Weed Control Glossary

Absorption: The process by which an herbicide passes from one system into another, e.g., from the soil solution into a plant root cell or from the leaf surface into the leaf cells.

Acid equivalent (ae): The theoretical yield of parent acid from a pesticide active ingredient that has been formulated as a derivative. For example, Roundup Pro contains 4 lbs per gallon of the isopropylamine salt form of glyphosate but 3 lbs per gallon of the parent acid.

Acid soil: Soil with a pH value less than 7.0.

Activation: The process by which a surface-applied herbicide is moved into the soil where it can be absorbed by emerging seedlings. This is normally accomplished by rainfall, irrigation or tillage. Activation does not imply any chemical change in the active ingredient.

Active ingredient (ai): The chemical in an herbicide formulation primarily responsible for its phytotoxicity and which is identified as the active ingredient on the product label.

Adjuvant: Any substance in an herbicide formulation or added to the spray tank to modify herbicidal activity or application characteristics.

Adsorption: The process by which an herbicide associates with a surface, e.g., a soil colloidal surface.

Alkaline soil: Soil with a pH greater than 7.0.

Allelopathy: The adverse effect on the growth of plants or microorganisms caused by the action of chemicals produced by other living or decaying plants.

Antagonism: An interaction of two or more chemicals such that the effect when combined is less than the predicted effect based on the activity of each chemical applied separately.

Band treatment: Applied to a linear restricted strip on or along crop rows rather than continuous over the field area.

Bioassay: Quantitative or qualitative determination of herbicide by use of sensitive indicator plants or other biological organisms.

Biological control of weeds: Control or suppression of weeds by the action of one or more organisms, through natural means, or by manipulation of the weed, organism or environment.

Biotype: A population within a species that has a distinct genetic variation.

Boot or Booting: A growth stage of grasses (including cereal crops) when the upper leaf sheath swells due to the growth of the developing spike or panicle.

Broadcast treatment: Applied as a continuous sheet over the entire field.

Carrier: A gas, liquid or solid substance used to dilute or suspend an herbicide during its application.

Chemical name: The systematic Name of a chemical compound according to the rules of nomenclature of the International Union of Pure and Applied Chemistry (IUPAC), Chemical Abstracts Service or other organization.

Chlorosis: Yellowing of normally green tissue due to chlorophyll destruction or failure of chlorophyll formation.

Common name: A generic name for a chemical compound. Glyphosate is the common name for Roundup.

Compatibility: The characteristic of a substance, especially a pesticide, of being mixable in a formulation or in the spray tank for application in the same carrier without undesirably altering the characteristics or effects of the individual components.

Competition: The active acquisition of limited resources by an organism that results in a reduced supply and consequently reduced growth of other organisms in a common environment.

Concentration: For herbicides, the quantity of active ingredient or parent compound equivalent expressed as weight per unit volume (such as lbs per gallon for liquids). Dry herbicide concentrations are expressed as percent by weight.

Contact herbicide: An herbicide that causes injury to only the plant tissue to which it is applied, or an herbicide that is not appreciably translocated within plants.

Dicot: Abbreviated term for dicotyledon; preferred in scientific literature over broad leaf to describe plants.

Dicotyledon (dicot): A member of the Dicotyledoneae; one of two classes of angiosperms usually characterized by having two seed leaves (cotyledons), leaves with net venation and root systems with tap roots.

Diluent: Any gas, liquid or solid material used to reduce the concentration of an active ingredient in a formulation.

Directed application: Precise application to a specific area or plant organ such as to a row or bed or to the leaves or stems of plants.

Dispersible granule: A dry granular formulation that will separate or disperse to form a suspension when added to water.

Dormancy: The state of inhibited seed germination or growth of a plant organ when in an environment normally conducive to growth.

Ecotype: A population within a species that has developed a distinct morphological or physiological characteristic (e.g., herbicide resistance) in response to a specific environment and that persists when individuals are moved to a different environment.

Emergence: The event in seedling establishment when a shoot becomes visible by pushing through the soil surface.

Emulsifiable concentrate (EC): A single-phase liquid formulation that forms an emulsion when added to water.

Encapsulated formulation: Herbicide enclosed in capsule or beads of material to control the rate of release of active ingredient and thereby extend the period of activity.

Epinasty: That state in which more rapid growth on the upper part of a plant organ or part (especially leaf) causes it to bend downward.

Flowable: A two-phase formulation containing solid herbicide suspended in liquid and that forms a suspension when added to water.

Formulation: (1) A pesticide preparation supplied by a manufacturer for practical use. (2) The process, carried out by manufacturers, of preparing pesticides for practical use.

Granular: A dry formulation consisting of discrete particles generally <10 mm^3 and designed to be applied without a liquid carrier.

Head or Heading: A growth stage of grasses (including cereal crops) when the spike or panicle is emerging or has emerged from the sheath.

Herbaceous plant: A vascular plant that does not develop persistent woody tissue above ground.

Herbicide: A chemical substance or cultured biological organism used to kill or suppress the growth of plants.

Herbicide resistance: The trait or quality of a population of plants within a species or plant cells in tissue culture of having a tolerance for a particular herbicide that is substantially greater than the average for the species and that has developed because of selection for naturally occurring tolerance by exposure to the herbicide through several reproductive cycles.

Incorporate: To mix or blend an herbicide into the soil.

Interference: For plants; the total adverse effect that plants exert on each other when growing in a common ecosystem. The term includes competition, allelopathy, biotic interference and other detrimental modifications in the community or environment.

Label: The directions for using a pesticide approved as a result of the registration process.

Lateral movement: Movement of an herbicide through soil, generally in a horizontal plane, from the original site of application.

Leaching: (1) The removal of materials in solution from the soil. (2) The downward movement of material(s) into a soil profile with soil water (material may or may not be in true solution and may or may not move from soil).

Monocot: Abbreviated term for monocotyledon; preferred in scientific literature over grass to describe plants.

Monocotyledon (monocot): A member of Monocotyledoneae; one of two classes of angiosperms, usually characterized by the following: one seed leaf (cotyledon), leaves with parallel venation, root systems arising adventitiously and usually diffuse (fibrous).

Non-selective herbicide: An herbicide that is generally toxic to all plants treated. Some selective herbicides may become non-selective if used at very high rates.

Non-target species: A species not intentionally affected by a pesticide.

Overtop application: A broadcast or banded application applied over the canopy of crops such as by airplane or a raised spray boom of ground equipment.

Pelleted formulation: A dry formulation consisting of discrete particles usually larger than 10 cubic millimeters and designed to be applied without a liquid carrier.

Persistent herbicide: A herbicide that, when applied at the recommended rate, will harm susceptible crops planted in normal rotation after harvesting the treated crop, or that interferes with regrowth of native vegetation in

non-crop sites for an extended period of time. See residual herbicides.

Pesticide interaction: The action or influence of one pesticide upon another and the combined effect of the pesticide(s) on the pest(s) or crop system.

Phloem: The living tissue in plants that functions primarily to transport metabolic compounds from the site of synthesis or storage to the site of use.

Phytotoxic: Injurious or lethal to plants.

Plant growth regulator: A substance used for controlling or modifying plant growth processes without severe phytotoxicity.

Postemergence (POST): (1) Applied after emergence of the specified weed or crop. (2) Ability to control established weeds.

Preemergence (PRE): (l) Applied to the soil before emergence of the specified weed or crop. (2) Ability to control weeds before or soon after they emerge.

Preplant application: Applied before planting or transplanting a crop, either as a foliar application to control existing vegetation or as a soil application.

Preplant incorporated (PPI): Applied and blended into the soil before seeding or transplanting, usually by tillage.

Rate: For herbicides, the quantity of active ingredient expressed as weight per unit area of treated surface or per unit volume of the treated environment for aquatic applications.

Registration: The process designated by the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and carried out by the Environmental Protection Agency (EPA) by which a pesticide is legally approved for use in the U.S.

Residual herbicide: An herbicide that persists in the soil and injures or kills germinating weed seedlings for a relatively short period of time after application. See persistent herbicide.

Residue: That quantity of an herbicide or metabolite remaining: in or on the soil, plant parts, animal tissues, whole organisms and surfaces.

Resistance: Ability to withstand exposure to a potentially harmful agent without being injured. (There is no general agreement as to the distinction between herbicide tolerance and herbicide resistance in plants.)

Safener: A substance that reduces toxicity of herbicides to crop plants by a physiological mechanism.

Selective herbicide: A chemical that is more toxic to some plant species than to others.

Soluble concentrate (SC): A liquid formulation that forms a solution when added to water.

Soluble granule (SG): A dry granular formulation that forms a solution when added to water.

Soluble powder: A dry formulation that forms a solution when added to water.

Solution: A homogeneous or single-phase mixture of two or more substances.

Spot treatment: An herbicide applied to restricted area(s) of a whole unit; i.e., treatment of spots or patches of weeds within a larger field.

Spray drift: Movement of airborne spray from the intended area of application.

Surfactant: A material that improves the emulsifying, dispersing, spreading, wetting or other properties of a liquid by modifying its surface characteristics.

Susceptibility: The sensitivity to or degree to which a plant is injured by a herbicide treatment.

Suspension: A mixture containing finely divided particles dispersed in a solid, liquid or gas.

Systemic: Synonymous with translocated herbicide, but more correctly used to describe the property of insecticides or fungicides that are absorbed into a plant (through roots or leaves) and translocated to other tissue.

Tank-mix combination: Mixing of two or more pesticides or agricultural chemicals in the spray tank at the time of application.

Tiller or Tillering: A growth stage of grasses when additional shoots are developing from the crown.

Tolerance: (1) Ability to continue normal growth or function when exposed to a potentially harmful agent (there is no general agreement as to the distinction between herbicide tolerance and herbicide resistance in plants). (2) The concentration of a pesticide residue that is allowed in or on raw agricultural commodities as established by the Environmental Protection Agency.

Toxicity: The quality or potential of a substance to cause injury, illness or other undesirable effects.

Toxicology: The study of the principles or mechanisms of toxicity.

Trade name: A trademark or other designation by which a commercial product is identified.

Translocated herbicide: An herbicide that is moved within the plant. Translocated herbicides may be either phloem mobile or xylem mobile. However, the term frequently is used in a more restrictive sense to refer to herbicides that are applied to the foliage and move downward through the phloem to underground parts.

Vapor drift: The movement of pesticides as vapor from the area of application after the spray droplets have landed on the target.

Weed: Any plant that is objectionable or interferes with the activities or welfare of man.

Weed control: The process of reducing weed growth and/or infestation to an acceptable level.

Weed eradication: The elimination of all vegetative plant parts and viable seeds of a weed from a site.

Wettable powder (WP): A finely divided dry formulation that can be readily suspended in water.

Wetting agent: (1) a substance that serves to reduce the interfacial tensions and causes spray solutions or suspensions to make better contact with treated surfaces (see surfactant). (2) A substance in a wettable powder formulation that causes it to wet readily when added to water.

Xylem: The non-living tissue in plants that functions primarily to conduct water and mineral nutrients from roots to the shoot.