Open Burning Alternatives

for Agricultural Producers in British Columbia

MANAGING VEGETATIVE WASTES ON FARMS

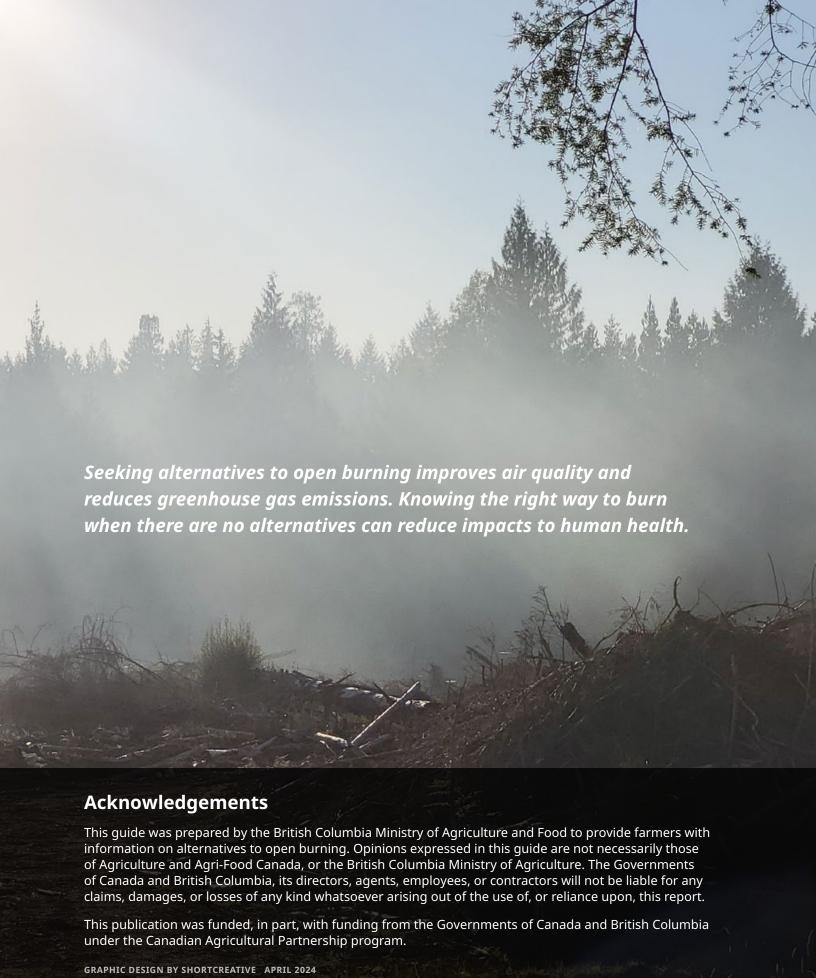












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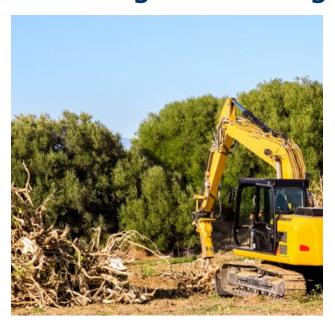


Managing Vegetative Wastes on Farms

Disposing of vegetative material is a common task on the day-to-day operations of any farm. This booklet will guide you to potential reuses of vegetative waste materials both on farm and off.

There are many reasons why choosing alternatives to open burning should always be your first choice. Often the ability to burn is restricted by provincial and local regulations. In addition, chipping and composting debris can create beneficial materials for your farm operation. Processing vegetative material, rather than burning it, can create beneficial products, such as compost, mulch, and sawdust, that you can use on the farm and help to reduce input costs. In addition to this factsheet you can also refer to the Recycling Council of BC's Directory of Alternatives to Open Burning in BC for more options.

What is Agricultural Vegetative Debris?



Any plant materials that you do not sell which needs to be used on the farm or disposed of over the year.

Examples of Activities that Generate Agricultural Vegetative Debris May Include:

- Cleaning up existing farmland and lot lines.
- Pruning orchards, berries, or vineyards.
- Undertaking crop renovations/replants.
- Managing seed crop residue.
- Clearing and/or expanding new agricultural areas.

Make a Disposal Plan

It is important to consider your disposal options BEFORE you begin your project.

SEPARATE YOUR MATERIALS

Vegetative Material + Untreated Wood

All Other Materials



There are many options available for handling vegetative material and untreated wood waste. Chipping and using as mulch on your farm or adding the mulch to your compost is preferrable to burning, as the benefits to your farm are numerous. If you do not own a chipper they are often available for rent.

Other options include:

- Find local contractors or a government chipping program
- Haul to your local landfill for chipping
- Offer or sell the wood waste as firewood

Open burning or pile burning these materials should be considered your last resort after looking for other useable options for the material.

It is **DANGEROUS AND ILLEGAL TO BURN** materials such as:

- Wire
- Plastic
- Irrigation tubing
- Tree bands
- Sprinklers
- Treated wood
- PVC pipe

When burned they release toxic chemicals into the air that are dangerous to our health and can contaminate water, soil and plants.

Prepare and separate these materials for reuse, recycling or disposal. Most landfills do not charge a tipping fee on correctly prepared and sorted agricultural wire, plastic, treated wood. Check with your local landfill for details on their program or consult the search engine at the Recycling Council of BC at Recycling Council of BC Directory of Alternatives to Open Burning in BC

For a complete list of materials that are prohibited to be burned visit: gov.bc.ca/prohibited2burn

Beneficial Re-use of Materials on the Farm



BENEFITS OF COMPOSTING

- · Improves soil health
- Reduces reliance on convential fertilizers, pesticides and herbicides
- Improves moisture retention
- · Improves crop yields
- Improves crop resilience

BENEFITS OF CHIPPING/MULCHING

- · Adds a protective layer to the soil
- · Reduces weed growth
- Moderates soil temperature
- Reduces evaporation
- Improves moisture retention

Vegetative debris can be processed to create beneficial materials that can be used on your farm and help save you costs associated with inputs such as livestock bedding materials or soil amendments. Nearly any agricultural vegetative material can be composted. Materials such as leaves, grass clippings, soiled crop residue, and prunings can all be used as inputs into an on-farm composting system. Larger prunings, trees and stumps can be chipped, transported off farm to an organics drop off facility or even sold.

Processing Vegetative Debris – Chipping or Grinding

Chipping or grinding is a common and cost-effective way to process vegetative debris. Stumps, crop renovation material, root balls, greenhouse crops, orchards, and field crops can all be chipped or ground into small particles and then composted or used as mulch.

The main difference between chipping and grinding equipment is the type and size of blades used to do the processing. The machinery can often be attached to a tractor and moved to different locations on the farm, or larger-sized equipment can be rented and brought in and installed at a site on the farm for specific jobs. It is a good idea to ask contractors about the capacity for processing materials on a per hour basis prior to selecting the best equipment for the task.

Check with your local government to see if they provide a chipping program as an alternative to burning.

Things to keep in mind when processing vegetative debris:

- Unlike burning, wood waste is best chipped when it is still green. Dry wood creates more dust and wears down the chipping blades faster.
- If renting equipment, be sure to read the operating manual of the equipment prior to use.
- Ensure you have a plan for using or storing any wood residues (e.g. wood chips, sawdust) after processing or hauling them off-site.
 See the Environmental Farm Plan Reference Guide¹ for further information on wood residue storage and use.
- Remove as much soil and stones as possible.
- Place debris in piles for ease of equipment loading.
- With large volumes of debris, a grapple or loader may be required to load the materials into the processing equipment efficiently and safely. Allow space for equipment to access and maneuver around the material

- Chips of 1 2 inches length work well as a mulch to help control weeds, improve water retention and prevent soil erosion.
- Smaller chips are easier to break down and work better for composting purposes or as a soil conditioner.
- NEVER chip treated wood!



You can use wood chips for: mulch; compost; soil conditioner; landscaping; animal bedding; pellets

¹ BC Environmental Farm Plan Reference Guide: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/agricultural-land-and-environment/environmental-farm-planning/efp-reference-guide/full_efp_reference_guide.pdf





Uses for Wood Chips and Sawdust

Wood chips and sawdust can be used as livestock bedding, plant mulch, soil conditioner, ground cover, growing medium, composting feedstock, surface cover for pathways or as fuel for agricultural wood-fired boilers (subject to Metro Vancouver's Agricultural Boilers Emission Regulation and Code of Practice for Agricultural Environmental Management).

Remember, storing, burying, and/or using wood residue is regulated under the Code of Practice for Agricultural Environmental Management. The BC Environmental Farm Plan Reference Guide provides additional information about using and storing wood residue on the farm.

Utilizing Wood Chips for LANDSCAPING and DUST SUPPRESSION

- Spreading wood chips on pathways, roads and hillsides helps reduce dust and mud.
- A ground covering of wood chips prevents soil erosion.

Utilizing Wood Chips for BEDDING

- Wood chips are a popular choice for livestock bedding due to their absorbent nature.
- Wood chips are required to be stored and used a minimum distance from a water source to avoid contamination of the water through leaching.

Utilizing Wood Chips for PELLETS

- Fruit wood pellets are often used in barbeques and ovens because they burn hotter and longer than other wood varieties and tend to give a unique flavour to the food.
- Also used as a heat source in wood stoves.

IMPORTANT: Do not use wood waste that may contain antisapstain chemicals, wood preservataives or fire retardation chemicals. Wood waste containing these chemicals can affect livestock, wildlife and fish that come into contact with the treated wood waste or leachate.

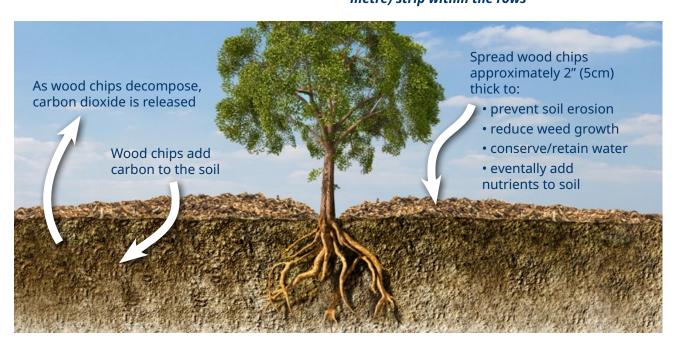


Utilizing Wood Chips as MULCH

Spread wood chips approximately two inches (five centimeters) thick in order to:

- Prevent soil erosion
- Reduce weed growth
- Eventually add nutrients to soil
- Conserve and retain water

It is ideal to spread the wood chips where the roots are most likely to be, in a 3-6 foot (1-2 metre) strip within the rows





Adding Wood Chips to COMPOST as a Soil Conditioner

Adding wood chips to your compost, once decomposed and spread back onto your crops helps to:

- Improve soil health
- Reduce reliance on convential fertilizers
- Improve moisture retention
- Improve crop resilience and yields



Compost can be spread along the root line similar to using mulch



Compost = nutrition for soil



Compost prunings, nursery crop foliage, culled plants and fruit

Composting

Composting is the decomposition of organic materials by micro-organisms under controlled, aerobic conditions. The resulting compost is a relatively stable, humus-like product suitable for growing plants. Nearly any agricultural vegetative material can be composted. Materials such as leaves, grass clippings, soiled crop residue, and prunings can all be used as inputs into an on-farm composting system. Larger prunings, trees and stumps can be chipped, transported off farm to an organics drop off facility, or even sold.

Composting can be done through the use of either static or aerated piles or windrows. Ground up or chipped woody debris can be incorporated with newer and green materials and other feedstocks that are richer in nitrogen to make compost. When managed properly, the temperatures reached during the composting process can kill pathogens, pests and weed seeds present in the feedstock. BC's Ministry of Agriculture and Food has published an On-Farm Composting Guide² to help small and medium-sized farm operators set up successful composting systems.

Things to Consider:

- The On-Farm Composting Guide can help you determine the composting system and location that best suits your farm.
- Ensure you meet minimum setbacks from drinking water sources (30 m), water courses (15 m), and property boundaries (4.5 m), as stipulated within the Code of Practice for Agricultural Environmental Management (Section 17). Check with your local government to see if they have setback requirements greater than these.
- Manage the compost pile or windrow according to directions outlined in the On-Farm Composting Guide for key factors including the C:N (carbon to nitrogen) ratio, moisture content, and temperature.
- Using a compost system to dispose of livestock/poultry mortalities or agricultural processing waste is allowed when you follow the requirements set out under the Code of Practice for Agricultural Environmental Management. Section 71-73
- Composting can reduce the volume of the original feedstock by up to 60%.
- If you need to dispose of livestock mortalities resulting from a reportable animal disease, contact AgriServiceBC for further information.

Compostable farm materials (feedstocks) include:

- Raw animal manures such as pig, goat, poultry, horse, cow and sheep.
- Crop wastes, grass clippings, tree foliage.
- Bedding, sawdust, straw.

Compost uses:

- Soil amendment and/or fertilizer
- Animal/livestock bedding
- Mulch for plants
- Sales to other users

Benefits of adding finished compost to soil include:

- increasing soil organic matter content;
- improving nutrient retention and soil structure; and
- Increasing water-holding capacity
- Weed and insect-free growth medium

² BC's On-Farm Composting Guide: https://farmwest.com/wp-content/uploads/2020/09/composting_guide.pdf

Nursery Waste

Nutrient-rich compost is food for the soil and reduces reliance on petroleum-based fertilizers, pesticides and herbicides





It is important to turn/mix the compost pile as well as monitor the temperature. Compost thermometers are available in different lengths.

Other materials that can be added to create nutrient-rich compost



Professional landscapers/arborists drop off materials to nurseries for chipping. This can be used as mulch or added to compost.



HOG FUEL (wood waste from mills) can be added to compost to create potting mix

Prunings, Ground Crops and Yard Waste

The burning barrel is no longer an acceptable method of disposal for yard or farm waste (prohibited in some areas).

- PRUNINGS can be left on the ground and flail mowed or chipped. You can also haul prunings to the landfill or composting facility. Some landfills do not charge tipping fees on properly prepared agricultural wood waste.
- GROUND CROPS can be mulched and worked back into the soil to add nutrients for new crops, or added to the compost pile.
- Never burn LEAVES AND GRASS CLIPPINGS as they will smoke and smolder creating significant smoke pollution. Mulch, compost or deliver to your landfill where they will be utilized for compost.



- Move branches to the centre of the rows and distribute material evenly to avoid clogging of the flail mower which could damage the equipment.
- Drive slowly over pruned branches as driving too fast will leave large wood pieces.
- Heavy duty mulchers will mulch prunings up to 3 inches in size.

Chipping

If chipping prunings they can be laid so the butt ends are facing one direction for faster chipping, or they can be gathered and placed in a long pile for chipping with a larger chiper.



Don't pile branches for chipping. It takes longer to chip piled prunings as each branch has to be pulled out of the tangled pile.



PRUNINGS can be left on the ground and flail mowed or chipped



GROUND CROPS can be mulched and worked back into the soil



GRASS CLIPPINGS can be mulched, composted or delivered to your landfill

Diseased Materials

It is best to find out what the guidelines are for each individual disease and speak with a plant pathologist before choosing a disposal method for diseased materials. When in doubt, landfill burial is best.

Prunings: Berries, Tree Fruits and Grapes

The amount pruned and size of prunings varies with each type of crop however the disposal options for all are the same.

Prunings and larger wood waste are best chipped when green and not overly dry. Dry Chipping is harder on equipment and creates dust.

Burning is not recommended for prunings as they are easily managed with a flail mower and/or chipeed. However if choosing to burn, ensure prunings are dry and stacked for sufficient air flow to produce a hot, smoke-free fire which will reduce the level of smoke pollutants.



Berry Crops

Prunings from berry crops, such as blueberry and raspberry cane prunings, average in size from 1/4 to 3 inches and can be flail mowed or chipped.

Smaller pruning canes, lying in the field, are usually mulched with the tractor lawn mower or flail mower.

Larger prunings are chipped. The chips are placed along the pruned bushes.



Hazelnut Trees

Hazelnut trees grow suckers at the base of the tree. There are several ways to handle these specific prunings:

- Chip and mulch
- Weavers use them for basket making
- Larger prunings, once dried, can be used for fire wood
- Haul to a local composting facility

Mulchers and Chippers

- **VARIOUS MULCHERS** (flail mowers), are available to attach to tractors to mulch prunings.
- **PORTABLE CHIPPERS** are also available at equipment rental outlets.
- **SELF-PROPELLED CHIPPERS** that fit between crop rows are available
- GRANTS may be available to purchase mulchers or chippers.





Mowing or Plowing

Mowing or plowing your field crop and small woody debris can be done directly in the field. This can be done with flail mowers/bush hogs or plows that are attached to a tractor and slowly driven over the vegetative debris. For smaller jobs a handheld mower may also work. Mowed materials can then be plowed under or left in place on the soil surface.

Things to consider:

- If renting equipment, be sure to read the operating manual of the equipment prior to use.
- Distribute material evenly to avoid clogging the flail mower (this could damage mower equipment and the tractor).
- Drive slowly over pruned branches and debris to ensure that large pieces are properly processed. Two or more passes over the materials may be needed to achieve the desired result.



Disposal Off-Farm

Off-farm disposal involves transporting vegetative material to a waste transfer station or to a commercial composting facility. Hauling can be done by the farm operator or through a private contractor. A few points to consider are:

Agricultural vegetative wastes may not be accepted by local government waste transfer stations (e.g. landfills) or they may have restrictions on the types and quantities of vegetative materials accepted. Contact the transfer station ahead of time to find out. Receiving facilities also often charge a disposal fee, which can vary depending on waste type and volume.

- Private contractors will charge a hauling fee.
- As an optional first step, the vegetative debris can be chipped, ground or shredded on the farm to make it easier to transport.

Recycling council of BC has an online search engine that can help you locate the options in your area. Visit: www.rcbc.ca

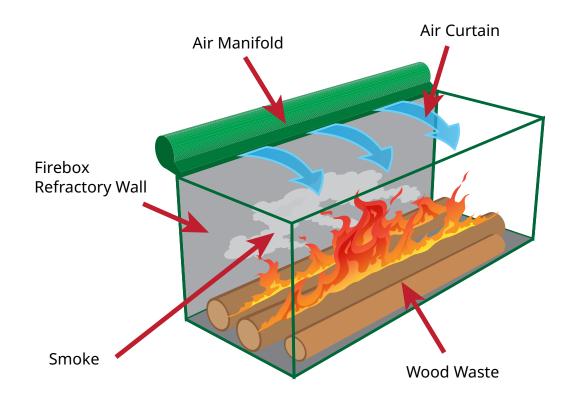
Air Curtain Burning

An air curtain incinerator, or air curtain burner is an appliance or trench where forced air is applied to supply air directly to the fire. This reduces incomplete combustion.

Before using an Air Curtain Incinerator, please consult with the Provincial Open Burning Smoke Control Regulation and local burning bylaws. A factsheet on how to conduct a burn using air curtain incinerator under the Open Burning Smoke Control Regulation can be found here: Air Curtain incinerator.

If you have a larger volume of materials or are concerned about air impacts of particulates for yourself or the environment, the use of an air curtain incinerator is an option to consider³. With an air curtain incinerator, you may burn for as many days as needed provided that venting conditions are met and you comply with any local government burning bylaws.

If you are located within 1km of a neighbouring building, or 2km from a hospital, school or community care facility the ventilation must be 'good' or 'fair' for the day you start and each day after that. On the day that a "poor" ventilation forecast is obtained, no more vegetative debris may be added. Burning is restricted to one hour after sunrise and 4pm or two hours before sunset. Direct air is applied to the vegetative debris being burned resulting in a greater reduction in smoke being generated. For this reason, the requirements for using an Air Curtain Incinerator are less restricted from Open Burning of piles in either a High, Medium or Low Smoke Sensitivity Zone.



³ BC Ministry of Environment factsheet: Burning Using Air Curtain Incinerators: https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/factsheets/air_curtain_incinerator_burning.pdf

Resources and Support for Agricultural Burning Alternatives

Agricultural producers who are seeking resources and support for agricultural burning alternatives may be able to access a variety of resources. Resources and programs change over time and this document may not capture all current programs. Check with local government authorities for specific opportunities in your community.

Community Vegetative Waste Management Programs

Check with your local government's solid waste management department to see if programs exist. These may include chipping programs and/ or free vegetative waste disposal for agricultural operators.

Equipment Rental

- Chippers, grinders and mowers may be costly to purchase. Fortunately, rental opportunities may exist through various businesses in your region.
- Air curtain burners may be available to rent from forestry or land clearing companies. These units can process between 3 to 5 tons of vegetative debris per hour.

Provincial Programs

BC's Recycling Hotline

- The online tool allows you to look up options for composting and land filling across BC www.rcbc.ca
- BC's Recycling Hotline provides advice on depots for yard trimmings, green waste, and agricultural debris hauling. The Hotline will provide a list of private companies that can be contacted for detailed information on accepted wastes and associated pricing.
- Lower Mainland: 604-RECYCLE
- Elsewhere in BC: 1-800-667-4321

Environmental Farm Plan and Beneficial Management Practices Programs

 These programs help producers identify agrienvironmental risks and opportunities. Cost-share funding may be available through the BMP program to help implement waste management improvements that reduce the need to burn.

Regional Alternatives Programs

Regional District of Central Okanagan Agricultural Wood Waste Chipping Program

This is a free chipping program available to encourage orchardists to chip wood material (stumps and branches) instead of burning it. If you have wood material derived from an orchard for the purpose of replanting or other agricultural use, you may apply for this program. This program is coordinated by Regional District of Central Okanagan with support from the British Columbia Fruit Growers Association, the BC Fruit Packers Cooperative and the Pacific Agri-Food Research Centre.

Regional District of Central Okanagan Mow/ chip/rent-buy-it rebate program

The mow/chip/rent-buy-it rebate helps residents and farmers/orchardists with the rental cost to chip or flail mow small volumes of wood waste on their property. The rental/purchase equipment should be used for the purposes of fuel reduction and/or agricultural activities.

Regional District of Okanagan Similkameen - Free Disposal of Suitably Prepared Agricultural Organic Material

Suitably prepared (i.e. no: fruit or food waste, garbage, treated posts, wire, plastics, soil, rocks, land clearing materials, ornamental trees, sage brush) agricultural organic material may be disposed of free at regional district landfills. Contact the RDOS to arrange a landfill appointment.



Diseased or Infested Vegetative Debris Burns

Diseased or insect infested vegetative debris may need to be disposed of by open burning to ensure that the disease or insect is contained and does not spread to healthy crops. This is why open burning is recognized as one of the tools that producers may need for preventing the spread of certain agricultural insects and pathogens across BC.

If you have a pest listed on the Open Burning Control Regulation OBSCR Schedule 1 list of pathogens and insects, the regulation has recognized that you may need to use open burning as part of your pest management strategy. These pages contain steps which will help you sort out which diseases and insect pests have specific provisions for open burning, the process to complete verification and notification to burn under these provisions, and alternative methods of control for these Schedule 1 pests.

Weed Control Act

The Environmental Management Act doesn't prohibit the burning of leaves, foliage, or weeds in accordance with the Weed Control Act.

How do I know if I have a Noxious Weed?

Part I and Part II of Schedule A of the Weed Control Regulation list all noxious weeds for BC, and noxious weeds in local regional districts.

Diseases

ITEM	COMMON NAME	SPECIES
1	Anthracnose and perennial cankers	Cryptosporiopsis curvispora, Cryptosporiopsis alba, Cryptosporiopsis perennans, Neofabraea malicorticis, Neofabraea alba, Neofabraea perennans or Pezicula malicortis
2	Botryosphaeria canker	Botryosphaeria
3	Dutch elm disease	Ophiostoma ulmi, Ophiostoma novo-ulmi or Ceratocystis
4	Eastern filbert blight	Anisogramma anomala
5	European canker	Nectria galligena
6	European larch canker	Lachnellula willkommii
7	Fire blight	Erwinia amylovora
8	Godronia (fusicoccum) canker	Fusicoccum putrefaciens or Godronia cassandrae
9	Leucostoma (cytospora) canker	Leucostoma cinta, Leucostoma persoonii, Valsa cincta or Valsa leucostoma
10	Oak wilt	Ceratocystis fagacearum
11	Pear trellis rust	Gymnosporangium fuscum
12	Phomopsis canker	Phomopsis vaccinii or Diaporthe vaccinii
13	Plum pox virus or Sharka	Plum pox virus
14	Ramorum blight and canker or sudden oak death	Phytophthora ramorum
15	Thousand canker disease	Geosmithia morbida





Fire blight Pear trellis rust

Insects

ITEM	COMMON NAME	SPECIES
1	Ambrosia beetle	Xyleborus dispar
2	Apple clearwing moth	Synanthedon myopaeformis
3	Asian long-horned beetle	Anoplophora glabripennis
4	Banded elm bark beetle	Scolytus schevyrewi
5	Black pine bark beetle	Hylastes ater
6	Brown spruce long-horned beetle	Tetropium fuscum
7	Citrus long-horned beetle	Anoplophora chinensis
8	Common pine shoot beetle	Tomicus piniperda
9	Dogwood borer	Synanthedon scitula
10	Douglas-fir beetle or larvae	Dendroctonus pseudotsugae
11	Emerald ash borer	Agrilus planipennis
12	European spruce long-horned beetle	Tetropium castaneum
13	Japanese cedar long-horned beetle	Callidiellum rufipenne
14	Mountain pine beetle or larvae	Dendroctonus ponderosae
15	Native and European elm bark beetle	Hylurogopinus rufipes or Scolytus multistriatus
16	Peach tree borer	Synanthedon exitiosa
17	Shot hole borer	Scolytus rugulosus
18	Spruce beetle or larvae	Dendroctonus rufipennis
19	Walnut twig beetle	Pityophthorus juglandis







Emerald ash borer

Asian long-horned beetle

Apple clearwing moth

STEP 1: Identification

The first step to determining if you can use the OBSCR provisions for diseased material, is to identify if the insect or pathogen is on the list in Schedule 1. If your insect or pathogen is on this list, you will be permitted to use the Division 3 OBSCR open burning provisions detailed below once verification and notification steps are done.

If you are not certain of the insect or pathogen you are dealing with, there are identification resources within the Ministry of Agriculture and Food to help identify and manage insects and diseases. Insects and Plant Diseases⁴ provides information about pest and disease management including Crop Production Guides and current

Pest Alerts about new pests. Identification of insects and pathogens is also a service provided at the Plant Health Laboratory, in Abbotsford. Finally, you may choose to utilize the services of an appropriate professional agrologist who consults about insects and pathogens to help you with these steps.

If you suspect a regulated pest, please contact AgriServiceBC@gov.bc.ca, 1.888.221.7141 or the Canadian Food Inspection Agency to report it. If CFIA verifies that you need to burn the vegetative debris to control the pest, notify OBSCR@gov.bc.ca.

STEP 2: Verification and Notification

Once you have identified an insect or disease on the OBSCR Schedule 1, you need to verify the pest or infection. If you utilized a professional agrologist, for step 1, your verification job in step 2 is already done. If not, you can reach out to a suitably qualified agrologist, biologist or forestry technologist for assistance.

Once your pathogen or insect is identified and verified you can now access the reduced restrictions under the OBSCR as a waste disposal method. Send the verification of the disease or infestation from your qualified professional to the OBSCR@gov.bc.ca inbox.

What if my pathogen or insect is NOT on the list, but I need to burn?

If your diseased material is something that requires open burning, but is not on the list, you can contact AgriServiceBC@gov.bc.ca, 1.888.221.7141 to connect with Ministry of Agriculture and Food staff. If staff have identified that open burning is necessary to stop the spread of the pathogen or insect, the request can be made by submission to a director through the **OBSCR@gov.bc.ca** email address, stating a confirmed case and that open burning is required.

⁴ BC Ministry of Agriculture: Insects and Plant Diseases: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/animals-and-crops/plant-



For some insects on Schedule 1, chipping and grinding are disposal methods which may be suitable. The goal of chipping and grinding is to destroy larvae and pupae stages before adults emerge and spread to new locations.

STEP 3: Disposal or Treatment – Is Open Burning Required?

Burning may not be the best method of disposal for controlling all diseased material. For many crops, there are alternative methods, such as composting, chipping or hauling to a waste disposal facility, that minimize environmental impact and contain the spread of the pathogen or insect. Plant material may be able to be chipped/mulched in the field or pruned out and composted to reduce the risk of spread within the field. Consult with suitable professionals to confirm if alternative methods of disposal are best for the disease or insect in question.

If you have a pathogen infection or insect infestation that is on the regulated pest list from CFIA you will need to contact them to ensure the correct actions are taken to address the issue and prevent it from spreading. Once the regulated pest is verified by CFIA, they will advise on appropriate control measures. At this point, open burning may be identified as the

required method of disposal. In that case, use the information in this resource on how to plan for and conduct an open burn.

For some insects on Schedule 1, chipping and grinding are disposal methods which may be suitable. The goal of chipping and grinding is to destroy larvae and pupae stages before adults emerge and spread to new locations.

All plant Contact AGRIServiceBCat **1.888.221.7141** if you are unsure of what disease or pathogen you may have and the best method for disposal. Email: **AgriServiceBC@gov.bc.ca**

STEP 4: Burn Diseased or Infested Materials Responsibly

Open Burning Smoke Control Regulation⁵ (OBSCR) allows relaxed conditions regarding the seasoning of diseased vegetative debris and the setbacks required for these burns under the following circumstances:

- At least 50% of the vegetative debris being burned must be diseased. You may use seasoned vegetative debris from other sources on your property to help get the fire going.
- A fire accelerant can be used to ignite diseased vegetation that is not seasoned.
- All people within 150 m of the planned burn are notified no later than 24 hours beforehand. All reasonable effort must be made to inform occupants and managers of all residences, businesses, schools, hospitals and community care facilities.
- Piles are placed at least 50m from residences and businesses and 100m from schools, hospitals and community care facilities.

- The ventilation forecast for the day that you plan to burn is "GOOD" or "FAIR", regardless of smoke sensitivity zone. Ventilation Index Interactive Map.
- The burn lasts less than a day, and is started not earlier than 1 hour after sunrise and ended by 4:00 pm or two hours before sunset.

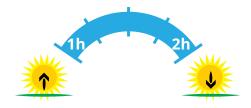
The Ministry of Environment and Climate Change Strategy has produced a factsheet⁶ about how to responsibly burn diseased vegetation while following OBSCR. You may need to use an accelerant material if the diseased vegetative debris is not seasoned. Ensure that your accelerant is not prohibited. Examples of allowable accelerants include dry vegetative debris, boxes, dry wood.



Ensure piles are placed at least 50 m from residences and businesses



Ensure piles are placed at least 100m from schools, hospitals and community care facilities



Ensure the burn lasts less than a day, and is started not earlier than 1 hour after sunrise and ended by 4:00 pm or two hours before sunset.

You must follow your local government (municipality or regional district) fire byalws and any BC Wildfire Service regulations for fire safety⁷.

⁷ BC Wildfire Service Wildfire Legislation and Regulations: https://www2.gov.bc.ca/gov/content/safety/wildfire-status/about-bcws/governance/legislation-regulations



 $^{^{5}\} BC\ Ministry\ of\ Environment\ Open\ Burning\ Smoke\ Control\ Regulation:\ https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/152_2019$

⁶ BC Ministry of Environment and Climate Change Strategy: Burning Diseased Vegetative Debris Open Burning Smoke Control Regulation Factsheet. https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/factsheets/diseased_vegetation-burning.pdf



Plan For a Safe Open Burn

Management of vegetative debris is a major component of land management on a farm. You may at times need to use open burning as a tool to manage crop residues, dispose of diseased plant material or improve grass seed production.

Open burning is defined as burning of materials outdoors without a stack, chimney, or air curtain. It is commonly done by burning piles, windrows or broadcast burning. Open burning on farms is sometimes conducted to dispose of prunings, tree stumps, and brush piles from land which has been cleared for agricultural purposes or from crop maintenance or renovations.

The Open Burning Smoke Control Regulation (OBSCR)⁸ establishes strict rules on:

- What can be burned.
- Where burns can be located,
- The atmospheric venting conditions that must be present, and
- How long the burning can last.

The rules and regulations apply to everyone, regardless of whether or not your land is in the Agricultural Land Reserve (ALR). The Farm Practices Protection Act (Right to Farm) does **not** exempt farmers from rules and regulations

related to open burning. Local government regulations also apply, and often burning must be approved by local fire departments. Neither The Farm Practices Protection Act (Right to Farm) nor the OBSCR allow you to contravene local burning bylaws established by your municipality or regional district.

This guide provides you with a checklist of steps that will help you plan for a burn.

If you are in Metro Vancouver

The approach in Metro Vancouver as of december 2021 is for authorization to be obtained through the open burning approval application process.

Information about obtaining authorization from Metro Vancourver can be found on the Open burning Advisory website. An approval sets out conditions for burning vegetative material.

⁸ BC Ministry of Environment Open Burning Smoke Control Regulation: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/152_2019/#division_d1e2141

STEP 1: Explore Alternative Disposal Methods

OBSCR requires a burn operator to explore all possible options to reduce, reuse or recycle as much of the material as possible. Please check out Section 1 of this Booklet Managing Vegetative Wastes on Farms for options that might apply to you.

If you must burn and have a large volume of vegetative debris or are concerned about air impacts of particulates for yourself or the environment, the use of an Air Curtain incinerator is an option to consider. An air curtain incinerator, or air curtain burner, is a piece of equipment or a trench where forced air is utilized to supply air directly to the fire. This reduces both incomplete combustion and smoke being generated. For this reason, the requirements for using an Air Curtain Incinerator are less restricted than open burning in piles.

STEP 2: Check Your Local Bylaws and Regulations

Local fire departments, municipalities, improvement districts or regional districts may have smoke management plans, bylaws or restrictions on open burning. The Province and local governments often have a burn ban at certain times of the year for fire safety reasons. These bans can include the prohibition and the quenching of all open burning in the area. Local government requirements may be more stringent than provincial legislation. Check with the local government office or the fire department to find out about pertinent rules and restrictions including any burn permit requirements.

It is your responsibility to know the local and provincial rules, such as OBSCR and Metro Vancouver Open Burning Regulation, that apply to you before you burn.

STEP 3: Seasonal Considerations of When to Conduct Your Open Burn

You can choose to conduct an open burn at any time that does not conflict with local or provincial requirements. As discussed previously, there are often constraints such as burning bans due to wildfire risk and ventilation index considerations.

Vegetative debris is often generated at the end of the growing seasons making the fall or spring a desirable time to burn. If possible, burning piles when there is still snow cover and the ground is frozen will reduce the risk of wildfire but within the dead of winter venting conditions are often too poor to conduct a burn.

STEP 4: Grass and Stubble Burns

Avoid burning grass or stubble in the heat of the day and, whenever possible, burn in the late afternoon. Never burn in windy conditions. Blade or plow a fire guard at least 5 metres wide down to the mineral soil around your burn site. Burn larger fields by working on smaller sections individually, with fire guards built around each section.

Never leave a burn unattended. Ensure that you have adequate supervision, manpower, equipment and water nearby to control the fire (or extinguish it if necessary).

Check the BC Wildfire Service factsheet Open Burning Practices for Farmers and Ranchers factsheet for more information about burning safely.

STEP 5: Collect Your Materials and **Choose Your Disposal Method**

Collect your materials and determine the best disposal method, including alternatives to burning Section 1 of this Booklet Managing Vegetative Wastes on Farms. Note that you cannot burn materials that have been gathered from outside of a 5 km radius of your property. Materials that can be burned on the farm consist of vegetative debris, which includes orchard trimmings, trimmings from land cleanup, crop residues or crop stubble. Untreated wood may be added to a vegetative debris pile open burn.



It is extremely important not to burn prohibited materials. These include:

- animal carcasses
- spoiled or mouldy hay bales
- manure
- treated or painted wood (including from old farm buildings or fences)
- silage wrap
- grain bags
- plastic mulch sheets
- batteries
- carpets
- demoliton waste
- electrical wire

- fibreglass
- fuel and lubricant containers
- hazardous waste
- furniture and appliances
- paint and varnish
- plastics
- polystyrene foam
- railway ties
- rubber
- tires
- tar paper
- used oil

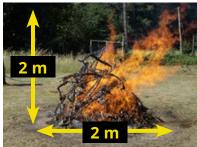
STEP 6: Determine the Category of Your Fire and if the Wildfire Act Will Be Triggered

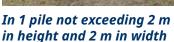
Once you have your materials gathered in piles, measure the size of your pile to determine the requirements under the Wildfire Act. Check burn Category and permit and/or approval requirements from your local government, fire department, and/or BC Wildfire Service (BCWS) depending upon your own situation.

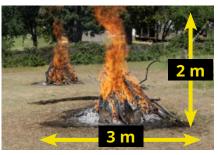
According to OBSCR, a campfire is any fire no larger than 0.6 m high by 0.75 m wide on your own property. During a Provincial Burn ban from BC Wildfire Service, if a campfire is permitted it must be less than 0.5m by 0.5m.



A **CATEGORY 2** open fire is a fire that burns material:







Concurrently in 2 piles, each not exceeding 2 m high and 3 m wide



Stubble or grass over an area that does not exceed 0.2 ha (0.5 acres or 2,000 m2); or is not a campfire

A CATEGORY 3 open fire is is a fire that burns material:

- Concurrently in 3 or more piles each not exceeding 2 m in height and 3 m in width; or
- In one or more piles each exceeding 2 m in height or 3 m in width; or
- One or more windrows; or
- Stubble or grass over an area exceeding 0.2 ha (0.5 acres or 2,000 m²).

Category 3 fires need a burn registration number from BCWS and you must keep a written record with information about the burn.



Material can be added to piles that are being burned as long as open burning ends by 4 p.m. or two hours before sunset, whichever is later, on the same day the open burning starts. The end point of a fire is when each pile that was started has ceased flaming and is emitting smoke from no more than 10% of its burnt surface area.

The BC Wildfire Service requires that anyone managing a "CATEGORY 3" fire must first obtain a burn registration number by calling 1.888.221.7141. Find more information fire bans and restrictions on this website¹⁰

¹⁰ BC Government Public Safety and Emergencies: Fire Bans and Restrictions: https://www2.gov.bc.ca/gov/content/safety/wildfire-status/fire-bans-and-restrictions



⁹ BC Ministry of Environment and Climate Change Strategy: Open Burning Smoke Control Regulation Open Burning Record Sheet. https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/factsheets/open_burning_record_sheet_fillable.pdf

STEP 7: Determine How the Open Burning Smoke Control Regulation (OBSCR) Will Apply to the Burn

The size (diameter) and volume of materials will determine if you must follow OBSCR.

Keep in mind these key OBSCR requirements:

- Burn only vegetative debris such as tree branches, limbs, shrubs, etc.;
- Burn the vegetative debris within 5 km radius of where it originates from;
- Burn the vegetative debris more than 500 m from a neighbouring residence or business and more than 1,000 m from a hospital, continuing care facility, or school unless otherwise exempted;
- Ensure that smoke is not initiated if the local air flow will cause the smoke to negatively impact a population centre or work camp, or pose a hazard at airports or highways by significantly reducing visibility;
- Ensure that the ventilation index is "good" on the day the burn is started and forecast to be "good" or "fair" on the second day for burning in high and medium smoke sensitivity zones;
- Ensure that the ventilation index is "good" or "fair" on the day the burn is started and forecast to be "good" or "fair" on the second day for burning in low smoke sensitivity zones.

Size and Volume of Materials and Relationship to OSBCR

< 3 cm in diameter: exempt from OBSCR, but Wildfire Act and local/regional bylaws may still apply

3 cm < 10 cm in diameter: Vegetative debris must not be moved more than 5 km from its origianla location. Open buning must adhere to any burn ban put in place by the Ministry of Environment. The Wildfire Act, and/or local/regional bylaws may still apply.

10 cm < 50 cm in diameter: OBSCR applies in addition to any rules set forth by the Wildfire Act, and/or local/regional bylaws.

50 cm or greater in diameter, or stumps: Prohibited under OBSCR. Break up materials into smaller pieces to remove soil and prevent excess smoke.



Ensure piles are placed at least 500 m from residences and businesses



Ensure piles are placed at least 1000 m from schools, hospitals and community care facilities

STEP 8: On the Day of the Burn, Before You Get Started Review the Following:

- A person with fire-fighting tools should attend the fire throughout the entire burn.
- You must meet setbacks of 500 m from residences or businesses and 1,000 m from schools, hospitals, or community care facilities. If these setbacks cannot be met then check your smoke sensitivity zone¹¹ and determine what is required to follow Reduced Setbacks. Check the resources available at www.gov.bc.ca/openburning
- You cannot burn on more than 6 days in a month, for a maximum of 12 days in a year, on a single property in a high smoke sensitivity zone.
- You are required to keep records under the OBSCR. A template form is available here: https://www2.gov.bc.ca/assets/gov/ environment/air-land-water/air/factsheets/ open_burning_record_sheet_fillable.pdf. Burn operators may be fined up to \$5,000 for not keeping proper records.
- Check the venting index to ensure the forecast has good venting.

Burn Bans

A burn ban may be put in place by your local government or by the provincial government for reasons such as wildfire risk and/or to reduce air pollution.

To determine if there is a burn ban in your area:

- Contact your local government to find out if they have enacted a burn ban.
- Visit the BC Wildfire Service¹² for burn ban status due to wildfire risk.

Ensure the burn is supervised

Someone with fire-fighting tools must be present at all times during the open burn. The supervision must occur for the duration of the burn until less than 10% of the burnt surface is smoking.

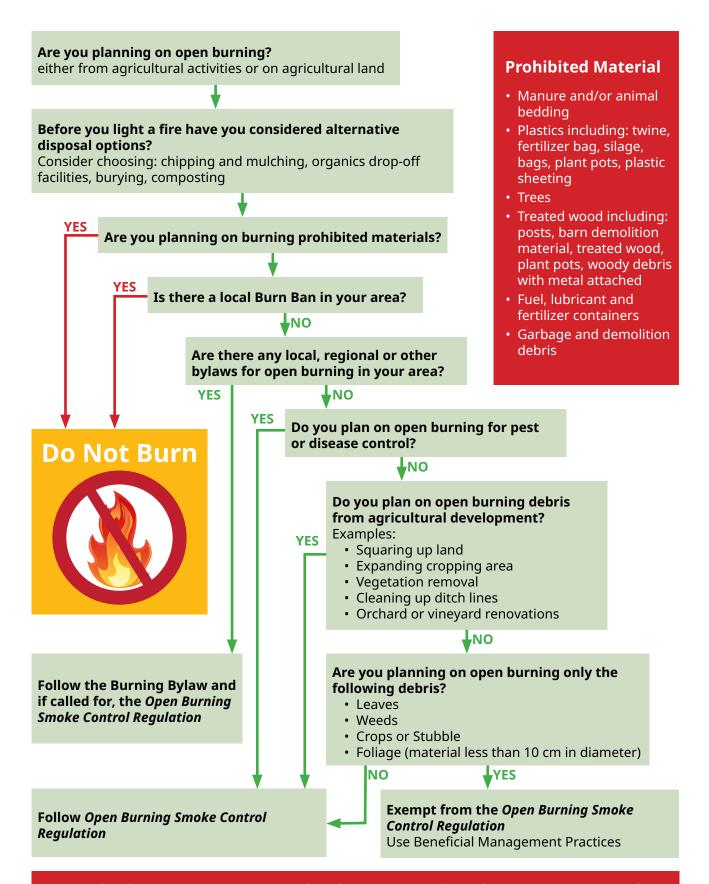
BC Ministry of Environment and Climate Change Strategy: Open Burning Smoke Control Regulation General Information https://www2.gov.bc.ca/gov/content/environment/air-land-water/air-pollution/smoke-burning/regulations/openburningregulation

BC Ministry of Environment and Climate Change Strategy: Open Burning Smoke Control Regulation - Information for all Burners: https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/factsheets/all_burners_factsheet.pdf



¹¹ BC Regional Smoke Sensitivity Zone Mapsheets: https://www2.gov.bc.ca/gov/content/environment/air-land-water/air-pollution/smoke-burning/regulations/openburningregulation/regional-smoke-sensitivity-zone-mapsheets

¹² BC Government Public Safety and Emergencies: Fire Bans and Restrictions: https://www2.gov.bc.ca/gov/content/safety/wildfire-status/fire-bans-and-restrictions



NOTE: Before burning you must ensure that the venting condition forecast is appropriate for smoke dispersal, and appropriate set-back distances are met.



Conducting A Burn

If you have considered all alternative options and decided that Open Burning is the most appropriate choice, consider the following points to help you to conduct a burn legally, safely, and efficiently.

It is important to become familiar with the Open Burning Smoke Control Regulation (OBSCR), which establishes strict rules on what can be burned, where fires can be located, the atmospheric venting conditions that must be present, and how long the burning can last. These rules and regulations apply to everyone, regardless of whether your land is in the Agricultural Land Reserve (ALR) or not. The Farm Practices Protection Act (Right to Farm) does not exempt farmers from rules and regulations related to open burning.

Know Your Smoke Sensitivity Zone

The province is divided into High, Medium, and Low smoke sensitivity zones. These are areas of decreasing population, with population centers being in High Smoke Sensitivity zones. Areas (10km) from them are being Medium. Outside that are Low Smoke Sensitivity Zones. The zones are intended to reduce health impacts to people due to the pollution from open burning. As a result, there are greater restrictions in the higher sensitivity zones.

If you are within a High Smoke Sensitivity Zone you cannot burn on more than 6 days in a month, for a maximum of 12 days in a year, on a single property. Most agricultural areas within BC are located within a High Smoke Sensitivity Zone where more than two consecutive burn days are not permitted.

- Within a High Smoke Sensitivity Zone additional requirements under the regulation may apply:
- Fuel must be dry (seasoned) before burning.
- You can only burn vegetative debris collected within 5 km of your burn site.
- You must meet setbacks of 500 m from residences or businesses and 1,000 m from schools, hospitals or community care facilities. Check this factsheet on how to proceed if you cannot meet these setbacks.

If you are in a High Smoke Sensitivity Zone, consider using an Air Curtain Incinerator instead of burning piles or windrows. Alternatively, if you need more days, consider using smaller piles and burning over the month on multiple separate single days where fires come to a completed end (less than 10% of the ground is smoking and no material remains.)

Burn According to Your Plan

Where agricultural open burning is necessary, many smoke-related problems result from poor open burning practices. Emissions containing particulate matter from open burning can limit visibility, release harmful gases, and aggravate respiratory conditions in susceptible individuals. The following is guidance is useful for most agricultural lands.

The Day of Your Planned Burn -**Key Points and Requirements:**

- Ensure your burn permits are in place and there is no local or provincial burn ban in your area;
- Check the Ventilation Index or call 1.888.281.2992 on the day of the burn. It must be "Good" on the day of the burn. The burn must be completed within 1 day from 2 hours after sunrise until 4 pm (or 2 hours before sunset). In High Smoke Sensitivity Zones, debris additions must stop 4 hours before sunset. A second day of burning can be added to finish the burn if the Ventilation

- Index is "Good" or "Fair" on the second day. You cannot add vegetative debris overnight. On the second day, you cannot ignite new piles and cannot add vegetative debris to existing piles. In High Smoke Sensitivity Zones, the burn must stop by 4 pm on the second day.
- Notify your neighbours and check your setback distances.
- Ensure a fire supervisor is appointed and in place for the entire length of the burn and that any necessary equipment, a water source/fire extinguishers, etc are ready and on-site.
- Ensure that no prohibited materials are included in the burn. (gov.bc.ca/ prohibited2burn).
- Remember, if your burn meets the criteria for a Category 3 burn, you must keep a written record with information about the burn for BC Wildfire Service Requirements.



Reducing Smoke

Smoke can be reduced by using the following practices when burning piles, windrows, hayfields or stubble. See the Open Burning Practices to Reduce Pollution website for more information.

Burning Piles

- Build good piles with clean, dry debris (do not include stumps, rocks, or soil) to reduce smouldering stage. If you need to burn stumps they must be broken up prior to burning. Root ball burning is prohibited. Materials cannot be more than 50 cm in diameter.
- Pile to approximately a haystack shape where the material does not splay out at the sides, and the base-to-height ratio is 1:1;
- Build piles to allow air flow and good combustion. Avoid compaction by limiting the addition of heavy materials to the top of the fire. This can cause smouldering and increased smoke.
- Allow fuel to dry (season) before burning to reduce the moisture content of the pile. Seasoned debris is defined as that which has been dried so that moisture content is less than 30%; has been put in piles for at least 4 months; or has originated from standing dead timber. Seasoned debris burns more efficiently and produces less smoke. Seasoning of vegetative debris is a requirement of the reduced set-back option under the OBSCR.
- A hot fire produces less smoke ensure the fire is burning hot and with good airflow. This may include using an accelerant to bring the fire up to a hot temperature quickly. An accelerant material is defined in OBSCR as a substance used to aid ignition or accelerate combustion of a fire. However, oil and fuel are prohibited.
- Minimize the smouldering stage, as this can contribute more than half of the total particulate emitted during the burn.
- When you've finished burning the pile, check the burn site for hot spots. Hot spots may continue to smoulder (long after the surface

- fire appears to be out) and could flare up again in the spring. The hot spots should be extinguished whereby each pile of vegetative debris should cease flaming and only be emitting smoke from no more than 10% of the surface area of the burn.
- Never leave a burn unattended and keep fire safety equipment on-hand. Maintain a patrol on your fire until it is completely extinguished.
- Use forced air technology when possible (i.e. air curtain incinerators, or other appropriate air-assist technology) as these can reduce emissions by up to 90%
- Do not burn when periods of calm, stable air or when the venting index is poor as smoke is unlikely to disperse properly and is not permitted under the OBSCR.
- Follow local smoke management plans guidelines on open burning within your municipality.
- Check the Open Burning Practices for Farmers and Ranchers factsheet published by the BC Wildfire Service for more guidance on monitoring for fire safety.

Burning Windrows

- Avoid pushing soil into windrows as this will smother the fire and cause it to burn continuously and produce more particulate pollution.
- Use a brush rake or excavator to build windrows whenever possible. This helps keep soil out of the rows and encourages better burning.
- Build the windrows perpendicular to the direction of the prevailing wind.
- Ensure that the windrows are no longer than 60 metres.
- Ensure that windrows are built no closer than 25 metres from standing timber.
- Ensure that a fire guard of bare mineral soil (a minimum of 15 metres wide) is created around all windrows.

Burning Hayfields and Crop Stubble

- Reduce the amount of dry grass and stubble on your property to help prevent a fire escaping, or to help stop a wildfire spreading to your yard. During the spring and/or fall you may need to burn in the middle of the day when grass is dry, but treed areas are still damp. In the summer, it is generally best to burn in the evening or the morning.
- Never burn in windy conditions, even if the Ventilation Index is "Good". It is harder to control the fire and may lead to escapes. If the trees are swaying, open burning you should be delaying.
- Turn over the soil near buildings before the ground freezes. Making one or two passes around the yard before putting your tillage equipment away for the winter will go a long way toward making your yard FireSmart.
- Blade or plow a fire guard (a minimum of 5 m wide) all around your burn site, right down to the mineral soil.
- Cut hayfields next to your yard as late in the season as possible to minimize regrowth or mow a strip around each building to create a fire guard.
- Burn larger fields by working on smaller sections individually, with fire guards built around each section.
- Till around the outside perimeter of pastureland. This will create a fire break that could save a field from burning or help prevent a fire spreading to other fields.
- Ensure that you have adequate supervision, manpower, equipment and water nearby to control the fire (or extinguish it if necessary).
- Never leave a burn unattended. Maintain a patrol on your fire until it is completely extinguished (the point in time when each pile of vegetative debris has ceased flaming and is emitting smoke from no more than 10% of its burnt surface area).

 Check the Open Burning Practices for Farmers and Ranchers factsheet published by the BC Wildfire Service for more guidance on fire breaks.

Be Aware of Fire and Smoke Hazards and Nuisance Concerns

Smoke open burning introduces a range of contaminants into the air including particulate matter, carbon dioxide, carbon monoxide, nitrogen oxides, and hydrocarbon compounds. Burning vegetative debris from agricultural activities can impact local air quality, climate change and can result in nuisance complaints.

Daily wind patterns should be taken into consideration for determining the timing of your burn. The middle of the day may be best in areas where downhill drafting occurs in the morning and evening.

Do not start your burn if the smoke from your burn could negatively impact a person or cause a navigation hazard by reducing visibility near highways or airports. If your burn is already in progress no more vegetative debris can be ignited or added to the burn until conditions have improved.

Any open burning should consider risks to wildfires. For example, while a windy day may present a "Good" Ventilation Index it may pose a greater risk for embers being carried and creating an out-of-control fire.

Provincial Resources for Safe Open Burning

BC Wildfire Service

Fire bans and restrictions

Burn registration line: 1.888.797.1717

Ventilation index: 1.888.281.2992

Open burning practices for farmers and ranchers

Open Burning Smoke Control Regulation

AgriService BC: 1.888.221.7141





