

Glossary

Action threshold—the pest density at which a control tactic must be implemented to avoid an economic loss. *See economic threshold.*

Active ingredient (AI)—the component of a pesticide formulation responsible for the toxic effect.

Antenna, Antennae (pl.)—a pair of sensory organs located on the head of an insect, above the mouthparts.

Arthropod—any of the invertebrate animals (such as insects, spiders, or crustaceans) having an exoskeleton, a segmented body, and jointed limbs.

Augmentation—biological control practices intended to increase the number or effectiveness of existing natural enemies when too few are present to control a pest effectively.

Bacterium—a single-celled microscopic plant-like organism that does not produce chlorophyll.

Biofungicides—substances of biological origin that kill or inhibit the growth of plant pathogenic fungi.

Biological control—the use of living organisms such as predators, parasitoids, and pathogens to control pest arthropods, weeds, or diseases. Typically involves some human activity, which can include introducing predators, parasites, and disease organisms, or releasing sterilized individuals. Biocontrol methods may be an alternative or complement to chemical pest control methods.

Biological pesticide/Biopesticide/Biorational pesticide—a pesticide that is biological in origin in contrast to synthetic chemicals (e.g., viruses, bacteria, pheromones, natural plant compounds); Bt is a biopesticide.

Botanical/Botanical pesticide—a pesticide whose active ingredient is a plant-produced chemical such as nicotine or strychnine; also called a plant-derived pesticide. Being “natural” pesticides, as distinct from synthetic ones, they are typically acceptable to organic farmers.

Bt—the bacterium *Bacillus thuringiensis*. Bt is a biological pesticide (biopesticide) that degrades rapidly to non-toxic compounds, does not present any human or animal hazards, and does not harm biocontrols.

Caterpillar—the immature stage (larva) of a butterfly, moth, sawfly, or scorpionfly.

Chemical control—pest management practices that rely upon the application of synthetic or naturally derived pesticides.

Complete metamorphosis—type of insect development characterized by four distinct stages—egg, larva, pupa, and adult.

Contact poison—a pesticide that is absorbed through the body wall, as opposed to one that must be ingested.

Conventional pesticide—*see pesticide.*

Cornicle—dorsal tubular structure on the posterior part of the abdomen of aphids from which various alarm pheromones are released.

Crawler—the active first instar in whiteflies and scales. This instar moves to find a suitable feeding site and then embeds its piercing-sucking mouthparts into a plant. Later instars usually do not move from this site so the term crawler is often used in place of “first instar.”

Cultural control—pest management practices that rely upon manipulation of the cropping environment (e.g., cultivation of weeds harboring insect pests).

Curative introduction—adding the biocontrol organisms after detecting the pest.

Deutonymph—second nymphal stage of mites.

Economic threshold—level of pest populations at which damage from pests is more costly than controlling them. *See action threshold.*

Entomopathogenic—insect-attacking organism.

Fumigant—a substance that produces a gas, vapor, fume, or smoke intended to kill a pest.

Fungicide—any substance that kills or inhibits the growth of a fungus.

Fungus, Fungi (pl.)—any of numerous plants lacking chlorophyll, ranging in form from a single cell to a body of branched filaments; includes the yeasts, molds, smuts, and mushrooms.

Gradual metamorphosis—a type of insect development in which there is no prolonged resting stage (pupa); the three stages are egg, nymph, and adult.

Herbicide—a substance used to kill or control weeds.

Honeydew—the sugary liquid discharge from the anus of certain insects (Homoptera) such as aphids and scales.

Host—the organism in or on which a parasite or parasitoid lives; a plant on which an insect feeds.

Hyperparasite—a parasite of a parasite.

Indicator plant—varieties of virus-susceptible plants that provide an early detection system for locating thrips. Certain petunia varieties are very effective because they attract thrips and may show symptoms of virus infection; however, the petunias do not become a reservoir for the virus.

Inoculative release—the release of relatively small numbers of natural enemies that are expected to colonize, reproduce, and spread naturally throughout an area. *See inundative release.*

Insect growth regulator (IGR)—a pesticide constructed to mimic insect hormones that control molting and the development of some insect systems, affecting the change from immature to adult. In most cases this pesticide prevents the insect from becoming a sexually mature adult, and perhaps even causes its death.

Insecticide resistance—genetically inherited ability to withstand doses of pesticide that would kill individuals from strains whose ancestors had not been exposed to the pesticide.

Instar—the stage of an insect's life between successive molts; for example, the first instar is between hatching from the egg and the first molt.

Integrated Pest Management (IPM)—an approach to the management of pests in which all available control options, including physical, chemical, cultural, and biological controls, are evaluated and integrated into a unified program. Pesticide applications are used only when preventive practices fail to keep pests under control.

Inundative release—the release of relatively large numbers of natural enemies to suppress pest populations without the expectation that the natural enemies will colonize and spread throughout the area. *See inoculative release.*

Larva, Larvae (pl.)—the immature stage between the egg and pupa of insects having complete metamorphosis where the immature differs radically from the adult (e.g., caterpillars, grubs).

Least toxic—having a minimal toxic effect on nontarget organisms.

Life cycle—the sequence of events that occurs during the lifetime of an individual organism.

Mechanical control—management of pests by physical means such as the use of screens or row covers.

Metamorphosis—a change in body form during development of an insect.

Microbial insecticide—a preparation of microorganisms (e.g., viruses or bacteria) or their products used to suppress insect pest populations.

Mite—any of several minute invertebrates belonging to the phylum Arthropoda, class Arachnida.

Monitoring—using sticky traps, pheromone traps, or other devices to determine the presence or abundance of pest populations. *See scouting.*

Multivoltine—having more than generation per season.

Mycoinsecticide—a biological pesticide based on a naturally occurring fungal disease (e.g., *Beauveria*) that is specific to the target pest.

Nanometer—unit of length that is one-billionth of a meter.

Natural enemies—living organisms found in nature that kill, weaken, or reduce the reproductive potential of other organisms.

Nematode—an elongated, cylindrical worm parasitic in animals, insects, or plants, or free-living in soil or water.

Nymph—the immature stage, following hatching from the egg, of an insect that does not have a pupal stage.

Oviposition—the laying or depositing of eggs.

Parasite—an organism that lives in or on another organism (the host) during some portion of its life cycle, usually without killing the host. The entomopathogenic nematodes are parasitic but in the manual are considered biorational pesticides.

Parasitize—the act of a parasitoid or parasite entering its host.

Parasitoid—an animal that feeds in or on another living animal for a relatively long time, consuming all or most of its tissues, and eventually killing it.

Parthenogenesis—reproducing by eggs that develop without being fertilized by a male.

Pathogen—a disease-causing organism.

Pest—an organism (e.g., weeds, termites, rats, and mildew) that interferes with human activities, property, or health, or is objectionable.

Pesticide—any substance or mixture of substances used to kill, control, repel, or mitigate any pest and any substance or mixture of substances used as a plant regulator, defoliant, or desiccant. Insecticides, fungicides, rodenticides, herbicides, and germicides are all pesticides.

Pheromone—a substance emitted by an animal to influence the behavior of others of the same species. Some are synthetically produced for use in insect traps.

Phyllody—conversion of petals and sepals to more leaf-like structures; a symptom produced by some phytoplasmas.

Physical control—management of pests by physical means such as heat, cold, sound waves, etc.

Phytophagous—feeding on plants.

Phytotoxic—substance that is poisonous to plants.

Predator—any animal (including insects and mites) that kills other animals (prey) and feeds on them. Each predator eats many prey individuals.

Prepupa—the nonfeeding stage between the larval period and the pupal period. Occurs in thrips and female scales.

Preventative introduction—introducing biocontrol organisms before detecting the presence pests.

Protonymph—first nymphal stage of mites.

Pupa, Pupae (pl.)—the nonfeeding stage between the larva and adult in insects with complete metamorphosis

Pyrethroids—synthetic compounds produced to duplicate or improve on the biological activity of the active principles of the pyrethrum plant.

Pyrethrum—a natural botanical insecticide, the active principles of which are extracted from the flowers of the pyrethrum plant, and are known collectively as “pyrethrins.”

Residual—refers to the property of a substance (pesticides are one example) that allows it to remain in an area for an extended period.

Sampling—estimating the density of organisms (pests or natural enemies) or damage by examining a defined portion of the crop. *See scouting.*

Sanitation—any activity that reduces the spread of pathogen inoculum, such as removing and destroying infected plant parts and cleaning tools and field equipment.

Scouting—inspecting for pests, including insects, weeds, and pathogens. Pest scouting is a basic component of integrated pest management programs used to determine whether pest populations are at levels that warrant control intervention and also may help to determine the most appropriate method of control. *See monitoring.*

Species—a group of individuals similar in structure and capable of interbreeding and producing fertile offspring. They are different in structure from other such groups and do not interbreed with them.

Symbiotic—a close biological relationship between two or more kinds of organisms. An entomopathogenic nematode has a symbiotic relationship with bacteria that are deadly to some insects.

Systemic insecticide—an insecticide that is absorbed into plant sap and is lethal to insects feeding on or within the treated plant.

Threshold/control action threshold—see *action threshold*.

Vector—an organism capable of carrying and transmitting a disease-causing agent from one host to another.

Virescence—greening of the flowers; a symptom produced by some phytoplasmas.

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