



## **Controlling Pests without Synthetic Chemicals**

Commonly used to kill insects, rodents, weeds, fungi, and bacteria, pesticides are powerful tools in pest control but synthetic pesticides are dangerous substances. In many areas of the United States, ground water supplies are contaminated with pesticide residues. Exposure through skin contact, inhalation, or drinking water can be harmful to human health and to the health of your pets. In addition, pollution due to pesticides degrades the environment and harms plant and animal life.

There are many effective strategies for controlling pests without using synthetic pesticides that combine cultural, biological, and physical methods. Synthetic chemicals should only be used on rare occasions to address an infestation of a harmful invasive species or to improve habitat for native plants and wildlife. Choosing the best methods will save you time and money while helping to protect the environment.

### **PEST-RESISTANT PLANTS:**

#### **Mint deters:**

Ants, aphids, cabbage worms

#### **Garlic deters:**

Aphids, beetles, spider mites, borers

#### **Onion deters:**

Beetles, mice, spider mites, borers

#### **Marigold deters:**

Beetles, nematodes, squash bug, thrips, tomato hornworm, whitefly

#### **Rosemary deters:**

Cabbage worms, slugs

#### **Nasturtium deters:**

Potato bugs, squash bugs, whitefly



## How to use Integrated Pest Management (IPM)

IPM is a strategy that uses cultural, biological, and physical methods to prevent infestations before they start and uses synthetic chemicals as a last resort. The first steps to IPM involve careful, regular monitoring and learning to identify the pests, weeds, and diseases that are problematic. Know which insect species are beneficial ones! Also, accept the idea of not having a perfectly pest-free and weed-free yard.

Once the problems are identified, first try these methods that don't involve chemical pesticides:

1. **Cultural Pest Control** involves planning and caring for your plants in ways that prevent pest damage. Remember that healthy plants are less susceptible to disease, pest infestation, and weed invasion than unhealthy ones. Cultural controls include:
  - Selecting native species suitable for the local environment (see Appendix A)
  - Growing pest and disease resistant plants. Many common plants, such as rhododendron, are highly susceptible to pests and diseases.
  - Mowing the lawn to 2 ½ to 3 ½ inches, which is the ideal height for healthy grass in New Jersey.
  - Alternating locations of vegetable beds to prevent species-specific infestations.
  - Keeping old sacks, baskets, and decaying plants out of the yard to prevent transfer of harmful insects.
  - Timing plantings to avoid the peak insect infestation periods. Knowing when insects lay their eggs can help you prevent damage to your plants.
  - Keeping a record of periods when insects attack plants. That way you can be aware of when you will need to do the most work to avoid insect damage. Knowing insects' life cycles will help you to prevent infestation rather than treating it once it has occurred.
2. **Biological Pest Control** uses natural predators and parasites to control harmful pests. Insects such as ladybug, praying mantis, lacewing, dark ground beetle, soldier beetle, predaceous stinkbug, assassin bug, and lightning bug larva are all beneficial species that you can attract to your yard, because they prey on other insects. Bluebirds and bats, which you can attract by building special houses, control pests as well. Bacteria are another biological control. For example, the milky spore bacteria kill Japanese beetles in the grub stage. The spores remain in the soil and can prevent infestation for years.



- 3. Physical Pest Control** involves using physical removal and insect barriers to prevent pest damage. These methods include:

  - Spraying plants with a hose to drown or dislodge insects.
  - Hand collecting and destroying insects and eggs.
  - Setting out traps and tree bands, which are simple strips of paper, cardboard, plastic or fabric secured around the diameter of a tree trunk to collect pests for easy removal.
  - Placing screens over plants.
  - Wrapping aluminum foil around plant bases.
  - Pruning dead and diseased areas of plants.
  
- 4. Alternative pesticides** are another method to consider. To control certain pests, there are some simple measures that you can take using common, non-toxic household substances. For example, you can use soap or sticky barriers for ants and use a vinegar mixture for weeds. A comprehensive list is found in Appendix B.
  
- 5. Chemical Pesticides** should be considered only on rare occasions to address an infestation of a harmful invasive species or to improve habitat for native plants and wildlife. Here are some guidelines for the safe and responsible use of pesticides:

  - Be sure you buy the pesticide appropriate for the pest and the plant that you are treating.
  - Buy and mix only enough pesticide for your current needs. Store pesticides in the original container that has the instructions, list of ingredients, and safety instructions.
  - Do not dispose of any product in the toilet, sink, or storm drains or in your yard. Your county should have hazardous collection days during the year for leftover substances like these.
  - Use spot-application methods rather than indiscriminate spraying: apply only to infected plants.
  - Watch the weather reports. Avoid pesticide application just before it rains or on a windy day.
  - Use a tray or other container as a work area to catch spills. If a chemical spill occurs, make sure to act quickly and with caution. Control and contain the spill so that it does not spread. Kitty litter, fine sand, or clay can be used to clean liquid spills. For dusts, powders, or granulated materials, use a plastic cover to contain and sweep into a heavy duty plastic bag.
  - Do not mix, apply, or dispose of pesticides near any bodies of water or wells.