Pesticides include natural and man-made substances such as insecticides, herbicides, fungicides, disinfectants and rodenticides. They are used to help control, destroy or repel destructive pests such as insects, weeds, plant disease organisms, germs and rodents.

Pesticides can increase the quality and quantity of our food supply, prevent disease and improve the comfort and aesthetics of our environment. The use of pesticides is not without risks. It is the responsibility of every pesticide applicator to prevent harm from occurring to humans, pets, livestock, wildlife or the environment.

Is a Pesticide Necessary?

- Identify the problem and the pest. Is controlling it necessary? Will it cause unacceptable damage? Consider all control options including alternatives to pesticides such as hoeing, hand weeding, excluding the pest with barriers, sanitizing the area, and/or removing food, water or cover for the pest.

Choose the Right Pesticide

- Choose the lowest toxicity pesticide that can be used legally on the target area, crop or plant and that will safely and effectively control the pest.
- Plan ahead and buy no more pesticide than you need.
- Keep pesticides separate from other items in a shopping cart, and make sure they are wrapped in a separate bag at the checkout stand.
- Transport pesticides in the trunk of the car instead of the backseat to avoid contaminating the car interior in case of breakage.
- Make sure you have the proper safety and application equipment available and know how to use it.

First Aid

Always read the first aid information on the label before applying the pesticide, in order to know what to do in case of accidental contact with the skin or eyes. When seeking medical help, always bring the pesticide label.

- Skin exposure: Drench the skin and clothing with water, then remove all contaminated clothing and wash skin thoroughly with soap and water. Wash hair and fingernails thoroughly, also.
- Eye contact: Rinse eyes immediately with a stream of clean water and continue rinsing for 15 minutes. Victim should blink as much as possible.
- Inhalation: Get to fresh air immediately. Begin artificial respiration if the victim isn’t breathing. Seek medical help.
- Ingestion: Check the product label to see if inducing vomiting is recommended. Sometimes vomiting is necessary.

For more information about safe pesticide use, contact your county extension office.

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For more information on this and other topics, see: www.ag.ndsu.edu

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Dealing with Spills

- Don’t leave the spill unattended. Send someone else for help.
- Keep people, especially children, and pets upwind and away from the spill.
- Protect yourself by wearing AT LEAST the protective clothing and equipment listed on the pesticide label.
- If indoors, ventilate the area with fans, and open windows and doors.
- Try to confine the area of the spill. Use a non-flammable absorbent material such as cat litter to soak up the spill.
- Place the material in a non-corroding container such as a plastic bucket with a tight-fitting lid.
- Seal the container and label it with product name, amount and absorbent material used. In some communities, the product will need to be safely stored until the community holds a hazardous waste collection.
- Rinse the area several times with water and rags. Wash the area to remove traces of the product. Don’t use household equipment to clean the spills, as this equipment will need to be discarded to avoid contamination of your household.
- Do not pour remaining chemicals down the drain. Bathroom cleaning products, pesticides and food are to be treated as hazardous solids.
- Peel fruits and vegetables to remove residues from the surface. If you want to eat the fiber-rich peelings, scrub the produce well.
- Use up, swap or wrap the following in newspaper and save for a hazardous waste collection: pest strips, pet collars, pet shampoos and pet dusting powders.

Disposal of Pesticides

- Never put potentially hazardous waste, such as pesticides, directly in the garbage.
- Check if your community has a household hazardous waste collection program. If you have questions about disposal, look in the yellow pages of the phone directory under “Waste Disposal – Hazardous” or contact the Waste Management Division of the North Dakota Department of Health (701-225-5166).
- Share remaining pesticides with someone who can use them as intended.
- Don’t pour remaining chemicals down the drain. Bathroom cleaners, however, can be flushed down the drain with plenty of water.
- Evaporate solvent-containing pesticides in an area where they will not be disturbed by children or pets. Check the label for the presence of solvents such as carbon tetrachloride, chlorinated solvents, petroleum distillates, toluene or trichloroethylene.
- Triple rinse empty glass, plastic and metal pesticide containers by filling the containers 1/4 full of water, covering tightly and shaking. Apply the rinse water on the original targeted area. Wrap the container in newspaper and send to the landfill or dispose as directed on the label.
- Do not reuse empty pesticide containers.
- Wrap aerosol containers in several layers of paper and place in a covered trash container.
- Use up, swap or wrap the following in newspaper and save for a hazardous waste collection: pest strips, pet collars, pet shampoos and pet dusting powders.
- For information on calibration of pesticide sprayers or granular applicators, contact your county office of the NDSU Extension Service or your pesticide supplier.

Pesticide Alternatives

- Select plants resistant to insects and diseases.
- Remove dead plant material that could harbor insects or diseases.
- Pull weeds before they bloom.
- To keep insects away without pesticides, try physical barriers such as cheese cloth, netting and row covers. Surround developing plants with tin cans to protect against insects that feed or lay their eggs at a plant’s base.
- Try removing pests with a forceful jet of water.
- Spray plants with insecticidal soaps to kill soft-bodied insects such as aphids and grubs.
- Try a natural insecticide such as Bacillus thuringiensis (Bt), which has been shown to be effective against caterpillars and beetles without harming humans or wildlife.
- Spread boric acid liberally in areas where insects typically enter houses to kill ants and roaches. Boric acid should not be used where children or animals may encounter it.
- Plant a variety of crops that flower throughout the season (such as some marigolds) to deter some pests.
- Remove sources of food, water and cover.

Peat Moss

- Fresh peat moss can be used to make raised beds for growing vegetables and flowers. It is a material used in gardening that retains water and nutrients for plants.

Safety Clothing and Equipment

Check the label under “Hazards to Humans and Domestic Animals” to see what special protection is needed when applying a pesticide. Protective clothing may include a hat, goggles, mask, rubber gloves, rubber boots and/or a long-sleeved shirt and long pants. A respirator that is approved for pesticides may be needed for some pesticides that pose a risk from inhalation.

Clothing Clean-up

- Pre-rinse contaminated clothing.
- Keep clothing used during pesticide application separate from family laundry. Launder clothing using hot water and a heavy-duty detergent after each use.
- Clean washing machine after use by running it without clothing through a normal wash cycle.
- Line-dry clothing (see Extension Publication HE-382 for further information).

Application Equipment and Clean-up

- The pesticide sprayer or granular applicator needs to be in good operating condition and properly calibrated to apply the correct amount of pesticide.
- Clean all equipment, including mixing tools, after each use. Triple rinse with clean water and allow to dry.
- If a sprayer was used, rinse it with a small amount of water and spray over an area that may be legally treated. Clean the sprayer with water or as directed on the label. Rinse well and spray on an area that can be legally treated.
- For information on calibration of pesticide sprayers or granular applicators, contact your county office of the NDSU Extension Service or your pesticide supplier.