

In using chemical pesticides, be careful when applying to nontarget plants. This is especially crucial in using herbicides. Turfgrass, ornamental and vegetable plants vary in their tolerance to herbicides. Time of the year, time of the day, and weather conditions can determine which pesticides may work best under the prevailing conditions. Avoid applications when plant foliage is wet or when the wind is blowing greater than 5 mph.

Never buy more pesticide than you will use in one growing season. For information on pesticide safety, see Pesticide Safety for the Homeowner, Leaflet 430 listed under Resources in this brochure.

For serious pesticide exposure, call Poison Control (1-800-282-5846).

How can I evaluate the success of my pest management program?

A critical step in implementing a successful IPM program is continual assessment of the methods you have chosen to use in managing pests in your lawn, landscape or garden. This step is often neglected by professional practitioners as well as the homeowner. Continue to scout your landscape and garden for pest problems. Keeping careful notes on pest damage and pest populations will allow you to determine if the problem is increasing, decreasing or remaining the same. This will allow you the opportunity to assess the success of the steps you have taken to reduce or eliminate the problem. If the intervention that you have taken has not worked or is not adequately managing the pest problem, consider using other approaches to minimize the problem. And, continue to scout on a regular basis.

References

Book

Pest Management Manual for Georgia Homeowners, The Georgia Center for Urban Agriculture, UGA College of Agricultural & Environmental Sciences, 2001.

Bulletins and Leaflets

Pesticide Safety for the Homeowner, Keith S. Delaplane, Leaflet 430, UGA College of Agricultural & Environmental Sciences Cooperative Extension Service, 2001.

Xeriscape, A Guide to Developing a Water-Wise Landscape, Gary L. Wade, James T. Midcap, Kim D. Coder, Gil Landry, Anthony W. Tyson, Neal Weatherly, Jr., Bulletin 1073, UGA College of Agricultural & Environmental Sciences, Cooperative Extension Service, February 2000.

Web Sites

The University of Georgia College of Agricultural and Environmental Sciences Turfgrass site: www.georgiaturf.com

U.S. Environmental Protection Agency Office of Pesticide Programs: www.epa.gov/pesticides

The University of Georgia entomology department site: entomology.ent.uga.edu

Georgia Pest Control Handbook: www.ent.uga.edu/pest2001/

The Extension Toxicology Network: ace.orst.edu/info/extoxnet

U.S. Department of Agriculture hotlinks to national database of biological control, IPM, and Sustainable Organic Agriculture: www.aphis.usda.gov/ppq/nbc/hotlinks.html

The University of Georgia homeowner IPM site: www.ent.uga.edu/ipm/homeowner_ipm.htm



Integrated Pest Management A Homeowner's Guide

As rain and irrigation water wash over the land, they carry soil, fertilizer and pesticides from our yards into storm drains and surface water. The collective effect is the pollution of Georgia's waterways, especially in urban areas where the population density and the paved surface are greatest. The Garden to Protect Water Quality series provides homeowners practices to improve soil structure, to minimize chemical inputs, and to reduce erosion and runoff while maintaining the beauty of their landscapes.

Landscapes may have a variety of pests including weeds, insects and plant diseases. Historically, homeowners and landscape managers have routinely used chemical pesticides as the primary method of controlling these pests. However, an increasing number of environmentally-friendly practices are being developed and implemented to control pests in landscapes and gardens. These practices are collectively called Integrated Pest Management (IPM). IPM integrates a regular monitoring program with correct diagnosis of pest problems. It promotes the use of cultural, biological, and mechanical means of controlling pests and recommends pesticide use only when necessary to avoid serious damage.

Plant damage can be caused by factors other than pests. Some environmental factors or plant maintenance practices can cause damage that may appear to be pest related. Misdiagnosis of plant damage can lead to unnecessary application of pesticides.

Can I avoid pest problems in my landscape?

The most important thing a homeowner can do to avoid pest problems is to maintain the health of their landscape. Learn the requirements of your specific site (sun vs. shade, soil conditions, drainage) and install plants that can meet these requirements. Some general practices are:

- Maintain a historical record of which plants grow well and which ones have pest problems in your garden. Replace plants that attract pests.
- Use pest-free plants, sod, sprigs, mulches and soil amendments.
- Apply water and fertilizer ONLY when needed.
- Group plants with similar water needs together. A guide to assist you is Xeriscape, A Guide to Developing a Water-Wise Landscape found under Resources in this brochure.
- Plant annuals and vegetables early in the growing season to avoid high pest populations that occur later in the season.
- Mow grasses and prune ornamentals properly.
- Do not use uncomposted manure as fertilizer as it may harbor pests.

How do I implement IPM?

Scout for pests in your lawn, landscape and garden at least twice a week during the growing season. When scouting, look for weeds and damage to your turf, ornamental or garden plants. Take time to inspect plant parts including the underside of leaves. You should familiarize yourself with the pests that commonly occur on the plants in your landscape and garden as well as the time of year they develop. For example, azaleas grown in Georgia landscapes are often infested with the azalea lace bug. To control this insect pest, you must look for them in the spring.

Scouting on a regular basis allows you to determine if pest problems are increasing, decreasing, or remaining the same. This assists in your decision to take action to control pests. It also allows you to utilize nonchemical control tactics that work best when pest populations are low.

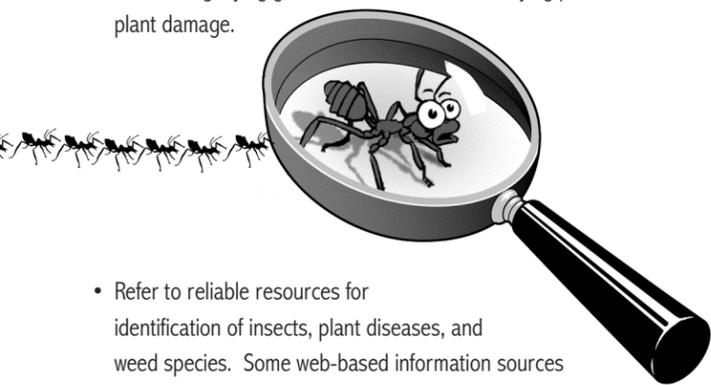
Identify pests and beneficials. Correct plant diagnoses and pest identifications are the basis for determining the damage potential of the pest, assessing the need for control intervention, and selecting effective management tactics. Suggestions for accurate diagnosis and identification are:



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- Examine damaged plants looking for the cause of the damage. A hand lens or magnifying glass is a useful tool in identifying pests and examining plant damage.



- Refer to reliable resources for identification of insects, plant diseases, and weed species. Some web-based information sources available from The University of Georgia College of Agricultural and Environmental Sciences can be found under Resources in this brochure.

- If you cannot diagnose the plant damage or you cannot identify a pest species, contact your local Cooperative Extension Office for assistance.

Collect information to make a decision for a pest control problem in your landscape or vegetable garden. Remember, the insect you see on your plant may not be causing the problem. Some helpful points and resources include:

- When you know the identity of the pest, you can find information on the life cycle of the pest, what stages of the pest are susceptible to control actions, the numbers of pests that can be tolerated before severe damage results, and what tactics are most effective in controlling the pest.
- Tolerate some pest damage on plants. A limited amount of damage usually will not appreciably decrease the appearance or the yield of the plant.
- Insure the pest population level or the plant damage level is sufficiently high (>20%) to merit control intervention. Plant seedlings are more vulnerable to pests than older plants that can tolerate greater levels of damage. Plant leaves can often sustain greater amounts of damage than flowers or fruits.
- Compare the benefits versus the risks of taking an action to control a pest problem. Considerations include the value of the plant or plant part, the cost of the control action (money, time and labor), environmental safety, and human safety. Visit the Extension Toxicology Network (<http://ace.orst.edu/info/extoxnet/>) for objective information about pesticides written for the non-expert.

What methods can I use to manage pests?

Cultural, mechanical, and biological control methods should precede use of chemical pesticides when possible. Always use the least toxic method of control. Only when pest damage is significant, should you use pesticides.

Cultural Control

- Use resistant plant varieties or plant species suited for local conditions of rainfall, sun exposure, temperature, etc. Pest-resistant plants tolerate greater levels of pests and damage than nonresistant varieties. Turfgrasses adapted to climatic conditions in which they are grown are more competitive with weeds than a turfgrass that is being grown outside of its climatic range.
- Rotate crops or annual plants to avoid recurring pest problems such as root rots and root-knot nematodes.
- Cultivate or till soils to destroy pests and crop residue that may harbor pests.
- Plant early in the growing season to avoid damaging levels of pests that may occur later in the season.

Mechanical Control

- Hand destroy insect pests on plants or hand remove weeds if the pest density and numbers are not excessive.
- Prune or cut out diseased or insect-infested plants or plant parts. This is used for controlling cankers, stem galls, and boring insects.
- Mow turfgrass at recommended height to help limit the development of weed species. Mowing above or below the recommended height, on the other hand, decreases the ability of turfgrass to compete with weeds.
- Mulch vegetable gardens and ornamental plantings.
- Consider use of landscape fabrics manufactured from polypropylene or polyester as barriers to control weeds in ornamental plantings.
- When practical, cover plants with netting to keep off insect pests.
- Till, hoe, or use other mechanical methods to destroy weed pests.
- Direct water sprays (e.g. hose) at infested plants to reduce aphids, lacebugs and other insect pests on plants.

Biological Control

Biological control occurs naturally. Diseases, parasites, and predators that exist in our landscapes attack and kill insect pests. It is important to conserve and enhance naturally-occurring biological control agents in the landscape and vegetable garden.

- Learn to identify biological control agents in order to conserve them in your landscape or garden.
- Use chemical pesticides only when necessary and then only as spot applications rather than blanket coverage of an area. Blanket coverage may destroy beneficial insects as well as pests.
- Plant a variety of flowering annuals or perennials to provide additional nectar sources and sources of alternative prey for predators and parasites.

- Create habitats in your landscape that attract birds and other wildlife that prey on insect pests. For more information, contact the Georgia Wildlife Federation or visit <http://www.gwf.org/education.htm>.

Chemical Control

You may not always be able to control pests and their damage without using conventional chemical pesticides. Pesticides also include petroleum oils and insecticidal soaps which are less toxic than conventional pesticides and can be effective for managing certain insects

Pesticides are often an important component of an IPM program, but you can harm people, pets and your environment if you use pesticides irresponsibly. Like medicines, pesticides can have tremendous benefits, but misuse can have serious consequences. Select the pesticide and its formulation based upon the target pest, the plants you wish to protect, the application equipment available, the hazards of the pesticide, and the applicator's experience with pesticides. There is no single herbicide, insecticide, or fungicide that is appropriate for all landscape and vegetable pest problems.

For information on chemical pest control, visit the following Web sites:

Georgia Pest Control Handbook
www.ent.uga.edu/pest2001/

and the Extension Toxicology Network:
ace.orst.edu/info/extoxnet.

Some general guidelines in their use for landscapes and gardens are:

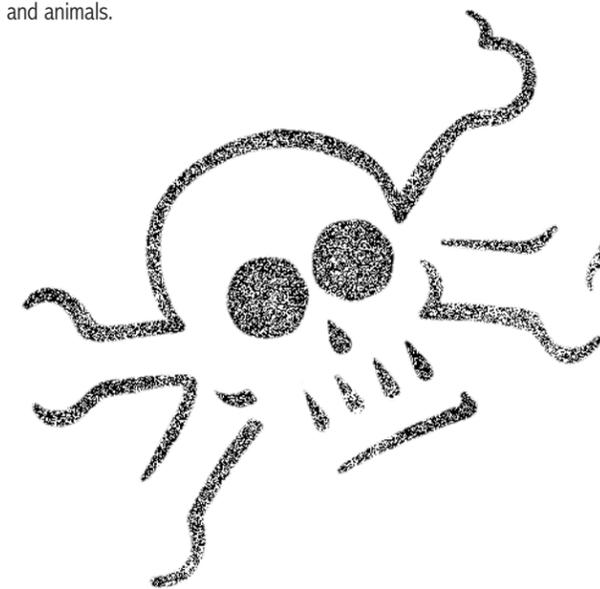
Read the pesticide label BEFORE you purchase it.

The label tells you how to use the pesticide safely and correctly. Remember, it is illegal to apply a pesticide unless you follow all of the label directions. Look for the following items of information on the label:

Directions for Use - This section tells where the pesticide can be used. NEVER use a pesticide on a site that is not listed in this section. It is illegal and dangerous to do so.



Pesticide Risks - This information tells you if you can use the pesticide safely. The words DANGER, WARNING, and CAUTION are signal words to indicate how dangerous a single dose of the pesticide can be to people and animals.



Precautionary Statements provide more detailed information about the potential hazards of the pesticide including Hazards to Humans and Domestic Animals, Statement of Practical Treatment or First Aid, and Environmental Hazards.

Formulation indicates whether a pesticide is a dust (D), granule (G), bait (B), wettable powder (WP), or emulsifiable concentrate (EC).

Active Ingredients are usually common names for the pesticide, like carbaryl rather than Sevin™.

The pesticide label, your local County Extension Office, and the Georgia Pest Control Handbook (homeowner edition) are excellent sources of assistance in choosing the correct pesticide.

Follow these guidelines in your selection process:

- (1) Are there nonchemical options to control the pest problem? If not,
- (2) Can a CAUTION pesticide effectively control the pest problem? If not,
- (3) Can a WARNING pesticide effectively control the pest problem? If not,
- (4) Am I prepared to use a DANGER pesticide to control the pest problem?

Petroleum oils and insecticidal soaps act as contact insecticides. Upon contact, oils and soaps control some soft bodied pests such as aphids, thrips, whiteflies, and mites and many species of scale insects. Oils and soaps are not very effective against insects with heavier cuticles such as beetles, bees, wasps and grasshoppers.