

# Those Pesky Pesticides

What are pesticides?

Pesticides are chemicals designed to kill organisms we consider undesirable. They fall into five major categories including:

1. Insecticides (insect-killers)
2. Herbicides (weed-killers)
3. Fungicides (fungus-killers)
4. Nematocides (roundworm-killers)
5. Rodenticides (rat and mouse killers)

Why should I try to limit the use of pesticides?

Although pesticides do provide some benefits, at least initially, there are three major reasons why limiting pesticide use is important.

1. **Genetic resistance and killing of natural pest enemies.** After prolonged exposure to pesticides, many pests develop resistance to chemicals designed to kill them. This produces a hardier pest that will need a new, stronger dose of chemical to kill it. Also pesticides are not usually selective killers. That is they end up killing not only the pest but also natural enemies of the pest. In other words you may be killing the aphid but you are also killing the ladybug that may have naturally controlled the aphid population until now. Therefore you may be killing pest for now, but you may be creating a bigger problem in the future.
2. **Mobility and threats to wildlife.** According to the U.S. Department of Agriculture, no more than 2% of insecticides applied to crops by aerial or ground spraying actually make it to the target pests. The other 98% that miss their target end up in the air, surface water, groundwater, bottom sediments, food, and non-target organisms including humans. Many pesticides are fat-soluble. This means that as an organism eats another organism pesticides build up in their fatty tissues. With each successive step up the food chain, higher concentrations of pesticides occur because that organism eats more of the smaller organism and therefore biomagnifies the effect.
3. **Threats to human health.** The National Academy of Sciences concluded in 1993 that the legal limits of pesticides in food may need to be reduced 1,000 times to protect children who are more vulnerable to such chemicals than adults because of their lesser body weight. The National Academy of Sciences also estimates that exposure to pesticide through food causes 4,000 – 20,000 cases of cancer in the U.S. each year.

What are some alternatives?

1. **Using biopesticides** – Some plants and animals release toxins that are naturally harmful to pests. Chrysanthemums release a toxin known as pyrethrin that is naturally toxic to many urban garden pests. Planting them around a vegetable patch will help control the pest population.
2. **Using insect birth control** – Males of some insect species can be raised in the laboratory, sterilized, and then released in affected areas to mate unsuccessfully with healthy females thus effectively controlling the pest population.
3. **Using insect sex attractants** – When many female insect species are ready to mate, they release chemical sex attractant called a pheromone. These pheromones can be mimicked in the lab and added to traps to lure in the pests or used to attract the pest's natural enemy. The Roach Motel works on this principle.
4. **Zapping pests with hot water**.- Farmers have begun using "Aqua Heat", a machine that sprays boiling hot water on crops, to kill both weeds and insects. They have found that both the results and the cost is effective. You too could use this method on a smaller scale to control problems in your garden.
5. **Using integrated pest management (IPM)** – This method develops a pest control program based on ecological studies and a mix of cultivation and chemical and biological methods used in proper sequence and timing. The aim of IPM is not eradication of pests but rather maintaining pest populations at just below economic impact. IPM is becoming more popular among environmentally concerned municipalities but is hindered by cost and the fact that it is not as easy to use as simply applying pesticides.

6. **Other alternatives:**

Category	Description	Safer Alternatives
Flea Collars & Sprays	These products are toxic and contain such hazardous ingredients as carbamates, pyrethrins and organophosphates.	Herbal collars and ointments (Eucalyptus or Rosemary) or Brewer's yeast in pet's diet.
Roach and Ant Killers	These contain organophosphates, carbamates and pyrethrins which make them toxic.	Roaches: baking soda and powder sugar mix  Ants: chili powder to hinder entry.
House Plant Insecticides	These products contain such hazardous ingredients as methoprene, malathion, tetramethrin, and cararyl.	Mixture of bar soap and water or old dishwater. Spray on leaves, then rinse.