

# Non-Orchard Pile Burning BEST MANAGEMENT PRACTICE GUIDANCE

## PART I – OVERVIEW

All burning by commercial agricultural operations requires a permit except burning orchard prunings, natural vegetation along fence lines, irrigation and drainage ditches, or natural vegetation blown by the wind. Even if a permit is not required, a grower must still comply with all fire safety regulations of the local fire protection agency including any no-burn directives it may issue.

There are four types of agricultural burn permits.

- spot burn,
- field burn,
- bale burn,
- pile burn.

**Note:**     **THESE BMPs ARE NOT FOR CEREAL GRAINS (ex: Wheat, Barley)!**  
Please see the cereal grain crops BMPs.  
**THESE BMPs ARE NOT FOR GRASS SEED!** Please see WAC 173-430.  
**THESE BMPs ARE NOT FOR ORCHARDS!** Please see orchard BMPs.  
**THESE BMPs ARE NOT FOR Bales!** Please see Bale burn BMPs

### What is a "pile burn permit" and when would it be appropriate to get one?

- 1) A pile burn permit allows a commercial agricultural operation the opportunity to burn piles of vegetative debris when other means of disposal are not reasonably available. No burning of materials other than natural, unprocessed vegetation is allowable.
- 2) For burning of orchards, please see the Orchard BMPs. The pile burn BMPs are for non-orchard agricultural pile burning. Examples include debris from Christmas tree farms, poplar plantations, vineyard tear-out and vineyard pruning, plant nursery debris, and other piled agricultural debris not covered under the cereal grain, non-cereal grain, orchard, bale, and spot burn BMPs.
- 3) Burning may take place only on Ecology or local air authority specified Burn Days. In areas under Ecology's jurisdiction, the permit holder must call the 800 burn call number (**1-800-406-5322**) the day of the proposed burn and abide by that day's burn call for the area where the piles are located (The Burn/No Burn designation and the start and end burn times stated for that day.) For permits issued by local air authorities, the permit holder must follow the conditions of their burn permit.
- 4) The Task Force encourages growers to burn only the number and size of piles which can be fully consumed during the hours listed on the daily burn decisions. However, piles may be

allowed to ash over until the next burn day. Under WA law, nuisance smoke is illegal. Smoke from smoldering piles must not impact roads, cities, or any populated areas.

- 5) The application must contain a map outlining the location of the piles the grower wishes to burn.
- 6) A legal description (down to the ¼, ¼ section), township, range, must be included as part of the application
- 7) The application must be signed by the grower attesting that he/she is operating a commercial operation, that no other practical method is available for disposing of the piles, and that all permit conditions will be strictly adhered to.

## **PART II – SPECIFIC BEST MANAGEMENT PRACTICES**

Agricultural burning of non-orchard piled debris is generally acceptable when the situation meets one of the following criteria:

### **Section 1 – CROP RENEWAL**

Burning identified for crop renewal (in replacement block only) -- Burning is not generally recommended for crop renewal except where its use is shown to be reasonably necessary and alternative practices are not available, feasible, timely or economically practical. Growers need to document their evaluation of the need to burn. The Task Force strongly recommends that the grower verify that reasonable steps were taken to utilize alternative practices and to document why they were not available, feasible, timely or economically practical. Permit conditions must be met and the burden of proof falls upon the applicant for obtaining this documentation.

### **Section 2 – PEST CONTROL**

Burning identified for pest control (in affected acreage only) --Pests (including insects, vertebrates, gastropods, and weeds) for which burning is the control used by or appropriate to crops of a similar nature in the local area. Growers need to describe their particular situation on the permit application including: insect/pest name, crop, local details and severity of problem, etc. The Task Force strongly recommends that the grower call upon their local horticultural pest and disease board, university extension agent or a Washington State Department of Agriculture pest control specialist to provide verification of the need to burn for insect control. Permit conditions must be met and the burden of proof falls upon the applicant for obtaining this documentation.

### **Section 3 – DISEASE CONTROL**

Burning identified for disease control (in affected acreage only) --Diseases for which burning is the control used by or appropriate to the crop of a similar nature in the local area. Growers need to describe their particular situation on the permit application including: disease name, crop, local details and severity of problem, etc. The Task Force strongly recommends that the grower call upon their local horticultural pest and disease board, university extension agent or a Washington State Department of Agriculture pest control specialist to provide verification of the need to burn for disease control. Permit conditions must be met and the burden of proof falls upon the applicant for obtaining this documentation.

## **Section 4 – LAND USE CONVERSION**

Burning identified for crop removal (in affected acreage only) --Burning is not generally recommended for crop removal. Burning for crop removal (i.e. converting agricultural land to residential housing) usually requires a land-clearing burning permit and does not usually qualify for an Agricultural Burning Permit. Land-clearing burning is not allowed within any Urban Growth Areas (UGA) except as allowed under WAC 173-425-040(2).

## **Section 5 – RESEARCH**

Burning identified for research (in research acreage only) --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. Permit conditions must be met and the burden of proof falls upon the applicant for obtaining this documentation.

## **Section 6 – CROP TRANSITION**

Burning identified for Crop transition (in transition block only) --Crop transition is the burning of agricultural vegetative debris on land that will be changed from a commercial agricultural crop to a different commercial agricultural crop. Burning is not generally recommended for crop transition except where its use is shown to be reasonably necessary and alternative practices are not available, feasible, timely or economically practical. Growers need to document their evaluation of the need to burn. The Task Force strongly recommends that the grower verify that reasonable steps were taken to utilize alternative practices and to document why they were not available, feasible, timely or economically practical. Permit conditions must be met and the burden of proof falls upon the applicant for obtaining this documentation.

### **NOTE: VINEYARD PRUNINGS**

The burning of vineyard prunings **DOES** require an agricultural burning permit, however the Task Force strongly recommends that whenever practical the grower mulch up the prunings rather than burning them.

## **PART III – SPECIFIC BURNING PRACTICES**

The Task Force has established the following specific practice or practices in order to reduce emissions from burning crop residue (agricultural debris) piles.

## **Section 1 – MOISTURE CONTENT**

Crop residue moisture content is one of the most influential factors in the combustion, consumption and emission processes. Crop residue moisture content affects the flame temperature that in turn influences the ease of ignition, the amount and rate of consumption and the combustion efficiency. Generally, crop residues with low moisture content burn more efficiently and produce fewer emissions per unit of residue consumed.

## **Section 2 – CURING**

Some agricultural crop residue contains very high internal moisture, which may take weeks or even months to dry after cutting. Therefore, whenever possible piles or windrows should be cured for as long as possible before ignition. Once the residue has been ignited it should be allowed to burn itself out completely.

## **Section 3 – PRECIPITATION**

Crop residue that is wet generally burns less efficiently and produces more emissions per unit of residue consumed. Therefore, burning prior to a precipitation event will enhance the combustion, consumption and emission process. Successful application of this practice depends on the accurate meteorological forecasts for the area.

## **Section 4 – LARGE PILES/WINDROWS**

Crop residue concentrated into clean and dry piles or windrows generates greater heat and burns more efficiently. A greater amount of the consumption occurs in the flaming phase and the emissions factor is lower. Concentrating residue into piles or windrows generally requires the use of mechanized equipment. Large piles and windrows also cause temperature extremes in the soils directly underneath and can result in areas of soil sterilization.

## **Section 5 – CLEAN PILES/WINDROWS**

Crop residues that are mixed with dirt, rocks or other non-flammable debris will affect the amount and rate of consumption and the combustion efficiency of the pile or windrow. Clean piles/windrows burn more efficiently and generate greater heat, resulting in less emissions. Piles/windrows that are mixed with dirt, rocks or other non-flammable debris will smolder for extended periods of time and produce more emissions.

## **Section 6 – PILES/WINDROW DENSITY**

The structure of crop residues and air space within a pile or windrow can either enhance or retard residue consumption and affect combustion efficiency. A loosely packed pile or windrow will allow plenty of oxygen to be available for combustion, but may result in inefficient heat transfer between burning and adjacent non-burned residue. On the other hand, a tightly packed pile or windrow allows efficient heat transfer between pieces of residue, but may restrict oxygen availability and reduce consumption and combustion efficiency. An efficiently burning pile or windrow will have residue close enough for adequate heat transfer while at the same time large enough spaces between pieces of residue for oxygen availability.

## **Section 7 – TIME OF YEAR**

The time of year a burn is conducted influences many burn parameters. Typically, acceptable burning conditions are more predictable during certain seasons, making it easier to plan and prepare for burn days in advance. Regional effects are important in decision-making for this factor. Selecting the correct time of year to execute a burn will help maximize the probability of achieving low emissions.

## **Section 8 – TIME OF DAY**

The timing of ignition determines whether the burn can be completed in an efficient and effective manner. Timing is also important when considering factors such as: when solar radiation will break a nighttime inversion or dissipate any dew which formed during the night, when atmospheric conditions will support adequate transport and dissipation of smoke, when surface winds may develop or change speed or direction, or when a sea breeze front may reach the area.

## **Section 9 – TIMELINESS (for pest and disease control)**

Due to the critical threat posed by crop insects or diseases all piles or windrows should be disposed of as quickly as possible to prevent the establishment or spread of insects or diseases. Also, certain insects and diseases are best controlled by burning due to the complete destruction of the insect or disease.

Growers should contact their local horticultural pest and disease board, university extension agent or a Washington State Department of Agriculture pest control specialist to assist them in determining the level of threat and timeliness of a burn if it is deemed necessary.

## **Section 10 – TASK FORCE RECOMMENDATIONS**

The Task Force strongly recommends that the grower allow adequate time for the submitting, processing, approval and issuing of their Agricultural Burn Permit when planning an agricultural burn. Also to be taken into consideration by the grower is the availability of alternatives, weather conditions, smoke dispersal patterns and other conditions that may delay or postpone a permitted agricultural burn thus adversely affecting the timeliness of the planned burn.