanitation becomes available, to fix a specified date for termination of open field burning and, further, to encourage stabilized acreage until feasible alternative methods of field sanitation become available*] **this 1975 Act to provide incentives for development of alternatives to open field burning, to phase out open field burning and to develop feasible alternative methods of field sanitation and straw utilization and disposal.**

Section 5. ORS 468.460 is amended to read:

468.460. [*After an alternative method of field sanitation is certfied under ORS 468.470, and becomes available as provided in subsection (2) of ORS 468.470;*] **in order to regulate open field burning pursuant to ORS 468.475:**

(1) In such areas of the state and for such periods of time as it considers necessary to carry out the policy of ORS 468.280, the commission by rule may prohibit, restrict or limit classes, types and extent and amount of burning for perennial grass seed crops, annual grass seed crops [,] and grain crops [*and other burning*].

(2) In addition to but not in lieu of the provisions of ORS 468.475 and of any other rule adopted under subsection (1) of this section, the commission shall adopt rules for Multnomah, Washington, Clackamas, Marion, Polk, Yamhill, Linn, Benton and Lane Counties, which provide for a more rapid phased reduction by certain permit areas, depending on particular local air quality conditions and soil characteristics, [*of*] the extent, type or amount of open field burning of perennial grass seed crops, annual grass seed crops and grain crops [*after an*] and the availability of alternative [*method is*] methods of field sanitation and straw utilization and disposal. [*certified under ORS 468.470.*]

(3) Before promulgating rules pursuant to subsections (1) and (2) of this section, the commission shall consult with Oregon State University and the Oregon Field Sanitation Committee and may consult with the Soil Conservation Service, the Agricultural Stabilization Commission, the State Soil and Water Conservation Commission and other interested agencies. The Oregon Field Sanitation Committee shall act as a special advisory committee to the commission in the promulgation of such rules. The commission must review and show on the record the recommendations of the Oregon Field Sanitation Committee in promulgating such rules.

[*(3)*] **(4)** No regional air quality control authority shall have authority to regulate burning of perennial grass seed crops, annual grass seed crops and grain crops.

Section 6. ORS 468.465 is amended to read:

468.465. **(1)** Permits under [*ORS 476.380 and 478.960*] **section 2 of this 1975 Act** for open field burning of cereal grain crops shall be issued in the counties listed in subsection (2) of ORS 468.460 only if the person seeking the permit submits to the issuing authority a signed statement under oath or affirmation that the acreage to be burned will be planted to seed crops **other than cereal grains which require flame sanitation for proper cultivation.** [*fall legumes or perennial grasses. However, no open field burning of cereal crops shall be permitted in the counties listed in subsection (2) of ORS 468.460 after January 1, 1975.*]

(2) The department shall inspect cereal grain crop acreage burned pursuant to subsection (1) of this section after planting in the following spring to determine compliance with subsection (1) of this section.

(3) Any person planting contrary to the restrictions of subsection (1) of this section shall be assessed by the department a civil penalty of $25 for each acre planted contrary to the restrictions. Any fines collected by the department pursuant to this subsection shall be used by the department for a smoke management program in cooperation with the Oregon Seed Council and for administration of this section.

(4) Any person planting seed crops after burning cereal grain crops pursuant to subsection (1) of this section may apply to the department for permission to plant contrary to the restrictions of subsection (1) of this section if the seed crop fails to grow. The department may allow planting contrary to the restrictions of subsection (1) of this section if the crop failure occurred by reasons other than the negligence or intentional act of the person planting the crop or one under his control.

Section 7. ORS 468.470 is amended to read:

468.470. [*(1) Except as provided in ORS 468.475, open field burning of perennial grass seed crops and annual grass seed crops shall be subject to regulation under ORS 468.450, 476.380 and 478.960 only until a committee described in subsection (3) of this section certifies the availability of a successful, feasible alternative to open field burning in sufficient quantity to sanitize grass fields. For the purposes of ORS 468.450, 476.380 and 478.960, annual grass seed crops, perennial grass seed crops and grain or grass stubble shall be considered to be combustible material.*]

[*(2) As such alternative methods become available in quantity sufficient to allow phased reduction in burning, the commission may begin to phase out in proportion to such availability the burning described in ORS 468.460.*]

[*(3) The committee shall consist of two members representing agriculture appointed by the Director of Agriculture from a list of five nominees submitted by the Oregon Seed Council, two members representing the public appointed by the director of the department and a fifth member*

appointed by the Governor. Members shall be persons knowledgeable concerning agricultural practices and air quality control practices which are the subject of ORS 468.455 to 468.485.]

[(4) In addition to its other duties under this section, the committee shall monitor the programs for development of feasible alternative methods of field sanitation, shall make recommendations for the research and development of such methods to the Joint Committee on Ways and Means during the legislative session or to the Emergency Board during interim periods and, after consultation with the department, shall establish standards under which certified alternatives are to operate as long as the committee is in existence.]

[(5) In exercising its duties under subsections (1) and (4) of this section, the committee shall certify alternatives and establish standards only after public hearing at which interested persons are afforded an opportunity to be heard and for which notice is given in a manner reasonably calculated to notify interested persons of the time, place and subject of the hearing.]

(1) The Oregon Field Sanitation Committee is established and for the purposes of this 1975 Act shall be referred to as the "committee." The committee shall consist of two members representing agriculture appointed by the Director of Agriculture from a list of five nominees submitted by the Oregon Seed Council, two members representing the public appointed by the director of the department and a fifth member appointed by the Governor. Members shall be persons knowledgeable concerning agricultural practices and air quality control practices which are the subject of ORS 468.455 to 468.485.

(2) The committee shall assume the duties and responsibilities formerly held by the field burning committtee established pursuant to section 4, chapter 563, Oregon Laws 1971 (regular session), which committee is abolished. However, members of the field burning committee shall be the members of the field sanitation committee until their terms expire pursuant to subsection (3) of this section.

(3) The term of office of each member of the committee is four years,

but a member may be removed for cause. By lot, the committee shall select two of its members whose terms expire on December 31, 1976 and one of its members whose term expires December 31, 1977. The remaining members' terms shall expire on December 31, 1978.

(4) The committee shall:

(a) Monitor and conduct programs for development of feasible alternative methods of field sanitation and straw utilization and disposal;

(b) Make recommendations for research and development of alternative methods;

(c) Provide assistance to persons wishing to obtain the use of feasible methods of field sanitation and straw utilization and disposal and, in so doing, assist in purchasing, purchase and lease to users, and promote extensive use of such methods;

(d) Receive and disburse funds, including but not limited to voluntary contributions from within and outside this state, grants and gifts; and

(e) Report quarterly to the Legislative Committtee on Trade and Economic Development on the progress being made in discovering and utilizing alternatives to open field burning.

(5) Subject to the approval of the Executive Department, the committee may:

(a) Enter into contracts with public and private agencies to carry out the purposes of demonstration of alternatives to agricultural open field burning;

(b) Apply for and obtain patents in the name of the State of Oregon and assign such rights therein as the committee considers appropriate;

(c) Employ such personnel as is required to carry out the duties assigned to it; and

(d) Sell and dispose of all surplus property of the committee, including but not limited to straw-based products produced or manufactured by the committee.

SECTION 8. Sections 9 and 10 of this Act are added to and made a part of ORS 468.455 to 468.485.

SECTION 9. The commission shall establish emission standards for certified alternative methods to open field burning.

SECTION 10. The department, in coordinating efforts under this 1975 Act, shall:

(1) Enforce all field burning rules adopted by the commission and all related statutes;

(2) Monitor and prevent unlawful field burning; and

(3) Aid fire districts in carrying out their responsibilities for administering field sanitation programs.

Section 11. ORS 468.475 is amended to read:

468.475. [*After January 1, 1975,*] (1) No person shall open burn or cause to be open burned in the counties specified in subsection (2) of ORS 468.460, perennial [*grass seed crops used for grass seed production*] or annual grass seed crops used for grass seed production [.] or cereal grain crops, unless the acreage has been registered pursuant to ORS 468.480 and the permits required by ORS 468.450, 476.380, 478.960 and section 2 of this 1975 Act have been obtained.

(2) Except as may be provided by rule under ORS 468.460, the maximum total registered acreage allowed to be open burned pursuant to subsection (1) of this section shall be as follows:

(a) During 1975, not more than 235,000 acres may be burned.

(b) During 1976, not more than 195,000 acres may be burned.

(c) During 1977, not more than 95,000 acres may be burned.

(d) In 1978 and each year thereafter, the commission, after taking into consideration the factors listed in subsection (2) of ORS 468.460, may by order issue permits for the burning of not more than 50,000 acres.

(e) The acreage amounts provided in paragraphs (c) and (d) of this subsection are declared to be the goals of the Fifty-eighth Legislative Assembly. The commission and the Legislative Committee on Trade and Economic Development shall report to the Fifty-ninth Legislative Assembly with their recommendations for possible modifications.

(3) In the event of the registration of more than the maximum allowable acres for open burning in the counties specified in subsection (2) of ORS 468.460, the commission, after consultation with the committee, by rule or order may allocate permits for acreage based on particular local air

quality condition, soil characteristics, the type or amount of field burning or crops, the availability of alternative methods of field sanitation, the date of registration, proportional share, or any reasonable classification. Priority shall be given to use of available alternatives to open field burning in Lane County and priority areas in other counties listed in subsection (2) of ORS 468.460.

(4) It is the intention of the Legislative Assembly that permits shall be issued for the maximum acreage specified in subsection (2) of this section for each year recited therein only if the commission finds after hearing that:

(a) There are insufficient numbers of workable machines that can reasonably be made available to sanitize the acreage if an acreage reduction is ordered;

(b) There are insufficient methods available for straw utilization and disposal; and

(c) Reasonable efforts have been made to develop alternative methods of field sanitation and straw utilization and disposal, and such methods have been utilized to the maximum reasonable extent.

(5) The Governor, upon finding of extreme hardship, disease outbreak, insect infestation or irreparable damage to the land, may by order permit emergency open burning of more acreage than allowed by subsection (2) of this section. Upon a finding of extreme danger to public health or safety, the Governor may order temporary emergency cessation of all open field burning in any area of the counties listed in subsection (2) of ORS 468.460.

(6) The commission shall act on any application for a permit under section 2 of this 1975 Act within 60 days of registration and receipt of the fee provided in ORS 468.480. Such other decisions as may be required under this section must be made by the commission on or before July 10, 1975, and on or before June 1 of each subsequent year.

Section 12. ORS 468.480 is amended to read:

468.480. (1) (a) On or before July 1, 1975, and on or before April 1 of each subsequent year, the grower of a grass seed crop shall register with the county court or board of county commissioners or the fire chief of a

rural fire protection district, or his designated representative, the number of acres to be burned in the remainder of the year. Any person registering after the dates specified in this subsection shall pay an additional fee of $1 per acre registered if the late registration is due to the fault of the late registrant or one under his control. Late registrations must be approved by the department. Copies of the registration form shall be forwarded to the department. The required registration must be made and the fee paid before a permit shall be issued under section 2 of this 1975 Act.

(b) Except as provided in paragraph (c) of this subsection, after the effective date of this 1975 Act, the Executive Department shall collect a fee prior to the issuance of any permit by the Department of Environmental Quality for open burning of perennial or annual grass seed crops or cereal grain crops under this 1975 Act. The Executive Department may contract with counties and rural fire protection districts for the collection of the fees which shall be forwarded to the Executive Department. The amount of the fee shall be $3 in 1975, $4 in 1976, $5.50 in 1977, and $8 in any year thereafter, per acre of crop burned.

(c) The fee required by paragraph (b) of this subsection shall be refunded for any acreage where efficient burning of stubble is accomplished with equipment using an auxiliary fuel or mobile field sanitizer which has been approved by the committee and the department for field sanitizing purposes or for any acreage not burned.

(2) The Executive Department shall pay to the county or board of county commissioners or the fire chief of the rural fire protection district, not to exceed 20 cents per acre registered, to cover the cost of and to be used solely for the purpose of administering the program of registration of acreage to be burned, issuance of permits, keeping of records and other matters directly related to agricultural field burning. Fifty cents of the acreage fees shall be deposited in a separate fund to be used for the smoke management program which shall be conducted by the Department of Environmental Quality in cooperation with the Oregon Seed Council and other affected agencies. The Department of Environmental Quality shall contract with the Oregon Seed Council to organize rural fire protection

districts and growers, coordinate and provide communications, hire ground support personnel, provide aircraft surveillance, provide such added other support services as are mutually agreed upon and advise the department when crops in each area are ready for burning. However, if a reasonable contract cannot be agreed upon, the department shall provide such services directly or by contracting with such other entity as it reasonably shall determine.

(3) The Executive Department shall cause the balance of acreage fees received pursuant to subsection (1) of this section to be deposited in the State Treasury to be credited to the account of the committee established under ORS 468.470 for use as provided in ORS 468.485. [*Until and alternative method is certified under ORS 468.470, or until January 1, 1975, whichever occurs first, the county court, board of county commissioners or the fire chief or his designated representative shall collect a fee, except as provided in paragraph (b) of this subsection, prior to issuing any permit for the open burning of perennial or annual grass seed crops, or grain crops under ORS 476.380 or 478.960. The amount of the fee shall be determined by the committee established pursuant to ORS 468.470 and shall not exceed $1 per acre of crop burned.*]

[*(b) The fee required by paragraph (a) of this subsection shall not be collected where efficient burning of stubble is accomplished with equipment using auxiliary fuel or a mobile field sanitizer which equipment or sanitizer has been approved by the committee and the department for field sanitizing purposes.*]

[*(2) The collecting officer shall retain such portion of the acreage fees received pursuant to subsection (1) of this section as is sufficient, in the judgment of the committee, in consultation with the collecting officers, to cover the cost of and to be used solely for the purpose or administering a program of registration of fields to be burned, collection of fees, issuance of permits, keeping of records and other matters directly related to agricultural open field burning. Ten cents of the acreage fee shall be deposited in a separate fund to be used for a smoke management program which shall be conducted by the Oregon Seed Council in cooperation with the department.*]

[*(3) The collecting officer shall cause the balance of acreage fees received pursuant to subsection (1) of this section to be credited to the account of the committee established under ORS 468.470 for use as provided in ORS 468.485.*]

[*(4) Nothing in this section relieves any person from the requirements of obtaining a burning permit in accordance with ORS 476.380 and 478.960.*]

Section 13. ORS 468.485 is amended to read:

468.485. All moneys [*from acreage fees*] **collected under paragraph (b) of subsection (1) of ORS 468.480** [*and under section 2, chapter 578, Oregon Laws 1973, received by the committee established pursuant to ORS 468.470*] **or received pursuant to this 1975 Act, except fines,** shall be segregated from other funds and used solely for [*smoke management and*] **administrative expenses of the committee and for** development and demonstration of alternatives to agricultural open field burning **and methods of straw utilization and disposal**. [*The committee may enter into contracts with public and private agencies to carry out the purposes of this section. The committee shall give first priority to the development of and demonstration of the feasibility of a mobile field incinerator.*]

Section 14. ORS 468.140 is amended to read:

468.140. (1) In addition to any other penalty provided by law, any person who violates any of the following shall incur a civil penalty for each day of violation in the amount prescribed by the schedule adopted under ORS 468.130:

(a) The terms or conditions of any permit required or authorized by law and issued by the department or a regional air quality control authority.

(b) Any provision of ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.315 to 454.355, 454.405 to 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter.

(c) Any rule or standard or order of the commission adopted or issued pursuant to ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.315 to 454.355, 454.405 to 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter.

(d) Any rule or standard or order of a regional authority adopted or issued under authority of subsection (1) of ORS 468.535.

(2) Each day of violation under subsection (1) of this section constitutes a separate offense.

(3) (a) In addition to any other penalty provided by law, any person who intentionally or negligently causes or permits the discharge of oil into the waters of the state shall incur a civil penalty not to exceed the amount of $20,000 for each violation.

(b) In addition to any other penalty provided by law, any person who violates the terms or conditions of a permit authorizing waste discharge into the waters of the state or violates any law, rule, order or standard in ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.315 to 454.355, 454.405 to 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter relating to water pollution shall incur a civil penalty not to exceed the amount of $10,000 for each day of violation.

(4) Paragraphs (c) and (d) of subsection (1) of this section do not apply to violations of motor vehicle emission standards.

(5) Notwithstanding the limits of subsection (1) of ORS 468.130 and in addition to any other penalty provided by law, any person who intentionally or negligently causes or permits open field burning contrary to the provisions of ORS 468.450, 468.455 to 468.485, 476.380 and 478.960 shall be assessed by the department a civil penalty of at least $20 but not more than $40 for each acre so burned. Any fines collected by the department pursuant to this subsection shall be deposited with the State Treasurer to the credit of the General Fund and shall be available for general governmental expense.

SECTION 15. After alternative methods for field sanitation and straw utilization and disposal are approved by the committee and the department, "pollution control facility," as defined in ORS 468.155, shall include such approved alternative methods and persons purchasing and utilizing such methods shall be eligible for the benefits allowed by ORS 468.155 to 468.190.

SECTION 16. This Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this Act takes effect on its passage.

DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229- 6210

TOM McCALL
GOVERNOR

KESSLER R. CANNON
Director

NOTICE OF PUBLIC HEARING

The Oregon Environmental Quality Commission will hold a special public meeting at 10:00 a.m. on Thursday, July 10, at the Auditorium of the Employment Building, 875 Union Street N.E., Salem, Oregon.

The purpose of the meeting will be to conduct business in carrying out the Commission's responsibilities under Senate Bill 311, should the Bill become law. This Bill pertains to field burning. If it becomes law, it will require immediate action by the Commission with regard to the matters set forth below.

NOTICE is hereby given that the Commission will conduct a public hearing pursuant to ORS 468.475(4) at the time and place set forth above to receive testimony on whether:

(a) There are insufficient numbers of workable machines that can reasonably be made available to sanitize the acreage if an acreage reduction is ordered;

(b) There are insufficient methods available for straw utilization and disposal; and

(c) Reasonable efforts have been made to develop alternative methods of field sanitation and straw utilization and disposal, and such methods have been utilized to the maximum reasonable extent.

Following its findings with regard to the above considerations, the Commission also will consider the adoption of temporary rules pursuant to the provisions of the Bill. Prompt action appears necessary and the Commission reserves the right to impose reasonable limits on hearing testimony and, if appropriate, to limit or preclude testimony on the temporary rules. Proposed temporary rules may be obtained from the Air Quality Offices of the Department of Environmental Quality at 1234 S.W. Morrison St., Portland, Oregon, 97205.