Cereal Grain Crops
BEST MANAGEMENT PRACTICES/ EMISSION REDUCTION GUIDANCE

PART 1 -- OVERVIEW

INTRODUCTION:

The purpose of this document is to identify the Best Management Practices (BMPs) for reducing emissions from agricultural burning. The Agricultural Burning Practices and Research Task Force (Task Force) encourages the use of agronomically sound and economically feasible alternatives to burning that are consistent with resource conservation. The Task Force recognizes that any and all burning creates emissions having the potential of affecting public health and the environment. The Task Force recognizes that after first considering all non-burning alternatives, there may be specific agronomic situations where burning is reasonably necessary to successfully carry out the enterprise.

DEFINITION of BMP:

A sequence of procedures that apply the best available science and technology in order to address the conservation of natural resources (Soil, Water, Air, Plants, Animals or SWAPA).

USE:

These BMPs serve in conjunction with permitting, compliance, enforcement, technical assistance, education, information, and research programs to reduce air emissions from agricultural burning and reduce outdoor burning to the greatest extent practical. The best management practices are an important piece of the agricultural burning program. The clean air law requires farmers to explain why burning is necessary. BMPs are one of the ways to demonstrate the need to burn. A farmer can show burning is reasonably necessary to successfully carry out the enterprise when it meets the criteria of the BMPs and no practical alternative is reasonably available.

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Growers using these BMPs to demonstrate the need to burn should expect that applicable portions of this BMP guidance will be included in an approved agricultural burn permit.

Growers not using these BMPs to demonstrate their need to burn must, on an individual basis, establish that their proposed agricultural burn plan is reasonably necessary and that no practical alternative is available. The responsibility and burden of proof is on the grower, and the demonstration must satisfy the Department of Ecology and the local delegated permitting authority. Growers should expect that appropriate parts of this demonstration would be included in an approved agricultural burn permit.

Parts 2 through 6 of this document are applicable when the grower elects to use these BMPs to establish compliance with WAC 173-430-040 (1).

NOTE:	**THESE BMPs ARE NOT FOR NON-CEREAL CROPS!** Please refer to non-cereal crop production BMP guidance. **THESE BMPs ARE NOT FOR GRASS SEED!** Please refer to WAC 173-430.

Before getting started- Determine if you need an agricultural burning permit.

- Burning acreage that is in agricultural production requires a permit.
- You do ***not*** need a permit to burn orchard prunings, natural vegetation along fencelines, irrigation and drainage ditches, or natural vegetation blown by the wind.

PART 2 -- PRE-QUALIFICATION REQUIREMENTS

Prior Notice of Intent:

Growers must notify the permitting authorities of his/her potential need to burn and provide a preliminary explanation. Growers are expected to provide notice as early as possible after identifying the problem which might need burning.

Compliance with the Requirements:

Growers are responsible for demonstrating compliance with the requirements described in these Best Management Practices. Growers using burning acknowledge their affirmative responsibility to show that the proposed burning is reasonably necessary to successfully carry out their enterprise. Permitting Authorities and Agencies will provide assistance, but the planning, preparation, and legwork is the responsibility of the grower.

Acknowledgments:

The grower is responsible for acknowledging, in the appropriate permit form, that he/she is accountable for compliance with notification, application, permitting and burning requirements, payment of fees and adherence to any and all restrictions. It is understood that permitted burning is subject to on-site inspection by the permitting authority and/or the Local Air Authority or Department of Ecology.

Annual Review and Cross-checks:

Annual review and cross-checks of burning will include the following:

- Acres permitted are equal to acres burned (compliance with the requirement for a permit prior to burning)
- Adherence to BMPs (compliance with the requirements allowing burning only when necessary)
- Adherence to other permitting requirements (compliance with permit conditions)

When Burning is Generally not Allowed:

No burning for residue management is allowable under these BMPs in seasons (fall and/or spring) prior to summer fallow.

No burning is allowable under these BMPs for pest control for a recurring problem unless such burning is used in conjunction with integrated pest management practices and then followed by non-burning alternatives in subsequent years.

No burning is allowable under these BMPs on ground where projected soil losses will exceed federal soil loss standards.

No burning is allowable under these BMPs on ground where a crop will not be planted in the same season as the burn. (See exceptions under pest management and residue management)

Burning year after year for pest control (including control of weeds, diseases, and insects) will only be allowed in exceptional circumstances.

Transition:

In situations where a non-burning alternative is reasonably available but not yet being used by the grower, burning may be allowed as part of a limited term transition to non-burning management systems. The grower, in advance of burning approval, must bring forward a proposed transition plan including specific steps and time frames. Growers are expected to change to the non-burning alternative(s) as soon as practical. Transition plans are limited to no more than the time needed for the grower but may not exceed three years.

Field Inspection Prior to Issuing a Permit:

Growers are required to do careful and thorough field inspections, and to document the need for the use of fire, before a permit may be issued. Growers are asked to consider burning in the spring as part of their evaluation of alternatives. Growers will be held accountable for information they provide on which permit decisions will be based. The Task Force strongly recommends consultation with one or more agronomic professional(s) to assist with field inspections and documentation of agronomic conditions. However, it is the grower who is responsible for statements made in the application for permission to burn. Growers may seek assistance in this process from extension agents, trained agronomists, conservation districts, or NRCS technicians.

Other Requirements:

Compliance with other local, state and federal requirements is required.

Growers must follow approved smoke management plans of their local permitting authorities.

PART 3 -- NOTICES

The Task Force recognizes that ideas need to be incorporated into the workplans of various agencies. These items and areas can be reviewed for integration into BMPs.

EMISSION REDUCTION EDUCATION PROGRAM:

The Task Force recommends the development of an Emission Reduction Education Program. This program will be developed by the Department of Ecology and made available for presentation to interested groups.

EVALUATION OF SYSTEMS RELIANT ON BURNING:

The Task Force intends to pursue an evaluation of the total environmental and health impacts of systems heavily reliant on burning. These systems include: burn low/no till; double cropping; and, annual winter wheat rotations.

PART 4 -- GENERAL REQUIREMENTS

REGULATORY REQUIREMENTS:

In accordance with the Washington Clean Air Act (Chapter 70.94.6528 of the Revised Code of Washington), the Task Force is required to "identify best management practices (BMPs) for reducing air contaminant emissions from agricultural activities and provide such information to the Department of Ecology and local air authorities."

INSPECTIONS, PENALTIES, AND FUTURE PERMITTING:

Access to the fields requested to burn under the *Agriculture Burning Best Management Practices Guidance* shall be allowed for the purposes of compliance assurance inspections by Department of Ecology or Local Air Authority. Any activity undertaken by the permittee or others, in a manner that is inconsistent with this BMP guidance, shall be subject to Ecology enforcement (including assessing fines) under applicable regulations. The Department of Ecology, local air authority, or delegated permitting authority reserve the right to deny future permitting if permittee is found to have burned his/her fields in violation of the BMP guidance or permit requirements.

IMPACT REDUCTION:

The Task Force has established the following specific practice or practices in order to reduce the impact of emissions from burning. Burning will be allowed only on a designated "burn day" and then only between the hours specified. In order to minimize adverse impacts, your burn must be completed (extinguished) before sunset. Under no circumstances is a fire to be ignited less than two (2) hours before sunset.

FALSE STATEMENTS:

Obtaining or attempting to obtain a permit by making false statements or by providing documentation containing false information regarding qualification under the *Agricultural Burning Best Management Practices Guidance* may construed as a violation of Chapter 70.94 RCW. Such violation may subject to civil and/or criminal penalty, WAC 173.400.105 (7).

ROLE OF ECONOMICS IN EVALUATING ALTERNATIVES:

The cornerstones of the best management practices presented here are based upon sound agronomics, science, and public health. Economics should be but one factor to weigh in conjunction with the many agronomic decisions listed elsewhere in this text.

As with all the agronomic options listed here, economics should not be a sole determining factor in documenting the need to burn. Growers are required to use any reasonable non-burning alternative, consistent with SWAPA, instead of burning. Non-burning alternatives are deemed to be reasonably available to a grower when they are successfully and customarily being used by others in circumstances similar to the grower's situation. In cases where a non-burning alternative is reasonably available but not yet being used by the grower, burning may be allowed only as part of a limited term

transition to non-burning management systems, as described in Part 2 of this document.

Anti-backsliding provision: A key principle of these BMPs is that they reduce emissions. For that reason, shifting to management systems that are more reliant on burning is unacceptable when alternatives are available. These BMPs are meant to prevent widespread increases in burning.

OTHER POTENTIAL REQUIREMENTS:

The Agricultural Burning Best Management Practices guidance is not intended to undo the requirements of fire protection agencies; of local air pollution control authorities; of other federal, state, or local governments; and of other resource and/or conservation program requirements.

PART 5 -- PEST MANAGEMENT (weeds, disease, insects, etc.)

Burning is not generally recommended for pest control except where its use is shown to be reasonably necessary and alternative practices listed below are not available, feasible, timely or economically possible. The situation must satisfy all pre-qualification requirements. Growers need to document their evaluation of the need to burn and the alternatives identified in the table on page 8. The Task Force strongly recommends that the grower call upon extension agents, trained agronomists, conservation district representatives, university scientists, or NRCS technicians in so doing. Permit conditions must be met and the burden of proof falls upon the applicant for obtaining this documentation.

CONDITIONS THAT MAY MAKE BURNING NECESSARY:

Burning provides pest control when there is a failure or unavailability of alternative methods and when the following conditions exist:

- Need for surface sanitation to achieve pest control
- Need for elimination of pests harbored in surface residue
- Need to combat unmanageable weed residue

Emergency measures to control an unforeseen catastrophic event or identified crisis affecting crop health such that burning is essential to control it. WSU College of Agriculture & Home Economics must first verify the presence of the extraordinary circumstance and that burning is an essential tool to alleviate the problem. The director of Ecology, after consultation with the director of Agriculture, must approve the extraordinary circumstance before emergency measures can be used. Burning for jointed goatgrass (*Aegilops cylindrica*) control or downy brome (*Bromus tectorum*) control is allowed in the fall when the burning is part of a management practice which includes at least two years of spring cropping following the fall burning.

DOCUMENTATION OF PESTS:

Identification, mapping and documentation of pests is required and should be conducted as early as possible prior to crop maturity to attain the greatest chance of success in developing a management system that combines several available alternatives. Yield and crop quality at harvest can also be used to help document pest infestations and the need for control alternatives.

AFFECTED ACREAGE ONLY:

Burning for management of pests will be permitted in affected acreage only.

LIST OF MANAGEMENT PRACTICES:

Effective use of burning for pest control *requires* (but is not limited to) evaluation and consideration of the management practices listed in the table on page 8, to ensure that fire is used only where needed as a management tool:

LIST OF MANAGEMENT PRACTICES

MANAGEMENT PRACTICE	DISEASES	INSECTS	WEEDS
Use of resistant (tolerant) varieties	X	X	
Seeding date adjustment	X	X	X
Adjustment of the seed rate and row spacing			X
Site specific crop rotation systems targeted to manage the specific pest organisms	X	X	X
Use of crop protection chemicals (if available) to minimize pest impacts	X	X	X
Use of mechanical cultivation practices that provide pest control	X	X	X
Site specific identification of pest(s) that contribute to production and economic threshold losses	X	X	X
Inclusion of management systems that will reduce/eliminate plant hosts that harbor insect pests		X	
Review of the pest infestation with attention to all the tools available with Integrated Pest Management	X	X	X

PART 6 -- RESIDUE MANAGEMENT

Burning is not generally recommended for residue management except where its use is shown to be reasonably necessary and alternative practices listed below are not available, feasible, timely or economically possible. The situation must satisfy all pre-qualification requirements. Growers need to document their evaluation of the need to burn for residue management and the alternatives identified below. The Task Force strongly recommends that the grower call upon extension agents, trained agronomists, conservation district representatives, university scientists, or NRCS technicians in so doing. Permit conditions must be met and the burden of proof falls upon the applicant for obtaining this documentation.

CONDITIONS THAT MAY MAKE BURNING NECESSARY:

Fire may be appropriate in cereal-based, irrigated or dryland minimum tillage cropping systems when other available practices would seriously limit the attainability of one or more of the following criteria:

- water infiltration/retention
- soil erodibility
- seed/soil contact
- thermal conditions for seeding establishment.
- *for irrigated cropping systems only:*
  -recrop situations where timing is critical
  -when seeding a fine-seeded crop

AFFECTED ACREAGE ONLY:

Burning for management of crop residue will be permitted in affected acreage only.

FACTORS CONSIDERED IN EVALUATION OF BURNING (INCLUDE BUT NOT LIMITED TO):

Volume of Residue

Burning is not generally recommended for residue control except where it is shown that residue levels necessitate use of fire given the agronomic conditions and cropping practices. Because such conditions are area and field specific, growers are strongly encouraged to consult with local conservation districts, cooperative extension agents, or delegated permitting authorities. Permitting authorities will establish the levels that are acceptable for a burning threshold under this BMP. A residue level above the threshold does not, in and of itself, establish that there is no practical alternative or that burning is reasonably necessary. The grower will provide written documentation of residue levels based on yield and/or actual field measurements for use by local authorities in determining their need to burn. Burning in the fall is permissible when transitioning to a

spring cereal grain if the application of fertilizer in the fall requires the removal of heavy residue.

Residue Type

Burning is not recommended for residue control in annual broad leaf crops that are in rotation with cereal grain crops.

Soil Type, Steepness, and Length of Slope

Burning is not allowed where soil type, steepness, length of slope, and agronomic practices are such that the area to be burned would not meet state and federal requirements for erosion control and water quality.

Alternative Use of Residue

Burning is discouraged for residue control under production systems reliant on consecutive (year after year) burning when there is a viable market for straw in the area such that the net cost is at or below the cost of burning. The lack of a regional straw market does not, in and of itself, establish that burning is necessary for residue control.

PART 7 -- RESEARCH

Agricultural burning conducted as part of a research project or demonstration project provided the burning/research/demonstration is recognized by the agricultural community through College, University, Extension, Conservation District, or the Task Force as innovative or experimental and the results will be shared with the Task Force and the general public. Describe your situation on the permit application including: the research project, residue amounts, crop, field treatment, local details, etc.

PART 8 -- OTHER FACTORS TO BE CONSIDERED

Rather than considering fire to be used as a standard practice upon the same ground year after year, growers are expected to study carefully the BMPs annually as well as the ongoing research/ work relative to alternative practices emphasized in the memorandum of understanding. Targets and revised BMPs may establish an expectation that burning will be further limited in the future. Obtaining a permit in the previous year and/or in previous years does not, in and of itself, establish that there is no practical alternative or that burning is reasonably necessary.

The Task Force strongly recommends that the grower consider soil moisture, season of year, type of crop to be established, the method of seeding, the economic feasibility, cropping systems, equipment availability, and general health impacts and consult agronomic authorities before applying for burning permits.