

# Pesticide Regulations and Safety

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This information on safe pesticide use is summarized from the “B.C. Pesticide Applicator Course for Agricultural Producers”. The course is available from (Office Products Centre at 1-800-282-7955).

## Legislation

Laws protect applicators, bystanders, consumers and the environment. You can be fined for breaking the laws.

### Canadian Laws

#### *Pest Control Products Act and Regulations*

Every pesticide used or sold in B.C. must be registered by Health Canada. Each label must have a PCP Act number on it. Using pesticides without a PCP Act number against the law.

Each label must also list the crops and pests the pesticide can be used on - eg. mushroom and sciarid fly. Using pesticides for uses not on the label is against the law. However, there are a few minor pesticide uses that may be approved but not be on the label.

Pesticides are labeled as Domestic, Commercial or Restricted. Restricted products are more hazardous and have special restrictions on the label.

#### *The Food and Drugs Act*

All foods must be free of harmful amounts of substances. Health Canada sets levels of allowable pesticide residues on crops at harvest. These levels are called maximum residue limits or MRLs. The Canadian Food Inspection Agency (CFIA) takes random samples of crops to test for pesticide residues at the time of sale. If residues are more than the MRL the crop may be seized. If you follow the recommendations on the labels and wait the required days before harvest, you should not be over the limit.

#### *The Fisheries Act and Migratory Birds Regulations*

You can be charged if you kill or harm fish or migratory birds with pesticides. This applies to creeks, rivers, and lakes on your own property as well as on public land. It is illegal to introduce pesticides into waters either directly or indirectly through spray drift or run-off.

#### *Transportation of Dangerous Goods Act*

Certain dangerous goods cannot be transported unless you use shipping documents, special labels, and vehicle signs. Ask the pesticide dealer if the product that is bought needs special transport procedures. Growers are usually exempt from this when they are transporting less than 500 kg of pesticide.

## British Columbia Laws

### *Integrated Pest Management Act and Regulations*

B.C. Ministry of Environment also has rules about the sale and use of pesticides in B.C.

Rules that apply to farmers include:

1. Pesticides labeled “Restricted” or “Commercial” must be kept in locked storage that is vented to the outside and has a warning sign on the door.
2. Anyone buying or using pesticides labeled “Restricted” must have an applicator certificate.
3. WorkSafeBC regulations require that a grower spray record is kept and that re-entry requirement are listed. See spray record sheets in this guide.
4. An authorization such as a pesticide use licence, pest management plan or permit is required to apply pesticides to public land. Contact the regional Ministry of Environment office for details.
5. Businesses selling pesticides must be licenced and their sales people must be certified.
6. Anyone applying pesticides in exchange for a fee must have an applicator certificate and a Pesticide Use Licence. But, if you spray your neighbour’s crops you do not need a licence if the work is done as a favor and no money is exchanged.
7. Everyone must dispose of containers and left-over pesticides safely.

### *WorkSafeBC (formerly: Workers’ Compensation Board)*

WorkSafeBC Regulations for Occupational Health and Safety apply to farmers who must be registered by WorkSafeBC. If you are unsure whether they apply to you, call WorkSafeBC at 1-888-621-7233. FARSHA (Farm and Ranch Safety and Health Association) at 1-877-533-1789 can also provide information on WorkSafeBC regulations.

The WorkSafeBC regulations cover conditions of workplaces such as general safety procedures, hazardous substances, pesticides, confined spaces

such as silos and storage bins, protective clothing and equipment, tools, machinery and equipment, and animal handling.

The regulations on pesticides outline requirements for pesticide applicator certification, emergency medical care, washing facilities, personal protective clothing and equipment, application equipment, pesticide application, posting warning signs, re-entry into treated areas, and record-keeping. Copies of the regulations are available from any WorkSafeBC office.

Their pesticide regulations state that workers must be over 16 years old and must have a valid pesticide applicator certificate from the BC Ministry of Environment if they mix, load or apply moderately toxic or very toxic pesticides; or if they clean or maintain application equipment for these pesticides. It also identifies which pesticides can only be used by certified applicators. Anyone under the age of 25 years is considered a young employee and must complete a “new or young employee” orientation. FARSHA (1-877-533.1789) can help develop or present a program for your farm.

[Refer to the regulations for the rest of WorkSafeBC’s requirements.]

[The Farm and Ranch Safety and Health Association (FARSHA) can provide information on WorkSafeBC regulations.]

## Toxicity

Some pesticides are more poisonous or toxic than others. The ratings are: very toxic, moderately toxic and slightly toxic. They indicate short term toxicity and are based on the LD<sub>50</sub> of the active ingredient. The LD<sub>50</sub>s which correspond to the categories are:

Toxicity	Oral LD <sub>50</sub> (mg/kg)	Dermal LD <sub>50</sub> (mg/kg)
Very toxic	0 to 50	0 to 200
Moderately toxic	51 to 500	201 to 1,000
Slightly toxic	over 500	over 1,000

*The values are only a guide to the toxicity to humans.*

## Pesticide warning shapes and symbols

Pesticide warning symbols and shape on chemical labels show the hazards of the product. The symbols on the labels are:

### *most poisonous*



DANGER POISON

- very poisonous
- (oral LD<sub>50</sub> less than 500)
- always wear a respirator
- always wear eye protection



WARNING POISON

- moderately poisonous
- (oral LD<sub>50</sub> 500 to 1000)
- wear a respirator in confined spaces
- always wear eye protection

### *less poisonous*



CAUTION POISON

- slightly poisonous
- (oral LD<sub>50</sub> over 1000)
- wear a respirator in confined spaces
- could be an eye irritant, eye protection advisable

### *most flammable*



DANGER  
EXTREMELY  
FLAMMABLE



WARNING  
FLAMMABLE

### *less flammable*



CAUTION  
FLAMMABLE

### *most corrosive*



DANGER  
EXTREMELY  
CORROSIVE



WARNING  
CORROSIVE

### *less corrosive*



CAUTION  
CORROSIVE

## Hazard Shapes and Symbols

Shapes and symbols on pesticide labels tell how harmful a pesticide can be. The shapes indicate how hazardous the product is. The symbols inside the shapes show the type of hazard. If symbols are not on labels, the pesticide has very low hazard.

## Exposure

Pesticides can enter the body through the skin (dermally), the mouth (orally), the nose (inhalation), or the eyes. The skin is the most

common route of poisoning for pesticide applicators. Skin contact may occur from a splash, spill or drift. The skin is most likely to get contaminated when mixing and loading pesticides.

## Hazard

The hazard of using a pesticide depends on both its toxicity and the amount of exposure. Reduce hazards by choosing pesticides with low toxicity and by reducing exposure. Wear protective gear and follow safety guidelines.

## Poisoning and First Aid

### Symptoms of Pesticide Poisoning

Know the poisoning symptoms of the pesticides you use. Read pesticide labels for symptoms. Effects from pesticide poisoning vary from person to person and are often hard to recognize. Some poisoning symptoms are headache, tiredness, nausea, dizziness, irritation of the skin or nose or throat, blurred vision, tiny pupils, trembling, perspiration, difficulty breathing, vomiting, and unconsciousness. Call the Poison Control Centre or a doctor immediately if you suspect poisoning. Follow their instructions.

### Poison Control Centres

Poison Control Centres are open 24 hours a day. They give first aid information and treatments for poisoning.

The phone number of Poison Control Centre is in the front of the phone book under Emergencies.

### First Aid

Make sure you and other people working on the farm know what to do in case of an emergency. Consider taking a first aid course and CPR course.

If someone has been poisoned:

1. Protect yourself.
2. Move the victim from the area of contamination.
3. Check if the victim is breathing. If breathing has stopped or is very weak, clear the airway and begin artificial respiration. Continue until the victim is breathing normally or until medical help arrives. **When doing mouth-to-mouth resuscitation, use a plastic mask to protect yourself from poison.**
4. Call the Poison Control Centre (1-800-567-8911) or ambulance. Be ready to tell them the pesticide name, active ingredient and PCP Act registration number.
5. Unless the Poison Control Centre or doctor tells you otherwise, follow the procedures listed below, then;
6. Transport the patient to the nearest hospital.

If a pesticide contacts the eyes, put on waterproof gloves and hold the eyelids open and rinse with clean water for 15 minutes or more. Do not use an eye cup. Do not use chemicals or drugs in wash water.

If pesticide contacts the skin, put on waterproof gloves, remove the contaminated clothing, and wash the affected area of the skin with lots of soap and water. Cover burned area with a loosely applied, clean cloth. Do not apply any drugs or medications to the burned area. Do not use ointments, greases, creams, lotions or other drugs. If the victim is in shock, keep the person lying down and warm until medical help arrives.

If pesticide was breathed in, take the victim to fresh air as quickly as possible; loosen tight clothing and watch for signs of unconsciousness or convulsions. Keep the airway open and begin resuscitation if breathing has stopped or is difficult. Use a plastic face mask to protect yourself. To prevent chilling, wrap the patient in blankets but do not overheat. Keep patient as quiet as possible.

If a pesticide is swallowed:

- If a person is conscious and able to swallow, give them 1/2 to 1 glass of milk or water. Larger quantities may cause vomiting.
- Do not induce vomiting.
- Call the Poison Control Centre at 1-800-567-8911 for further advice.
- If the patient is retching or vomiting, place the patient face down with their head lower than their body in the recovery position. This prevents vomit from entering the lungs and causing more damage. Do not let the patient lie on their back. Clean the vomit from the patient and collect some in case the doctor needs it for chemical tests.
- When medical advice cannot be obtained, check and follow the pesticide label for directions.
- The doctor may recommend activated charcoal be administered to adsorb any remaining pesticide in the stomach. Follow the doctor's instructions. Activated charcoal should be administered only with the advice of a medical attendant or doctor.

## Protective Clothing and Equipment

Wear protective clothing and equipment to minimize exposure to pesticides. **Remember to wear safety equipment during mixing and loading, application, and clean-up.** Always wear coveralls, waterproof boots, waterproof gloves, and a proper hat. You may also need to wear eye or face protection, respirator, waterproof apron, waterproof pants and jacket. The equipment you wear depends on the pesticide and type of application. Therefore, follow the safety recommendations on the pesticide label.

### Coveralls

Wear long sleeved coveralls over full length pants and long-sleeved shirts. Make sure the coveralls are closed at the neckline and wrists. Remove your coveralls as soon as you have finished your pesticide activities. Remove them immediately if they become wet through with pesticide. Wear waterproof clothing if you might get wet during pesticide application.

Some disposable coveralls are suitable for pesticide use. Check with your supplier to see which ones can be used for pesticide application. **When removing disposable coveralls, take care not to contaminate the inside** if you will wear them again. Between wearing, **hang them in a well ventilated area away from other clothing.** Do not launder disposable coveralls but do wash clothing worn under disposable coveralls as you would other clothing worn during pesticide use. Replace with a new coverall when severe pilling (balls on the surface), rips or holes appear. **To discard, place in a plastic garbage bag and take to a landfill site.** Do not burn.

### Gloves

Always wear gloves when handling pesticides. Many glove materials are available. Use **unlined water-proof gloves** unless the pesticide label recommends a specific material. Do not use gloves made of leather, cloth, or natural rubber or gloves with cloth linings. Make sure the gloves do not have holes or leaks. **Keep your coverall sleeves over the gloves and fold down the tops of the gloves to make cuffs.** Wash your gloves before removing them and after each use.

### Boots

Wear waterproof, unlined knee-high boots of rubber or neoprene when you load, mix or apply pesticides. **Wear your pant legs outside of your boots.** Do not wear boots made of leather or fabric. Wash the outside of your boots after each use.

### Goggles and Face Shields

Wear goggles if there is a chance of getting pesticide spray or dust in your eyes. Do not use goggles with cloth or foam headbands. Do not wear contact lenses when handling pesticides. Face shields provide extra protection when mixing and loading toxic pesticides. Wash goggles and face shields after use.

### Hats

Wear a waterproof hat when pesticides may be splashed or when you could be exposed to drift. Wear a wide brimmed waterproof hat when you will get wet with spray. Do not wear baseball caps, fabric hats, or hats with leather or cloth inner bands.

### Aprons

Wear a waterproof apron when you pour and mix concentrated pesticides.

### Respirators

Wear a respirator when the label says to wear one; or when the label says to avoid inhalation of dust, vapour, or spray mist; or if there is a danger poison symbol on the label; or if you are applying pesticides in an enclosed space. Make sure your respirator fits. Men should shave before using a respirator as facial hair prevents a proper fit.

Full face respirators give more protection and may be more comfortable than a half face mask and goggles.

Do not use dust masks when applying pesticides. They do not protect you from the fumes.

Special respirators must be worn when using a highly toxic fumigant such as formaldehyde. Check the label for details.

Respirators must be approved by NIOSH or an agency sanctioned by the WorkSafe BC (previously Workers' Compensation Board). The cartridges remove toxic fumes from the air. Cartridges labeled for organic vapours or pesticides are needed for most pesticides. Filters remove dust and mist. Both filters and cartridges must be replaced regularly for the respirator to work.

When using respirators:

- Check the intake and exhaust valves.
- Make sure there are no air leaks around the face mask. Do an inhalation or exhalation test.
- Change the dust filter after 4 hours of use or more often if breathing becomes difficult.
- Change the cartridges after 8 hours of use or sooner if you can smell the pesticide. Replace cartridges at least once a year, and more often if you use them frequently.

## Cleaning Protective Clothing and Equipment

After application wash your gloves, boots, goggles, faceshield and apron. Wash your respirator face piece with soap and warm water. Then rinse it with clean water and dry it with a clean cloth. Keep the cleaned respirator in a plastic bag in a clean, dry place. Store the respirator and protective clothing away from pesticides and spray equipment.

Discard any clothing that has become soaked with a pesticide.

Launder all your clothing after each day of applying pesticides. Wash protective clothing separately from the rest of the laundry. Do not touch contaminated clothing with bare hands. Use rubber gloves. Pre-rinse clothing using the presoak cycle. Use a high water level and the hottest water setting on your machine. Use a heavy-duty detergent.

If clothes are heavily contaminated, run two complete cycles. Hang clothes outside to dry in the sunlight if possible. Clean the washing machine by running it through a full cycle with detergent and no clothes to remove any pesticide residue.

# Personal and Environmental Safety Guidelines

## Buying Pesticides

- Make sure the pesticide is registered for your specific use (crop and pest).
- Buy only what you can use up in a year.

## Transporting Pesticides

- Never transport pesticides with food, feed, fertilizer, clothing, or household goods.
- Lock up the pesticides if you leave your vehicle.
- Never transport pesticides in the passenger section of any vehicle.
- Ask the supplier if you need shipping papers and vehicle warning signs.

## Storing Pesticides and Shelf Life

Pesticides vary in their stability and response to storage conditions. Try to only purchase quantities of pesticides that can be used up in one growing season. However, under proper storage conditions most pesticides can be used after at least one year of storage. Follow these guidelines for storage:

- The law says "Commercial" and "Restricted" pesticides must be kept in locked storage that is vented to the outside and that has a warning sign on the door.
- Store pesticides in their original container with the original label. If a label is illegible or missing, label it with the trade name, active ingredient, quantity in the container and PCP number. Then obtain a replacement label from your dealer or the PMRA website [http://pr-rp.pmra-arla.gc.ca/portal/page?\\_pageid=34,17551&\\_dad=portal&\\_schema=PORTAL](http://pr-rp.pmra-arla.gc.ca/portal/page?_pageid=34,17551&_dad=portal&_schema=PORTAL).
- Never keep pesticides near livestock, food, feed, seed, wells, water supplies, or in your home.
- Pesticide storage should be 30.5 metres from any well.
- Keep herbicides separate from other pesticides.

- Return pesticides to storage when not in use.
- Keep a list of the pesticides in storage.
- Protect the pesticides from extreme temperatures. Some liquid pesticides are destroyed by freezing.
- Close containers when not in use.
- Dispose of unwanted, unmarked and damaged containers.
- Keep containers above floor level to protect from dampness and flooding.
- Post emergency numbers nearby.
- Keep a fire extinguisher, broom and shovel, absorptive material, and protective clothing nearby in case of emergencies.

### Mixing and Loading Pesticides

- Wear protective clothing and equipment.
- Read and follow label directions.
- Choose a mixing and loading site away from people, livestock, pets, wells, and water bodies.
- Measure accurately.
- Do not rip open paper pesticide bags. Slit them open with a sharp knife.
- Mix pesticides in still or low wind conditions. Stand upwind of the pesticide.
- Hold the container below eye level when measuring or adding pesticide into the spray equipment.
- Only use mixing equipment for pesticides and return it to locked storage when not in use.
- Triple rinse pesticide containers as soon as they are empty. Rinse measuring and mixing equipment. Put rinse water into the sprayer.
- Use clean water. The pH of the water should be from 5.0 to 7.0.
- Prevent overflow. Don't leave the tank unattended.
- Prevent contaminating the water supply by leaving at least a 15 cm air gap between the end of the filler hose and the water in the spray tank. You can also use a backflow preventer valve.

### Applying Pesticides

- Read and follow label directions.
- Use calibrated application equipment.
- Use the label or production guide rate.
- Wash before eating, drinking, smoking, or using the toilet.
- Have fresh water and emergency supplies on hand.
- Make sure the area to be treated is clear of people and animals.
- Don't work alone when handling very toxic pesticides.
- Post warning signs if necessary to keep people out of treated areas.
- Use separate equipment for applying herbicides.
- Cover or remove animal food and water containers near the treatment area.
- Wear gloves to replace or clean plugged nozzles. Do not blow out a plugged nozzle or screen with your mouth. Use a soft brush or toothpick.
- Shut off the spray nozzles when you turn and stop the flow of granulars at the end of rows.
- Pesticides must be registered for chemigation before they can be applied through irrigation systems. Therefore only apply pesticides through the irrigation system when the label has instructions for chemigation. If chemigation is used, follow "Chemigation Guidelines for B.C." This publication is available from BCMAL.
- Use and maintain speed chosen during calibration.
- When applying pesticides outside, prevent pesticides from contaminating non-target areas. Leave an untreated area around lakes, streams, ditches, and wells. Spray downwind from sensitive areas.

## After Applying Pesticides

- Clean equipment away from water supplies.
- Remove and clean protective clothing and equipment.
- Shower.
- Keep records of every application.

## Disposal of Unwanted Pesticides

- Calculate the amount needed so none is left over.
- Do not re-spray an area to get rid of leftover spray.
- Apply left over material according to label directions on another site. Do not put unwanted pesticides into sewers, down drains, or on the land.
- Contact the regional office of the B.C. Ministry of Environment or BCMAL for information on the disposal of unwanted pesticides.

## Disposal of Containers

- Drain the container into the spray tank for at least 30 seconds or shake out the bag.
- Triple or pressure rinse drums, glass bottles, plastic and metal containers. Single rinse plastic and paper bags.
- Put the rinse water into the spray tank.
- Crush, puncture or damage empty containers so they cannot be re-used.
- Return the containers to your pesticide storage until you can take them to a public dump, back to the supplier, or to a collection site. Containers can be buried on your land 0.5 metres below the surface. The burial site must be flat, not a bog, gravel or sandy soil and at least 200 metres from wells, lakes, rivers, streams or ponds.
- Do not burn pesticide containers.

## Re-entry Restrictions

Poisoning may occur when people work in treated areas too soon after pesticides have been used. Such poisoning may be from breathing pesticide fumes or handling treated mushrooms. Warn farm workers of areas recently sprayed.

Some pesticide labels tell when treated areas can be re-entered. Follow these directions.

When there are no re-entry times on a pesticide label, follow the Workers' Compensation Board regulations. They state people may not enter a treated field until they have waited the following re-entry or restricted entry intervals:

- 24 hours for a slightly toxic pesticides;
- 48 hours for moderately or very toxic pesticides.

If a person needs to enter a treated area before the re-entry period is over, wear protective gear. Farmers must post a sign to tell workers when they can enter the area. The sign must state the application date and the re-entry time. FARSHA gives out signs to use.

## Grazing Restrictions

If animals are to graze a treated area, check the pesticide label for grazing restrictions. Wait the required time before grazing.

## Harvesting Restrictions

Wait the pre-harvest interval (days to harvest) before harvesting to avoid illegal pesticide residues on crops. Pre-harvest intervals are on labels.

## Special Environmental Precautions

### Buffer Zones

Many pesticide labels now have buffer zone information. Buffer Zones are strips of land next to sensitive areas that cannot be treated with a pesticide (see figure below). The purpose of the buffer zone is to protect sensitive areas from pesticide drift. Applicators are required to leave a buffer zone when the label says to. Labels will tell you what sensitive areas must be protected and the size of the buffer zone. Labels may require protection of water bodies (aquatic) or planted areas (terrestrial).

### Protecting Fish and Other Wildlife

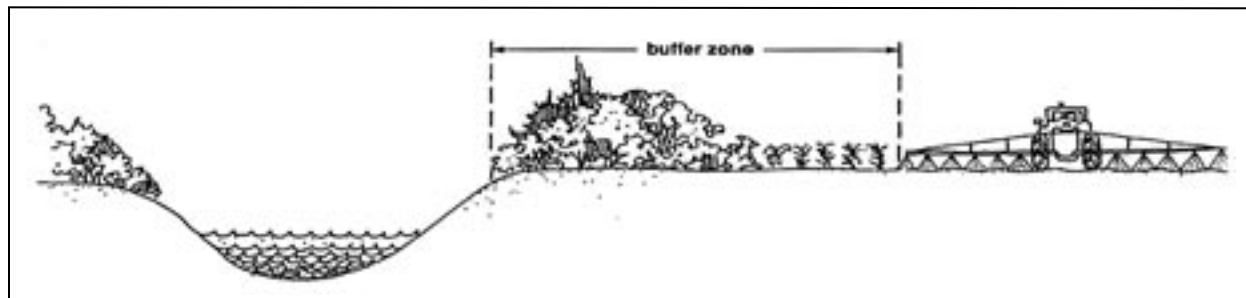
All insecticides, as well as some fungicides and herbicides, are very toxic to fish. Insecticides are also toxic to birds and wildlife. Exposure to trace amounts of these pesticides may kill fish or birds. Destroying the vegetation along fish-bearing water harms fish by removing food and shelter.

Protect fish and wildlife from pesticide poisoning by following label precautions.

### Protecting Bees and Beneficial Insects

Bees and other pollinating insects are essential for the production of many crops. Some other insects help control pests. Many pesticides, particularly insecticides, are very toxic to honeybees, wild bees, and beneficial insects.

#### Buffer Zones



## Protecting Groundwater

Groundwater is the source of water for wells and springs. It is very difficult to clean contaminated groundwater. The best solution to groundwater contamination is prevention.

Groundwater contamination is most likely to occur where soils are gravelly or sandy, the water table is close to the soil surface, there is high rainfall or extensive irrigation, or the pesticide is injected or incorporated into the soil. Pesticides that are persistent in the soil, are weakly absorbed and leach quickly, or are highly soluble may contaminate groundwater.

Remember to avoid spills, drift, and irrigation run off and to properly dispose of unwanted pesticides and empty containers. Never store pesticides near wells or pumphouses and guard against leaking containers.

Well construction, maintenance and location can be factors in contamination. Maintain proper seals between pump and pump base, as well as seals between well casings.

## Streamside Protection

Growers are encouraged to examine their farm activities and modify any practices that could put fish habitats at risk. Some areas where risk may occur include the use of pesticides, fertilizer, manure and woodwaste.

## Emergency Response

- Keep the phone numbers for Poison Control Centre, doctor, ambulance, and Provincial Emergency number for dangerous goods spills nearby (1-800-663-3456). The Poison Control Centre phone number is in the front section of the telephone book.
- Have protective gear and equipment easily available.
- Keep absorptive material, a container for contaminated waste, tools to pick up contaminated material, bleach, and hydrated lime available.

## Spills

- Protect yourself.
- Keep bystanders away.
- Don't eat, smoke or drink during clean-up.
- Work upwind of the spill.
- Contain the spill. Surround and cover with absorbent material.
- Clean up the spill.
- Decontaminate the area using bleach or detergent. Absorb excess liquid with absorbent material.
- Put absorbent material in the special waste container and seal it.
- Remove and wash protective gear. Shower.
- If you need help, call the Provincial Emergency number (1-800-663-3456).
- All spills greater than 5 kg or 5 L must be reported to the Provincial Emergency Program (1-800-663-3456).

## Fires

Fires involving pesticides can be very dangerous. Burning pesticides may release toxic fumes that are poisonous to firefighters, bystanders, and animals or contaminate the environment. Pressurized containers can explode. Pesticides can spill out of containers damaged by the fire. Runoff from fighting a fire can contaminate a larger area.

Ahead of time, give your fire department a list of all pesticides in storage (brand names, active ingredient, PCP #'s and quantity remaining). Update the list each year.

In case of a fire, call the fire department and tell them there is a fire involving pesticides. Keep people and animals away from the fire.

For more information on practices to reduce the potential of fires and dealing with fires involving pesticides see the BCMAL Pesticide Wise website:

[www.al.gov.bc.ca/pesticides/g\\_5.htm](http://www.al.gov.bc.ca/pesticides/g_5.htm)