

TECHNICAL NOTES

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USING PESTICIDES SAFELY

(Summarized from Daniels, C.H., "Pesticide Safety, Toxicity, Worker Protection", PNW Insect Management Handbook and PNW Weed Management Handbook, 2006)

Introduction

The single most important approach to pesticide safety is to read the pesticide label before each use and follow the directions. If still in doubt after reading the label, contact a person qualified to help in evaluating the hazard of the chemical and its use. Qualified people include appropriate Extension specialists and county agents and product representatives. The Idaho State Department of Agriculture (ISDA) has prepared a brochure to help you interpret pesticides labels, available for download at:

http://www.agri.state.id.us/Categories/Environment/water/waterPDF/factSheets/pesticides/label_brochure.pdf.

Each season there are accidents, and in some years, deaths attributable to pesticide misuse. Many pesticides are toxic and should be handled with care—but even the most toxic can be used safely if recommended precautions are followed. Follow all label requirements and strongly consider any recommendations for additional, personal protective clothing and equipment. In addition to reading and following the label, safe and effective use of pesticides is determined by the pesticide applicator's common sense, qualifications and good attitude.

In case of accidents involving pesticides, see your doctor at once. The doctor will need to know exactly which pesticide is involved. The label on the container gives this information. Take the pesticide label or information from the label—the product name, EPA registration number, common name and percentage of active ingredient, and first aid instructions—to the physician. If the label cannot be removed, take along the pesticide container (if not contaminated), but do not take it into the hospital or doctor's office.

General Precautions for All Pesticide Users

- If you plan to apply any of the more dangerous pesticides, make sure your physician knows the types of compounds you are using.
- Follow all requirements for personal protective clothing and equipment listed on the pesticide label. Bathe and change clothing daily. Separately launder clothing used during pesticide application or handling.
- Wear a respirator when loading or mixing concentrates and whenever pesticides may be inhaled.

- Recycle or dispose of pesticide containers properly (see Agronomy Tech Note 33).
- Keep your pesticide storage shed or room locked.
- Do not smoke, chew tobacco or eat while handling pesticides. Wash hands before engaging in these activities and before using the bathroom.
- Mix pesticides according to directions and apply them precisely at the recommended rate.
- Poisoning occurs most often in hot weather, when applicators might not be wearing all the personal protective equipment (PPE) the label requires. PPE is not a choice. However, you should take extra care when wearing PPE during hot weather to avoid heat-related illnesses.
- Cover crops treated with most pesticides should not be used as pasture or be fed to livestock unless stated otherwise on the label.
- Agricultural workers should not eat unwashed, chemically treated fruit or vegetables in the field. The time limits from application to harvest (pre-harvest intervals or PHI) are to protect the consumer from harmful residues. Disregarding these limitations presents a special hazard to the picker, grower and field person.

Worker Protection Standards (WPS) for Agricultural Pesticides

The U.S. Environmental Protection Agency (EPA) in 1992 issued new regulations pertaining to the Worker Protection Standard for Agricultural Pesticides (WPS). The WPS is designed to protect employees on farms, forests, nurseries and greenhouses from occupational exposure to agricultural pesticides. The WPS covers both restricted-use and general-use products, and requires the registrants of pesticides to add label references to the WPS and to list specific application restrictions and other requirements.

The WPS regulations provide good guidelines for all individuals who work with and/or near pesticides:

- Minimize worker/handler exposure to pesticides
- Mitigate for any exposures
- Inform workers/handlers/others about the hazards of pesticides

Minimize Pesticide Exposure

- Protection during applications —Handlers are prohibited from applying pesticide in a way that will expose workers or others. Workers must be kept out of areas while pesticides are being applied, and during the restricted-entry interval (REI). The restricted-entry interval is the time between the end of pesticide application and the time when the treated area is safe to access. REIs are specified on all agricultural pesticide product labels. The REI for a given product may be different for different crops, different climates, different crop activities (irrigation, pruning, etc.) or different application methods. In general, REIs are:
 - a. 48 hours for pesticides with DANGER labels
 - b. 24 hours for pesticides with WARNING labels
 - c. 12 hours for pesticides with CAUTION labels
- Personal Protective Equipment (PPE) —The employer is required to provide and maintain PPE for handlers and early-entry workers. The handlers and workers must be provided a place to remove, clean and store PPE and to clean themselves (see list of PPE in the section below).

Notification of workers —Employers must notify workers about treated areas so that workers can avoid exposure. Information about recent applications must be posted in a central location at the workplace. Workers can be notified of applications orally or by posted signs. Signs must be posted at all the entry points of treated fields, forests or greenhouses.

Mitigate Pesticide Exposure

- Decontamination —Employers must provide, for handlers and workers who handle anything that may have been treated with pesticides, a place to clean up after work. For handlers mixing pesticides, there must be a clean-up site at the mixing site.
- Emergency assistance —Employers must make transportation available to take a worker injured by pesticides to an emergency medical facility. The employer must also provide the medical professionals with the label(s) of the product(s) used and the circumstances of the exposure.

Inform Employees about Pesticide Hazards

- Pesticide safety training —Training, by a state-certified or other qualified trainer, must be given to all workers and handlers. Handlers and workers must be trained every 5 years.
- Pesticide safety poster —The WPS requires posting a pesticide safety poster with a list of emergency phone numbers and procedures.
- Access to pesticide label information —The WPS requires that pesticide handlers and early-entry workers be informed of pesticide label safety information.
- Access to specific information —Employers must post, in a central area accessible to all workers, specific information about pesticide treatments on that workplace. This information must be accessible to employees for at least 30 days after each pesticide application.

Penalties for Noncompliance

The Worker Protection Standard contains penalties for noncompliance. They are similar to penalties for using pesticides in a way that is inconsistent with the label. Most states and tribes can enforce their own laws and regulations and have their own penalties. Contact the Idaho Department of Agriculture, Pesticide Bureau (208-332-8500) for more information.

Personal Protective Equipment (PPE)

Apparel and devices worn to protect the body from contact with pesticides or pesticide residues include the following:

- Coveralls
- Chemical-resistant suits, gloves, footwear, aprons and headgear
- Protective eyewear
- Respirators

While the following attire is not defined as PPE, the labeling might require pesticide handlers or early-entry workers to wear it for some tasks:

- Long- and short-sleeved shirts
- Long and short pants
- Shoes and socks
- Other items of regular work clothing

If such non-PPE attire is required, the employer must make sure that it is worn.

For more information on the Worker Protection Standard and safety, visit EPA's worker safety website at <http://www.epa.gov/pesticides/health/worker.htm> or the Idaho State Department of Agriculture at:

http://www.agri.state.id.us/Categories/Pesticides/workerProtection/indexworker_protection.php

What to Do for Poisoning

Specific first-aid instructions can be found on the pesticide label. Get needed medical advice quickly by calling your Poison Center (toll free) at **800-222-1222** or by calling a physician if you or any of your fellow workers have unusual or unexplained symptoms starting at work or later the same day. Do not let yourself or anyone else get dangerously sick before calling your physician or going to a hospital. **It is better to be overly cautious than to delay or be too lax.** The EPA maintains a handbook that provides the toxicology, signs and symptoms of poisoning and treatment for 1,500 pesticides. It is available for download at:

<http://www.epa.gov/pesticides/safety/healthcare/handbook/handbook.htm>.

If labeling instructions are not available, follow these general guidelines for first aid.

- **The best first aid in pesticide emergencies is to remove the source of pesticide exposure as quickly as possible.**
- First aid is the initial effort to help a victim while medical help is on the way. If you are alone with the victim, make sure the victim is breathing and is not being further exposed to the pesticide before you call for emergency help. Apply artificial respiration if the victim is not breathing. **Do not become exposed to the pesticide yourself while trying to help.**
- **Pesticide on the skin** —Drench contaminated, exposed skin with plenty of water. Remove personal protective equipment and contaminated clothing. Wash skin and hair with a mild detergent and water. Dry victim and keep him/her comfortable.
- **Pesticide in the eye** —Wash the eye quickly but gently with clean running water. Rinse eye for 15 minutes or more.
- **Inhaled pesticide** —Get victim to fresh air immediately. Loosen tight clothing on victim that would constrict breathing. Apply artificial respiration if breathing has stopped or if the victim's skin is blue. If pesticide or vomit is on the victim's mouth or face, avoid direct contact and use a shaped airway tube, if available, for mouth-to-mouth resuscitation.
- **Pesticide in mouth or swallowed** —Rinse mouth with plenty of water. Do not induce vomiting or give high-potency activated charcoal unless a physician or the label tells you to do so.
- **Induce vomiting only if the label indicates.** Position the victim face down or kneeling forward and carefully put a finger or the blunt end of a spoon at the back of the victim's throat.
- Do not induce vomiting if the victim is unconscious or convulsing or if the victim has swallowed a corrosive poison or an emulsifiable concentrate or oil solution.
- **Atropine should be administered only by a physician.** It can be poisonous if misused and can mask the symptoms of poisoning, thus delaying proper treatment.
- **First-aid kit** —A properly equipped portable first-aid kit can be important in a pesticide emergency. Make sure one is available at each work site.

How to Handle Spills Safely

The best way to handle a spill is to prevent it from happening. Review your process for using, transporting and storing pesticides to identify areas for additional training or precautions. Know the necessary actions to take if a spill should occur. Prior training on how to limit a spill and then safely clean it up is invaluable. Accidents most commonly happen when pesticides are being transported or when pesticide containers have leaked in storage. Pesticide spills require immediate action. Keep a spill cleanup kit immediately available at all locations where pesticides are handled, transported or stored because you will not have time to locate all the necessary items before a significant amount of contamination has occurred. Important items in a typical spill kit include the following:

- Telephone numbers for emergency assistance
- Personal protective clothing and equipment as required by the label, including:
 - Sturdy gloves, footwear and aprons that are chemically resistant to most pesticides, such as foil-laminate gear
- Protective eyewear
- An appropriate respirator, if any of the pesticides require the use of one during handling activities or for spill cleanup
- Containment “snakes” to confine the leak or spill to a small area
- Absorbent materials such as spill pillows, absorbent clay, dry peat moss, sawdust, “kitty litter,” activated charcoal, vermiculite or paper to soak up liquid spills
- Sweeping compound to keep dry spills from drifting or wafting during cleanup
- A shovel, broom and dustpan made from non-sparking and non-reactive material (foldable brooms and shovels are handy because they can be carried easily)
- Heavy-duty detergent
- Fire extinguisher rated for all types of fires
- Any other spill cleanup items specified on the labeling of any products regularly used
- Sturdy plastic container that will hold the entire volume of the largest pesticide container being handled and that can be tightly closed
- Highway flares (don't use around flammable material!)

Stopping large leaks or spills is often not simple. If you cannot manage a spill by yourself, get help. Even a spill that appears to be minor can endanger you, other people and the environment if not handled correctly. Never leave a spill unattended. When in doubt, get help. A good way to remember the steps for a spill emergency is the “three Cs”: Control, Contain, Clean up.

- **Control the spill situation:** Protect yourself, stop the leak, protect others and stay at the site.
- **Contain the spill:** Confine the spill, protect water sources, absorb liquids and cover dry materials.
- **Clean up:** Clean up the spill, decontaminate the spill site, neutralize the spill site, decontaminate equipment and decontaminate your PPE.

Reporting Spills

When you need assistance, report pesticide spills as well as pesticide-related fires and poisonings first to 9-1-1 for immediate response. If the spill is large or particularly hazardous, also contact the Idaho Bureau of Homeland Security at 1-800-632-8000. Additional help with chemical emergencies, including pesticide emergencies involving spills, leaks, fires or exposures, can be obtained from the Chemical Transportation Emergency Center: CHEMTREC (800-424-9300).

Resources

- Regional Poison Center for Idaho: 800-222-1222
- Idaho Department of Agriculture (208-332-8500):

Pesticide Training and Certification

<http://www.agri.state.id.us/Categories/Pesticides/licensing/indexPestLicenseMain.php>

Workers Protection Program

http://www.agri.state.id.us/Categories/Pesticides/workerProtection/indexworker_protection.php

- University of Idaho Pesticide Safety Resources
<http://www.ag.uidaho.edu/pmc/programs/psp.htm>
- US EPA Pesticides Program
<http://www.epa.gov/pesticides/>