Mode of Action

Video Glossary

Absorption: The movement of a chemical into plants, animals (including humans), microorganisms, or soil.

ACCase Inhibitors: Mainly kill grasses. This enzyme helps the formation of lipids or fats in the roots of grass plants. Without lipids, susceptible weeds die.

Acaricide: A pesticide used to control mites and ticks. A miticide is a type of acaricide.

Acidic: Having a pH less than 7.

Action Threshold: A predetermined level of pest infestation or damage at which some type of pest management action must be taken.

Activator: An adjuvant added to a pesticide to increase its toxicity.

Adsorption: The process whereby chemicals are held or bound to a surface by physical or chemical attraction. Clay and high-organic soils tend to adsorb pesticides.

Aerosol: A chemical stored in a container under pressure. An extremely fine mist is produced when the material, dissolved in a liquid, is released into the air.

Algaecide: Pesticide used to kill or inhibit algae.

Antibiotics: Chemical produced by a microorganism that is toxic to other microorganisms.

Anticoagulant: A chemical that prevents normal blood clotting; the active ingredient in some rodenticides.

Attractant: A substance or device to lure insects or other pests to a trap or poison bait. avicide A chemical used to kill or repel birds.

Bactericides: Chemical used to control bacteria.

Bait: A food or other substance used to attract a pest to a pesticide or a trap.

Bioaccumulation: The ability of organisms to accumulate or store chemicals in their tissues.

Biological Control: The control of pests using predators, parasites, and disease-causing organisms. It may be naturally occurring or introduced.

Biological Degradation: The breakdown of chemicals due to the activity of living organisms, especially bacteria and fungi in the soil.

Biomagnification: Process whereby some organisms accumulate chemical residues in higher concentrations than those found in the organisms they consume.

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Biopesticide: A pesticide derived from naturally occurring materials.

Botanical Pesticide: A pesticide produced from naturally occurring chemicals in plants. Examples: nicotine, pyrethrum, and rotenone.

Broad Spectrum Pesticides: Kill or harm a wide variety of organisms, both beneficial and harmful pests, and then there are those that target a specific trait in a pest.

Carbamates: A group of pesticides commonly used for control of insects, mites, fungi, and weeds. N-methyl carbamate insecticides, miticides, and nematicides are cholinesterase inhibitors.

Chlorinated Hydrocarbon: A pesticide containing chlorine, carbon, and hydrogen. Many are persistent in the environment. Examples: chlordane, DDT, methoxychlor. Also called ORGANOCHLORINES.

Chlorosis: The yellowing of a plant's normally green tissue.

Cholinesterase: A chemical catalyst (enzyme) found in humans and many other animals that regulates the activity of nerve impulses by deactivating the chemical neurotransmitter acetylcholine.

Contact Mode of Action: Pesticides do not penetrate the host while controlling the pests. It acts as a barrier or repellent in a plant, or by killing any green tissue present.

Defoliant: A chemical that initiates the premature drop of leaves, often as an aid in harvesting a crop.

Desiccant: A pesticide that causes death to plants or pests by drying them out.

Disinfectants: Are pesticides that remove germs, also, commonly refers to chemicals used to clean or surface sterilize inanimate objects.

Electron Inhibitors: Are pesticides that stop the transport of electrons with in a plant.

Enzyme Blockers: (or ALS Inhibitors) Are chemicals that block the normal function of an enzyme called acetolactate synthase or ALS. This enzyme is essential in amino acid or protein synthesis. Without proteins, plants starve to death. Enzyme blockers kill a wide range of plants including broadleaf weeds, nutsedges, and grasses.

Enzyme Inhibitors: Break down and disrupt or inactivate the structure of proteins and enzymes leading to a loss of function.

Foliar: Pesticide applications to the leaves of plants.

Fungi(fungus): A multicellular lower plant lacking chlorophyll, such as a mold, mildew, or plant rust.

Fungicides: Inhibit fungal growth by interfering with cellular development. Many work by damaging cell membranes, stopping or halting critical enzymes or proteins, or interrupting various metabolic processes such as respiration.

Growth regulators: Commonly referred to as synthetic auxins are chemicals that mimic natural plant hormones and interrupt plant cell growth in newly forming stems and leaves. They affect protein production and normal cell division, leading to malformed growth. They also kill plants by causing the cells in the tissues that carry water and nutrients to divide and grow without stopping. Often called "growing itself to death," which is seen by one side of the stem being longer than the other.

Herbicide: A pesticide used to control weeds.

Host: A plant or animal on or in which a pest lives and feeds.

Inhibitors: Stop cells from dividing at the nuclear level preventing RNA or DNA from constructing.

Inhibitors of Bacterial Protein Synthesis: Include several types of antibacterial agents. These target bacterial protein synthesis by binding to various ribosomes. This results in the disruption of bacteria's normal cellular metabolism and consequently leads to the death of the organism or the stopping of its growth.

Inhibitors of Bacterial Wall Synthesis: Are drugs that target cell walls selectively killing or inhibiting bacterial organisms.

Inhibitors of DNA Synthesis: Don't allow DNA to synthesize. Work by binding to components involved in the process of DNA or RNA synthesis and cause interference of the normal cellular processes and ultimately compromise bacterial multiplication and survival.

Insect Growth Regulators: Inhibit the normal life cycle of insects by copying one of these hormones, directly interrupting cuticle development, or loss in fat building. These would make insects die from staying in the immature life stage indefinitely.

Insecticides: Control insects and other arthropods.

Integrated Pest Management (IPM): The use of all suitable pest control methods to keep pest populations below the economic injury level. Methods include cultural practices; use of biological, physical, and genetic control agents; and the selective use of pesticides.

Larvicide: A pesticide used to kill insect larvae. Commonly used to control mosquito and black fly larvae.

Metamorphosis: A change in the shape, size, and/or form of animals as they develop from eggs through adults.

Midgut Poisons: Are poisons that attack the guts of insects via protein toxins leading to unbalanced ions, or salts and other minerals, and septicemia, or blood poisoning.

Miticide: A pesticide used to control mites.

Mode of Action: The way a pesticide exerts a toxic effect on the target plant, animal or microorganism and can be divided into two categories: systemic, and contact.

Molluscicide: A chemical used to control snails and slugs.

Molting: In invertebrates such as insects, spiders, and mites, the process of shedding the outer body covering or exoskeleton. Molting takes place to allow the animal to grow larger.

Mutagen: A substance or agent able to cause genetic changes in living cells.

Narrow-Spectrum Pesticide: A pesticide that is effective against only one or a few species of pests; the term is usually associated with insecticides and fungicides.

Necrosis: The death of plant or animal tissues that results in the formation of discolored, sunken, and dead (necrotic) areas.

Nematicide: A pesticide used to control nematodes.

Nematode: Elongated, cylindrical, non-segmented worms. Nematodes are commonly microscopic, some are parasites of plant animals.

Nerve and Muscle Poisons: Disrupt, inhibit, block, terminate or activate various channels, enzymes and receptors within the pests. This results in a range of symptoms such as paralysis, hyper excitation, system shutdowns and overly stimulated muscle contraction.

Neurotoxin: A substance or agent able to cause disor-

ders of the nervous system.

Non-Selective Pesticide: A pesticide that is toxic to a wide range of plants or animals without regard to species. For example, a non-selective herbicide can kill or damage all plants it contacts.

Non-Specific Target Insecticides: Known to affect less well-described target-sites or functions, or to act non-specifically on multiple targets.

Organophosphates: A large group of pesticides that contain the element phosphorus. Most are non-persistent insecticides, miticides, and nematicides. Many are highly toxic

Oncogen: A substance or agent able to induce tumors (not necessarily cancerous) in living tissues.

Ovicide: A material that destroys eggs.

Pest: An undesirable organism (insect, bacterium, fungus, nematode, weed, virus, rodent) that is injurious to humans, desirable plants and animals, manufactured products, or natural products.

Pesticide Resistance Strategy: Prevent resistance by monitoring the pests for changes in population densities, focusing on economic injury levels and integrating multiple control strategies.

Pesticides: Are chemicals used to control a pest.

Pheromone: A substance emitted by an animal to influence the behavior of other animals of the same species. Some are synthetically produced for use in insect traps.

Photosynthetic Inhibitors: Are chemicals that interfere with photosynthesis, a plants natural ability to make food, and disrupt plant growth, ultimately leading to death.

Piscicide: A chemical used to control pest fish.

Pigment inhibitors: (bleachers) Herbicides that interrupt the chlorophyll production in the plant turning the plant tissue white and interrupting photosynthesis.

Plant Growth Regulator (PGR): A pesticide used to regulate or alter the normal growth of plants or the development of their plant parts.

Predacide: A pesticide used to control predaceous animals, usually mammals.

Pyrethroid: A synthetic insecticide that mimics pyrethrin, a naturally occurring pesticide derived from certain species of chrysanthemum flowers.

Resistance: When a population of organisms that are uninjured or unaffected by a certain dosage of pesticide chemical used to successfully control populations of the same organisms.

Repellents: Are pesticides that repel pests. Respirators: inhibitors of mitochondrial ATP synthase, and uncouplers of oxidative phosphorylation via disruption of the proton gradient or Mitochondrial complex electron transport inhibitors.

Rodenticide: A substance designed to kill a rodent.

Seed Protectant: A pesticide applied to seeds before planting to protect them from insects, fungi, and other soil pests.

Selective Pesticide: A pesticide that is toxic to some pests but has little or no effect on other similar species. Example: some fungicides are so selective that they control only powdery mildews and no other fungi.

Silvicide: A herbicide used to destroy brush and trees.

Sterilant: A pesticide that prevents pests from reproducing.

Sterol Synthesis Inhibitors: Stop the process that produces ergosterol. This is similar to cholesterol in humans and most fungi need this or membrane structure and function.

Systemic Mode of Action: The pesticide penetrating the plant or animal and translocating within its systems with the intent to kill the leaves and root system or protect it from bacteria, viruses or other pests.

Target: The plants, animals, structures, areas, or pests at which the control method is directed.

Termiticide: An insecticide used to control termites.

Tolerance: The maximum amount of a pesticide residue that may legally remain on or in food or feed commodities at harvest or slaughter.

Tolerant: A characteristic of organisms that are able to withstand a certain degree of stress such as weather, pesticides, or attack by a pest.