



California Environmental Protection Agency

Department of Pesticide Regulation

What Is a Pesticide?

People often think *pesticide* means *insecticide*. Actually, *pesticide* refers to not only insecticides but many other kinds of chemicals. A *pesticide* is any substance intended to control, destroy, repel, or attract a pest. Any living organism that causes damage or economic loss or transmits or produces disease may be the target pest. Pests can be animals (like insects or mice), unwanted plants (weeds), or microorganisms (like plant diseases and viruses).

Throughout history, pests have caused problems. Dinosaurs may be extinct but a prehistoric creature of another sort, the cockroach, has been crawling the earth for 350 million years. Diseases transmitted by insects, rodents and bacteria led to epidemics of deadly diseases like bubonic plague and yellow fever. Famines resulted when locusts, molds and other pests destroyed crops. During Ireland's great potato famine 150 years ago, a third of the nation's population died. It was caused by a fungus that pesticides can now control.

Pesticides may be natural or synthetic. They may even be living, pest-destroying organisms such as *Bacillus thuringiensis*. Many household products also contain pesticides. They can include toilet bowl cleaner, disinfectant, cleanser, mildew remover, and ant and roach spray. Herbicides are pesticides used to control weeds on lawns and along roadways, in parks and other public areas. And, thanks to fungicides, food today is

virtually free of mold and other types of fungi. (Some fungi produce the most potent carcinogens yet discovered.)

People have been using chemicals to fight pests since ancient times. In the late 1940s, many new kinds of chemicals were discovered. They helped increase crop yields dramatically and made available plentiful grains and a bountiful variety of inexpensive fruits and vegetables. However, during the 1960s, we became aware that pesticide use had its costs. Concern increased about potential health effects, environmental contamination, and effects on wildlife. Some pests became immune to many pesticides. This all led to stricter pesticide regulation nationally and in California. In the 1980s and 1990s we have seen more widespread use of biological, cultural, and physical pest controls combined with judicious pesticide use. The goal is to combine them in a way that minimizes economic, health, and environmental risks.

Because most pesticides are designed to be toxic to their target pest -- and because any substance can be harmful if used improperly -- pesticide use is strictly controlled. Cal/EPA's Department of Pesticide Regulation (DPR) regulates all aspects of pesticide sales and use, recognizing the need to control pests, while protecting public health and the environment and fostering reduced-risk pest management strategies. The Department's strict oversight includes product evaluation and registration, local use enforcement, environmental monitoring, and residue testing of fresh produce.

Here are some common kinds of pesticides:

Algicides	Control algae in swimming pools, lakes, canals, and water used industrially or stored
Attractants	Attract pests (for example, lure an insect or rodent to a trap). Pheromones are chemical sex attractants often used to confuse mating behavior of insects.
Biocides	Kill microorganisms
Disinfectants and sanitizers	Kill or inactivate disease-producing microorganisms (bacteria, viruses, etc.) on inanimate objects
Fungicides	Kill fungi (many of which can infect and cause diseases in plants, animals, and people; examples of disease-causing fungi: rusts, mildews, blights, and molds)
Fumigants	Produce gas or vapor intended to destroy insects, fungi, bacteria, or rodents, used to disinfest interiors of buildings as well as soil before planting
Herbicides	Kill weeds and other plants that grow where they are not wanted
Insecticides	Kill insects and other "bugs"
Miticides	Also called acaricides, kill mites that feed on plants and animals
Microbials	Microorganisms that kill, inhibit, or outcompete pests, including insects or other microorganisms
Molluscicides	Kill snails and slugs
Nematicides	Kill nematodes (microscopic, wormlike organisms that feed on plant roots)
Ovicides	Kill eggs of insects and mites
Repellents	Repel pests, including birds and insects (for example, mosquitoes, fleas or ticks)
Rodenticides	Control mice and other rodent pests

The term *pesticide* also includes related substances:

Defoliants	Cause leaves or foliage to drop from a plant, usually to facilitate harvest
Desiccants	Promote drying of living tissues--unwanted plant tops or insects, for example
Insect growth regulators	Disrupt the action of insect hormones controlling molting, maturity from pupal stage to adult, or other life processes
Plant growth regulators	Substances (excluding fertilizers or other plant nutrients) that alter the expected growth, flowering, or reproduction rate of plants through hormonal rather than physical action