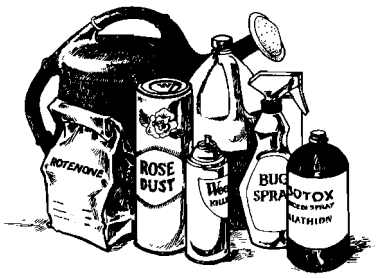
Lawn & Garden Pesticides

Pesticides are chemicals used to kill or repel pests. Pesticides include herbicides (which kill plants), insecticides (which kill insects) and fungicides (which kill fungi).



This fact sheet describes a variety of non-chemical methods of pest control. It also provides tips for using pesticides in an environmentally sound way. In virtually every case, non-chemical methods should be tried before resorting to pesticides.

The pesticides used in a yard are poisons and may pose a health threat to the person applying them if not handled carefully. They also pose a threat to animals, plants, and insects beyond the intended pests. Honeybees are an example of non-target organisms. They are very susceptible to many household pesticides such as carbaryl (Sevin) and chlorpyrifos. Other non-targets include ladybird beetles, which are a natural biological pest control, and fish, which can suffer direct poisoning from the household insecticides permethrin, resmethrin, pyrethrin, and rotenone washed into a stream or lake.

Until recently, groundwater was thought to be immune from the many chemicals used on lawns and gardens. However, contamination may occur when polluted surface water moves through the soil to the water table.

Integrated Pest Management

When we see weeds or insects invading our favorite plants, our first response is often to apply a pesticide. Some people even apply a pesticide to prevent invasions by pests. Both of these automatic responses lead to unnecessary pesticide use. A better approach is Integrated Pest Management (IPM).

IPM is an ecological approach to pest management that integrates cultural, mechanical, biological and, as a last resort, chemical control methods.

Steps to Follow in Integrated Pest Management:

1 Learn about plants and their pests.

2 Select the right plants for the location.

3 Frequently inspect plants to see if pest levels are increasing or decreasing.

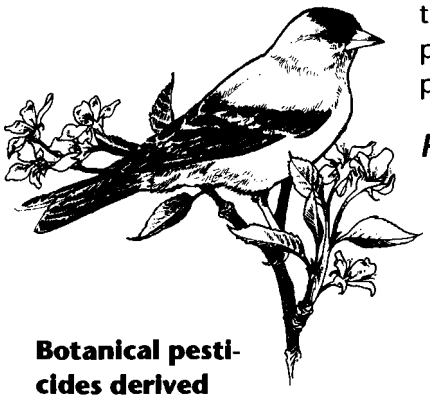
4 Identify pest symptoms. Knowledge of pests, their life cycle, and the damage they cause is essential for effective pest management.

5 Determine if control measures are really needed. For example, this can be determined by counting the number of insects present and looking carefully at the amount of damage they are causing. Most plants can tolerate a considerable amount of feeding by insects before any serious damage occurs.

6 When treatment becomes necessary, select methods that are least disruptive to natural controls and least hazardous to human health and the environment. Start with cultural, mechanical, or biological controls.

7 Evaluate your treatment to see which methods worked best.

For details on pest control methods, see inside...



Botanical pesticides derived from plants (such as rotenone, nicotin, ryania, pyrethrum, and sabadilla) are not any safer to people or non-target organisms than many synthetic insecticides. They are, however, short-lived and break down quickly in the environment.

CULTURAL CONTROL

Cultural pest control methods attempt to create optimal growing conditions for plants and unfavorable conditions for pests. Methods include:

For Gardens ...

- Select disease-resistant varieties.
- Plant varieties adapted to the geographic and soil conditions.
- Maintain a rich, fertile soil, with the proper pH for the plants being grown.
- Rotate plants to disrupt the life cycle of pests (called crop rotation).
- Plant and harvest early to promote healthier, stronger plants and avoid peak insect populations.
- Remove pest-infected plant residue in the fall.
- Plant a wide variety of crops to reduce potential pest problems.
- Evaluate the availability of sunlight and water. Most garden plants need plenty of each to help control pest problems.

For Lawns ...

Proper mowing heights are important. Set the mower to cut at 2 to 2½ inches. Mow often, each time the grass reaches 3 to 4 inches. (It's important not to cut more than one-third of the height.) On troublesome spots, remember that improper light, moisture or soil conditions discourage good turf. Use of shade-tolerant grasses, bringing in topsoil, or switching to alternative groundcovers may be the answer.

BIOLOGICAL CONTROL

Numerous organisms feed upon or infect insect pests. These biological controls frequently prevent the insect population from reaching damaging levels. Three types of natural enemies are:

- Predators – such as ladybird beetles, ground beetles and birds that consume many pests in their lifetime.
- Parasites – such as the trichogamma wasp, which will generally consume one individual insect pest during its own lifetime.
- Pathogens – such as fungi, bacteria, and viruses which infect many insect pests simultaneously.

Minimizing the use of pesticides on lawns and gardens allows these natural enemies to thrive, helping to keep pest populations in check.

MECHANICAL CONTROL

- Practice the vanishing art of hand-weeding. When health, expense, environmental consequences, and even time are considered, small problems with lawn weeds are handled in no better way.
- Till the soil in weedy areas, rather than using herbicides.
- Like hand-weeding, a few large insects (such as certain caterpillars) may be easily removed by hand in little time.
- Use mulches to reduce weed problems, conserve moisture, and prevent soil erosion.

CHEMICAL CONTROL

When you have accurately identified a pest in damaging numbers (above the plant's tolerance threshold) and other controls have failed or are impractical, carefully choose a pesticide. Pesticides are usually effective only during certain stages of a pest's life and at specific concentrations. If possible, select a pesticide that is designed to kill only the insects, weeds or disease organisms causing the damage. Less toxic pest control products include:

- Microbial insecticides – Those derived from microorganisms such as Bacillus thuringiensis.
- Inorganic insecticides – Some oils and soaps kill pests on contact and pose little threat to the environment. Insecticidal soaps destroy pest membranes and are effective against soft-bodied insects.

PESTICIDE APPLICATION

Use pesticides only when other control methods fail. Extensive use of pesticides can kill beneficial organisms that help keep pest populations under control.

- Read the label carefully – it tells how, when, and where to use the product.
- Apply the amount specified on the label and apply only to the plants and areas listed. Over-application is a waste of money and an environmental hazard.
- Wear protective clothing as directed on the label. Do not wash clothing contaminated with pesticides with other clothing.
- Make sure the pesticide is designated for use on the pest you want to control. Do not mix different pesticides unless instructed by the product directions.
- Keep pesticides in their original containers, so you know what they are and how to use them. (It's also the law.)
- Do not apply pesticides if rain is forecast (unless specified on the label). Some pesticides do need to be watered-in after application, but rain or watering can wash others off plants, decreasing effectiveness, and possibly contaminating lakes and streams. (Read the label!) Never spray pesticides on breezy days. The spray drifting in the wind poses a serious danger to non-target plants and animals – including those in the neighbors' yards.
- Never apply pesticides to bare ground or eroded areas. When it rains, pesticides can easily be washed off these sites with eroding soil. Never apply pesticides near wells, streams, ponds or marshes unless instructions specifically allow for such uses.

Consider this principle of ecology – *everything is linked to everything else.* Because of this, pesticides can often have unintended consequences. For example, don't be surprised if songbirds leave the yard after pesticides have been sprayed. Many birds are directly harmed by pesticides; others leave because the insects they feed on have been killed.

HANDLING PESTICIDES PROPERLY

- Don't buy more pesticide than you need. Disposal can be a problem.
- Store pesticides where children and pets can't get at them.
- Never dispose of excess pesticides by dumping them on the ground. While pesticides are broken down to non-toxic compounds by microorganisms, excessive amounts applied to the soil can "overload" this natural system and contaminate drinking water.

- Consider sharing left-over pesticides with neighbors. (The pesticides must be in their original containers and registered for use in Wisconsin.) If you cannot give them away, apply them later according to label instructions.
- Never dispose of unwanted pesticides in the ditch, gutter, or storm sewer. Such practices allow the hazardous chemicals to move directly into streams and lakes where they can harm fish and wildlife. In addition, pesticides dumped down the household drain can kill beneficial organisms that help purify the waste water in treatment plants or a septic system.
- Participate in a Clean Sweep Program for collection of unused pesticide products, or call your county UW-Extension or local Department of Natural Resources office for an alternative.
- When a pesticide container is empty, fill it up with water three times, each time pouring the rinse water into the spray tank when preparing the solution for final application. Triple-rinsing is important, because some chemical residues may remain in a container even though it appears empty.
- Dispose of empty, triple-rinsed pesticide containers as instructed on the label. Small containers can be wrapped in layers of newspaper or in a plastic bag and placed in the garbage on the day of pickup. Never burn or bury empty pesticide containers. The fumes from burning pesticide residues may be toxic. Buried containers could leak pesticides into drinking water.

Thinking Twice and Acting Sensibly

When pests invade lawns and gardens, consider the full range of pest control options. In many cases pesticides will not be necessary. When pesticides must be used, follow label directions carefully to minimize harm to people and beneficial plants and animals. For more information on alternative pest control methods and proper application of pesticides, contact your county UW-Extension Office.

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