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None at present
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None at present
Absorb

To incorporate or take a substance into another material or a body

Compare… Adsorb
Acaricide

A pesticide used to kill mites, spiders, and ticks
Acceptable Daily Intake (ADI)

The amount of chemical a person can be exposed to on a daily basis over an extended period of time (usually a lifetime) without suffering deleterious effects.
Acceptable Exposure Limit (AEL)

The acceptable permissible concentration of a chemical in a work environment (generally as ppm in air) for a defined period of time (generally 8 hours).

See also… MEL, OEL, PEL, STEL, TLV, TWA
ACGIH

American Conference of Governmental Industrial Hygienists, Inc.
An organization open to all practitioners in industrial hygiene, occupational health, environmental health, or safety
Assigns TLVs (for our purposes) to chemical products including pesticides
Acid Equivalent
(a.e. or ae)

The portion of a compound or formulated product that theoretically could be converted back to its corresponding acid
Acre
(a or ac)

An English measure unit of area equal to 43,560 square feet
Acre-Foot
(ac ft)

The English system volume equivalent to one acre of water or soil which is 1 foot deep

1 ac x 1 ft, 0.5 ac x 2 ft, or other variant

(43,560 square feet x 1 ft = 43,560 cubic feet of either water or soil)

See also... Surface acre
Activation

The process by which a surface applied herbicide is moved into the soil where it can be absorbed. This is normally accomplished by rainfall, irrigation or tillage.
Active Ingredient
(a.i. or ai)

The chemical(s) in a formulated product that is (are) principally responsible for the pesticide’s effect; listed as active ingredient(s) on the label
Acute Exposure

One or multiple doses of short duration spanning up to but no more than 24 hours
Acute Toxicity

Any poisonous effect produced within a short period of time, up to 96 hours, following an exposure

See also… Chronic toxicity,
Subchronic toxicity
Adaptation

The process whereby repeated exposures to small amounts of a chemical cause a plant or animal population to become tolerant to the chemical by permitting only tolerant individuals to propagate the population.
Additive Effect

A situation in which the combined effect of two or more chemicals is equal to the simple sum of the effect of each chemical alone. This is the most commonly expressed effect of combined chemicals.

See also…Antagonism, Synergism
Adjuvants

Compounds which, when added to pesticides, act as wetting or spreading agents, stickers, penetrants, emulsifiers, drift control agents, etc. and make the pesticide easier to handle, mix, or apply, or increase its effectiveness.
Adsorb

To hold or bind a substance onto the surface of another material or a body

Compare… Absorb
Adverse Effect

A biochemical change, functional impairment, or pathologic lesion that affects performance of the whole organism, or reduces an organism’s ability to respond to an additional environmental challenge.
Aerial Application

Application of a pesticide by using an airplane or helicopter as the vehicle from which the material is dispensed in a broadcast pattern over the landscape; most commonly used for insecticidal applications but some herbicidal work is also done in this manner.
Aerobes

Organisms which require free oxygen to live
Aerosol
(A)

A suspension of liquid or solid particles in air; a pesticide formulation designed to be suspended in the air by the action of a propellant gas causing fine droplets to be produced through a nozzle
Agitation

Stirring or mixing in a pesticide tank to retain an even distribution of an emulsified or suspended pesticide
Algae

Primitive, chiefly aquatic, unicellular or multicellular plants that lack true stems, roots or leaves, but usually contain chlorophyll.
Algicide

Any pesticide used to mitigate or control algae
Allelopathy

The direct or indirect effect of one plant on another through the production of chemicals that affect the growth of the affected plant.
Amine
(Amine Salt)

A type of chemical formulation (derived from ammonia) which is soluble in water
Anaerobe

Organisms which live in oxygen free environments
Anecdotal Data

Data based on the description of individual cases rather than on controlled studies
Annual Plant

A plant (species) living and growing for only one year or season

See also… Biennial, Perennial
Antagonism

An effect produced by two or more chemicals applied together which causes less effect in combination than would be predicted based on the effects caused when they are used separately.

See also… Additive effect, Synergism
Anticoagulant

A chemical designed to prevent the clotting of blood in target animals
Antidote

Any substance used to counteract a poison
Approximate Lethal Concentration (ALC)

An estimate of the concentration of a pesticide in air or water which is capable of killing a test animal.

See also… MLC
Approximate Lethal Dose (ALD)

An estimate of the dose of a pesticide which is necessary to kill a test animal

See also... MLD
Aqueous

Indicating the presence of water; a solution of a chemical in water
Aquifer

An underground zone of earth or rock saturated with water whose upper limit is the water table.
ATSDR

Agency for Toxic Substances and Disease Registry, US Department of Health (A division of the CDC)

Since 1980 ASTDR has been responsible for evaluating the health effects of contaminated sites (Superfund or lesser sites)
Attractant

A pesticide or additive used to lure pests

See also… Bait
Average Daily Dose (ADD)

The dose rate (averaged over a pathway specific period of exposure) expressed as a daily dose on a per-unit-body-weight basis. The ADD is usually expressed in terms of mg/kg-day or other mass-time units.
Average Daily Intake (ADI)

The dose rate (averaged over a pathway-specific period of exposure) expressed as a daily intake on a per-unit-body-weight basis

The ADI is usually expressed in terms of mg/kg-day or other mass/time units
Avicide

A pesticide used to control birds; more commonly a repellent than a killer
Bait
(B)

A pesticide product formulated with a pest attracting component

See also… Attractant
Band Treatment

A treatment applied to a narrow linear strip of land or along a crop row.
Basal Treatment

A pesticide application made so as to encircle the stem of a plant just above the ground line such that foliage contact is minimal

A term used mostly to describe treatment of woody plants with herbicide
Benzoic Acids

A family of herbicides closely related to the phenoxy herbicides but having a carboxylic acid group (COOR) attached to the benzene ring replacing the methyl group attached via an oxygen atom.

Benzoic acids act as plant growth inhibitors by interfering with cell division processes; they include banvel and chloramben.
Biennial Plant

A plant (species) that completes its life cycle, from seed germination to seed production, in two years

See also... Annual, Perennial
Billion International Units (BIU)

Unit of relative biological potency which refers to the ability of a chemical to cause an effect. For our purposes – a measure of the toxicological potency of the delta endotoxins produced by *Bacillus thuringiensis*. 
Bioaccumulation
(Bioconcentration)

The process by which a plant or animal selectively takes in and stores a persistent substance resulting in the presence of a higher concentration of the substance being present in the organism than in its environment.

Compare… Biomagnification
Bioassay

A scientific test to determine the potency (or concentration) of a substance that causes a biological change in experimental animals.
Bioavailability

The degree to which a substance becomes available to the target tissue after administration or exposure
Biochemical

A chemical that is produced by a living organism
Biocide

A nonspecific word (generally used in sensational journalism) that indicates the ability of a pesticide to kill all life it encounters
Bioconcentration Factor (BCF)

A mathematical ratio or percentage which relates the concentration of a pesticide in the environment (air, food or water) to the concentration in an animal’s body.

A BCF of greater than 1.0 (or 100%) indicates that the animal is retaining the pesticide at a concentration greater than is present in its habitat.
Biocontrol Agent

An organism used to control another organism through antagonistic growth process or via the production of an allelopathic biochemical
Biological Control
(Biocontrol)

The process of applying or favoring one biological organism in an attempt to control another
Biomagnification

The increase in concentration of a foreign chemical as you move higher in the food chain

Compare… Bioaccumulation
Biorational Pesticide

Biological pesticides including bacteria, viruses, fungi and protozoa and chemical analogues of naturally occurring biochemicals (pheromones, insect growth regulators, etc.) which act to control pests
Broadcast Treatment

A treatment which is applied uniformly over an entire area, by ground or aerial means
Broadleaf Weed

A nonwoody, dicotyledenous plant with wide bladed leaves designated as a pest species in gardens, farms, or forests
Buffer Strip

A strip of vegetation left unmanaged (or untreated) to reduce or prevent the impact of a treatment from affecting adjacent untreated resources.
CAA

Clean Air Act of 1977 as amended 1990
Partial purpose: to protect and enhance the quality of the Nation's air resources and to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution
Calibration

The process of adjusting the amount of material per unit area or per pull of a triggering device to achieve a standard rate of application of pesticide in an area.
Cancel
(FIFRA regulatory action)

The official revocation of a specific use or all uses of a pesticide by the EPA; remaining stocks may be used as originally labeled by the formulator

See also… Suspend
Cancer

A disease of heritable, somatic mutations affecting cell growth and differentiation, characterized by an abnormal, uncontrolled growth of cells.
Carbamate

A family of organic esters (primarily insecticides or herbicides) which are derived from carbamic acid and share the following common features: an organic base molecule with a nitrogen atom connecting an alcohol group (COOH) to the base.

Carbamates interfere with an insects respiration.
Carcinogen

An agent capable of inducing or producing cancer
Carcinogenesis

The origin or production of a (benign or malignant) tumor
Carcinoma

A malignant tumor
Carrier

A gas, liquid, or solid substance used to dilute, propel, or suspend a pesticide during its application
CAS

Chemical Abstract Service of the American Chemical Society

For our purposes, the group which assigns unique numbers to chemicals for use in referencing data
CAS#

A unique number assigned to a chemical by the Chemical Abstracting Service to be used as a reference number to key data retrieval
CAS Registry

Master file of Chemical Abstracting
Service numbers

See... CAS, CAS#
Cubic centimeter
(\text{cc})

A unit of volume equal to the volume of a cube 1 cm on each side; approximately 0.06 cubic inches
CERCLA

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

Better known as the "Superfund Act" this act provided liability for those responsible for illegal waste dumping as well as a trust fund to clean up sites when the responsible parties could not be found or determined.
Certified Applicator
(FIFRA meaning)

Any individual who is certified as authorized to use or supervise the use of any pesticide which is classified for restricted-use

See also… Commercial applicator, Private applicator
CFR

Code of Federal Regulations
A compilation of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government of the United States of America
Chemical Control

The process of using a chemical pesticide to affect or determine the location or growth of pest organisms as defined by the applicator.
Chemical Name

The systematic name of a chemical compound according to the rules of nomenclature of the International Union of Pure and Applied Chemistry as adapted for indexing in Chemical Abstracts

See also… Common name, Trade name
CHEMTREC

Chemical Transportation Emergency Center

1-800-424-9300

A public service of the Chemical Manufacturers Association

it provides immediate advice for those at the scene of emergencies
Chemolytic

Capable of causing the chemical breakdown of another a substance
Chlorinated Hydrocarbon

An organic (carbon containing) insecticide, having either a branched chain or ring structure, which contains one or more chlorine atoms

See also… Organochlorine
Chlorosis

Apparent loss of green coloration from leaves, generally the result of failure to produce chlorophyll
Chinese Hamster Ovary (CHO)

One of the many mutagenicity tests employing Chinese hamster ovary cells as the test medium
Chronic Effect

An effect which occurs as a result of repeated or long term (chronic) exposures
Chronic Exposure

Multiple exposures occurring over an extended period of time, or a significant fraction of the animal’s or the individual’s lifetime; generally taken to mean a time span greater than half of the individual’s expected life-span.
Chronic Toxicity

The capacity of a substance to cause adverse human health effects as a result of repeated exposure to a chemical for greater than half the life expectancy of the test subjects

See also… Acute toxicity, Subchronic toxicity
CIIT

Chemical Industry Institute of Toxicology

Located in Research Triangle Park, North Carolina, CIIT is a not-for-profit toxicology research institute dedicated to providing an improved scientific basis for understanding and assessing the potential adverse effects of chemicals, pharmaceuticals, and consumer products on human health.
CNS

Central Nervous System
In vertebrates, the brain and spinal cord; the central processor of nervous input and conscious control
Commercial Applicator
(FIFRA meaning)

An applicator (whether or not he or she is a private applicator with respect to some uses) who uses or supervises the use of any pesticide which is classified for restricted-use for any purpose or on any property not owned or rented by him or her or his/her employer or which application is for compensation on the property of another person

See also… Certified applicator, Private applicator
Common Name

A generic name for a chemical compound (see WSSA list of herbicide nomenclature)

See also… Chemical name, Trade name
Compatibility

The characteristic of substances which allow their mixing in a common carrier as a formulated product or a tank mix without undesirably altering the characteristics and effects of the individual components.
Concentration
(of a pesticide)

The amount of active ingredient or its acid equivalent in a quantity of diluent, expressed as ratio of the ai or ae per unit of volume of the product, for example lb/gal, ml/L, etc.
Confidential Business Information (CBI)

Data submitted to the EPA to support the registration of a product which is protected from general public disclosure under Section 10 of FIFRA. Generally speaking protected information is material classed by the manufacturer as a trade secret or is commercial or financial information rather than relating to organism or ecological toxicology.
Conifer

A taxonomic order of trees (Gymnospermae (Coniferae)), comprised of a wide range of (mostly) evergreens that bear cones and have needle-shaped or scale-like leaves. Their timber is generally commercially sold as ‘softwood’.
Contact Herbicide

A herbicide that causes injury to only the plant tissue to which it is applied, or one which is not appreciably translocated within a plant

See also… Systemic pesticide, Translocated herbicide
Contact Insecticide

An insecticide which causes injury or death of an insect through the touch rather than through inhalation or ingestion

See also… Systemic pesticide
Contaminate

To make impure or pollute; to add unwanted material
Corrosive

A substance which usually contains a strong acid or base which may burn the skin or eyes, or may damage certain types of spray tanks and other equipment.
Corrosive Effect

An irreversible destructive effect of an acid or a base on either organic or inorganic materials. In biological systems corrosive effects are distinguished from irritant effects.

See also... Irritant effect
Coverage

The spread or distribution of a pesticide over a surface or area
Crop Advisor
(WPS definition)

Any person who is assessing pest numbers or damage, pesticide distribution, or the status, condition, or requirements of agricultural plants. The term does NOT include any person who is performing hand labor tasks, such as weeding, planting, cultivating, or harvesting

See also.. Handler, Worker
Cut-stump Treatment

Application of a pesticide to a freshly created wound which has exposed the vascular tissue of a tree which allows rapid uptake of the applied chemical. Included here are cut stump treatments, injection treatments and hack-n-squirt treatments
CWA

See... Federal Water Pollution Control Act Amendments of 1972
Contaminant

Unwanted material in a mixture or in an environment
DAT

Days after treatment
Deciduous

Pertaining to any plant organ or group of organs that is shed naturally; plants that are leafless for some time during the year
Defoliant

A pesticide whose primary purpose is to remove unwanted foliage without necessarily killing the entire plant.
Degree
(deg )

A measure of temperature

Normally identified as degrees Fahrenheit, Celsius, or Kelvin
Degrade (of chemicals)

The breaking down of a chemical to component parts by chemical or biological processes
Deoxyribonucleic Acid (DNA)

Chemical building blocks of chromosomes
DNA is the basic molecular determinant of heredity
Dermal Exposure

Exposure of an organism's skin to a pesticide or other substance.
Desiccant

Any substance or mixture of substances used to accelerate the drying of plant or animal tissue
Dicotyledon
(Dicot)

A plant, member of the plant family Dicotyledoneae; usually characterized by having the following – two seed leaves (cotyledons), leaves with net veination, and root systems with a tap root

See also... Monocotyledon
Diluent

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

The complete or partial immersion of a plant, animal or other object in a dilute pesticidal mixture or solution

A slurry which incorporates a pesticide
Directed Foliar Application

A selective pesticide application, generally using a portable backpack sprayer, in which only the leaves of specifically targeted plants are treated.
Dislodgeable Residue

The remainder of a chemical or biological agent on foliage resulting from aerial or ground application, which can be readily removed from the foliage by washing, rubbing, or having some other form of direct contact with the treated vegetation.
Dispersible Granule (DG)

A dry granular formulation which will separate or disperse to form a suspension when added to water
Dormancy

A resting or inactive state in plants
Dormant Spray

A pesticide application made during the winter or very early spring before the target plants have started growing
Dose

The amount of a chemical, physical, or biological agent which crosses the exchange boundary (skin, stomach, lungs, etc.) of an organism

The amount of a foreign agent internalized by an organism

Compare… Exposure
Dose-Response Assessment

A determination of the relationship between the size of an administered, applied or internal foreign chemical and a specific biological reaction to the chemical.
DOT or D.O.T.

US Department of Transportation
Drift

Aerial off-target movement of a pesticide during or immediately after application.

Drift may occur as movement of actual droplets or particles during application, or as a result of the evaporation of a volatile pesticide during or subsequent to application.
Dry Flowable (DF)

A dry, relatively free-flowing powder containing the pesticidal a.i. This powder is generally ready to be dispersed in water for spray application although some formulations require a wetting agent to insure proper dispersal.
E

Exponent when used in numeric data tables (for example: $10E5 = 10^5$)

See also… Emulsion
Economic Threshold

The point in an infestation where the application of control measures would return more money than the cost of application of the measures.
Ecosystem

The living and non-living entities in an area and their interactions; scale of the “area” depends on who is defining the ecosystem, but at the system level it is usually considered to be a fairly large unit such as a river basin, a forest, or a swamp. Smaller units within these ecosystems are usually designated by other terms.

See also… Habitat, Niche
Efficacy

The ability to produce the desired effect

Effectiveness
Emergence

The event in seedling establishment when a shoot becomes visible by pushing through the soil surface
Emersed Plant
(Emergents)

A rooted or anchored aquatic plant adapted to grow with most of its leaf and stem tissue above the water’s surface and not lowering or rising with the water level

See also… Floaters, Immersed plants, Submergents
Empirical

Relationship described, but not necessarily fully understood, based on observation or experimentation rather than hypothesis or theory.
Emulsifier

A substance which promotes the suspension of one liquid in another; a surface active substance used to stabilize suspensions of one liquid in another, for example, oil in water
Emulsifiable Concentrate (EC)

A pesticide mixture dissolved in a liquid solvent in which an emulsifier is included so that the pesticide can be diluted with oil or water for application.
Emulsion

(E)

Small droplets of an oil or ester suspended (not dissolved) in water
Encapsulated Formulation

Pesticide enclosed in capsules (beads) of material to control the rate of release of the active ingredient and thereby extend the period of activity
Endpoint

An observable or measurable biological event or chemical concentration (for example the concentration of a metabolite in a target tissue) used as an index of an effect of a chemical exposure
Enzyme

A biological catalyst; a protein produced by the organism itself, that enables the splitting or fusion of other chemicals.
EPA Establishment Number
(EPA Est. No.)

A unique number assigned by the EPA to each pesticide production plant which identifies the origin of chemicals in the marketplace
This number must be displayed on the label of the product
EPA Registration Number
(EPA Reg. No.)

A unique number assigned by the EPA to each pesticide product as it is registered.

This number must be displayed on the label of the product.
EPCRA

Emergency Planning and Community Right-to-Know Act of 1986

Also known as the Community Right-To-Know Act or SARA, Title III provides for the collection and public release of information about the presence and release of hazardous or toxic chemicals in the nation's communities.
Epidemiology

The study of disease patterns in a human population

Commonly, the historical reconstruction of the pattern of an epidemic or human health incident of interest
Epinasty

The state in which greater growth on one side of a plant organ causes it to curl
ESA or E.S.A.
The Endangered Species Act of 1973 as amended
Entomological Society of America
(Meaning derived from context)
Endangered Species Act of 1973

In part: Authorizes the determination and listing of species as endangered and threatened; prohibits unauthorized taking, possession, sale, and transport of endangered species; provides authority to acquire land for the conservation of listed species
Ester

A type of chemical or formulation of chemicals which is soluble in oil

A chemical formed by the reaction of an acid and an alcohol, generally accompanied by the elimination of water
Exposure

Contact made between a chemical, physical, or biological agent and the outer boundary of an organism

The amount of an agent available at the exchange boundary (stomach, skin, lungs, etc.) of the organism

Compare… Dose
Exposure Assessment

The identification and evaluation of the human population exposed to a toxic agent, describing its composition and size, as well as the type, magnitude, frequency, route, and duration of exposure.
Extender

A chemical which increases the persistence of a herbicide in soil
Extrapolation

The use of mathematical models to make estimates of values or effects outside of the observable range
Environmental Degrade

The breakdown of chemicals by the action of environmental elements such as rain or sunlight
Federal Register (FR)

Daily publication of the Government Printing Office in which public regulations and legal notices issued by the Federal Government (all Agencies and Branches) are made available. The EPA uses this publication to release new regulations and planning documents relevant to pesticide use and management.
FIFRA

The Federal Insecticide, Fungicide, and Rodenticide Act (of 1947) as amended

The principle federal law regulating pesticide manufacture, sale and use in the U.S.
Fluid
(fl)
A substance (generally a liquid or gas) which flows and conforms to the shape of its container
Floating Plants
(Floaters)

A free-floating or anchored aquatic plant adapted to grow with most of its vegetative tissue at or above the water’s surface; floaters lower or rise with the water level.

See also... Emergents, Immersed, Submergent
Foliar Application

Application of liquid pesticide to the leaves of plants, often to the point of runoff
Forb

Any herbaceous plant other than grass or grass-like plants (sedges and rushes)
Formulated Product
(Formulation)

A mixture of active and inert ingredients which is a merchantable pesticide
Some formulations are ready to use, others must be diluted

See also… Ready-to-use, Technical grade
Frank Effect Level (FEL)

The level of exposure or dose which produces irreversible adverse effects as a statistically or biologically significant increase in frequency or severity between those exposed and those not exposed.
Frill Treatment

A ring of nearly continuous cuts around a tree at a convenient height which sever the continuity of the phloem in the bark and exposes the cambium.

These cuts may be treated with herbicide.

See also… Hack-and-squirt, Injection, Injector.
Forest Service
U. S. Department of Agriculture
The Federal agency that -
Manages public lands in national forests and grasslands
Is the largest forestry research organization in the world
Provides technical and financial assistance to state and private forestry agencies
Foot or feet (ft)

A unit of measure (based on the length of an average human foot) equal to 12 inches
Fumigant
(F)

A pesticide which functions while in gaseous form; may be applied as a liquid, gas or solid (often formulated as a pellet which volatilizes to a gas)
Fungicide

A pesticide used to control fungi
Fungistatic

Inhibiting the germination of fungal spores
U.S. Fish and Wildlife Service

The principal Federal agency responsible for conserving, protecting, and enhancing fish, wildlife, and plants and their habitats for the continuing benefit of the American people.
FWPCA

Federal Water Pollution Control Act
Amendments of 1972
(generally known as the Clean Water Act)

Law which controls the discharge of pollutants into
open water -- of primary concern to pesticide
applicators is the requirement that discharge of
pollution into water from a point source (recently
found that aircraft doing aerial application of
pesticides fit this category) requires a permit
Gram
(g or gm)
A unit of mass equal to the mass of 1 cc of water at its maximum density
Gallon
(gal)

A measure of volume equal to 231 cubic inches

A volume equal to four quarts, eight pints or 16 cups
Gavage

The placement of a test substance directly into the stomach of a test animal using a gastric tube.

Compare to… Ingest
General-use Pesticide

A pesticide that will not cause unreasonable adverse effects on the environment when used as directed, and that may be purchased and used by the general public.

See also... Restricted-use pesticide
Genotoxic

Causing direct damage to genetic material; generally associated with carcinogenicity
Germination

The process of initiating growth in seeds
Gallons per acre
(gpa)

A timed measure of output by volume and area of coverage of a liquid by a tool; generally refers to the liquid output and area of coverage of a mechanical pesticide sprayer.
Gallons per minute (gpm)

A measure of liquid output by time of discharge; generally refers to the liquid output of a mechanical sprayer.
Granule or Granular Formulation (G)

A dry formulation of pesticide and other components (often clay) in discrete particles generally less than 10 cubic millimeters in size which is designed to be applied without a liquid carrier.
Grass

Any plant characterized by having narrow leaves, a hollow jointed stem and spikes or clusters of membranous flowers borne in smaller spikelets; may be annual or perennial.

Grasses are classified in the plant family Gramineae.
Ground Application

Any application of pesticide performed using ground-based personnel and tools; includes mechanical equipment operated on the ground or equipment carried and used by walking persons.
Growth Regulator

Organic substance which in minute amounts controls or modifies plant or animal growth processes
Guidelines (Regulatory)

Official, peer-reviewed documentation stating current U.S. EPA methodology to be used in assessing the risk of harm from environmental pollutants to populations
Hectare (ha)

A metric measure of area equal to approximately 2.47 acres or 107,593 sq. ft.
Habitat

The area or type of environment (physical and biological) which make up the immediate place in which an organism lives or occurs

See also… Ecosystem, Niche
Hack-and -Squirt

A cut-surface application in which a hatchet or similar cutting tool is used to make cuts through the bark to expose the cambium at intervals around the stem of a tree, and a squirt bottle is used to apply a metered amount of herbicide into each fresh cut.

See also… Frill treatment, Injection, Injector
Half-life

The time required for half the amount of a substance (such as a herbicide) in or introduced into a system (living or ecological) to be eliminated whether by excretion, metabolic degradation, off-site transport, or other natural process
Handler
(WPS definition)

A pesticide handler is anyone who:

1. is employed (including self-employed) for any type of compensation by an agricultural establishment or a commercial pesticide handling establishment that uses pesticides in the production of agricultural plants on a farm, forest, nursery, or greenhouse, and

2. is doing any of 9 specific tasks amend in the standard

See also… Crop Advisor, Worker
Hardwood

Broadleaved flowering trees
In the Southeast most hardwoods are deciduous (lose their leaves in the fall and refoliate in the spring)
Hazard

A potential source of harm

The risk of danger or harm
Hazard Analysis

The process of determining whether exposure to an agent can cause an increase in the incidence of a particular adverse health effect and whether the effect is likely to occur in humans.
Hazard Identification

The process of identifying the array of potential hazardous effects that an agent may induce in an exposed population.
Hazard Quotient (HQ)

The ratio of the estimated level of exposure to the RfD or some other index of acceptable exposure

See also … RfD
HAZMAT

Hazardous material(s) are materials which present a physical hazard or a health hazard
Herbaceous

A plant (annual, biennial, or perennial) that does not develop persistent woody tissue above the ground, and whose aerial portion dies back to ground level at the end of a single growing season. Included here are grasses, grass-like plants (sedges, rushes), and forbs.
Hematological

Pertaining to the blood
Herbicide

A chemical or biological organism or byproduct used to kill or severely interrupt the growth processes of unwanted plants
Highest Dose Tested (HDT)

The highest dose tested in an experimental procedure. Generally used with expressions of the NOEL or NOAEL

See also… NOEL, NOAEL
HMIS

Hazardous Materials Information System
A database developed by the National Paint & Coatings Association to help employers comply with OSHA's Hazard Communication
Host

Any organism affected by a pathogen in a disease
Hour
(hr)
A measure of time equal to 60 minutes or 1/24\textsuperscript{th} of a day
HSDB

Hazardous Substances Data Bank
A toxicology data file on the National Library of Medicine’s Toxicological Data Network (TOXNET®) which focuses on the toxicology of potentially hazardous chemicals
Hydrolysis

Chemical decomposition or alteration of a substance by water
IARC

International Agency for Research on Cancer

Part of the United Nation’s World Health Organization IARC's mission is to coordinate and conduct research on the causes of human cancer, the mechanisms of carcinogenesis, and to develop scientific strategies for cancer control
IMO

International Maritime Organization

The IMO provides machinery for cooperation among Governments in the field of governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trade; encourages and facilitates the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation and prevention and control of marine pollution from ships.
Inch
(in)
A measure of length loosely equal to 1/12\textsuperscript{th} the length of an average human foot
1/36\textsuperscript{th} of a yard
In vitro

Isolated from a living organism and artificially maintained, as in a test tube

Compare… In vivo
In vivo

Occurring in a living organism

Compare… In vitro
Incorporate

To mix or blend a herbicide into the soil
Individual Risk

The probability that an individual will experience an adverse effect
Inert Ingredient

All ingredients in a formulated pesticide product which are not classified as active ingredients

Note: Inert as used here is a defined usage of the word; many chemicals which are ‘inert’ under this definition are biologically active
Ingest

To eat, swallow, drink or in some active way take something into the digestive system

See also… Gavage
Infection

The process of establishing a disease in a host organism or a diseased area in a body
Inhalation Exposure

Exposure of an organism to a pesticide or other substance via the nose, nasal passage, or lungs.
Injection

The application of a pesticide into or through the bark of a tree by a tool designed for that purpose

See also… Frill treatment, Hack-and-squirt, Injector
Injector 1/3

A device used to inject herbicide into the cambium of a tree
– Contd.

See also… Frill treatment, Hack-and Squirt, Injection
Generally, an injector bar is used in forestry to inject herbicide into trees. It is constructed from a long metal tube which serves both as a herbicide tank and as a handle, with filler cap at one end, and a sharpened bit and a valve at the other. A manually operated trigger (rigid lever or trip wire) releases the herbicide through the valve into cuts made by the bit -- Contd.
A second form of injector is used for the delivery of insecticide or fungicide directly to the vascular system. In this process small hollow tubes are placed in holes drilled around the circumference of a tree (often at the butt flare at ground line) and then are connected by (plastic) tubing to a pesticide reservoir. Delivery of the pesticide is either by gravity feed or by gas pressurized discharge.
Inorganic Chemical

Any chemical or compound which does not contain carbon
Insect

A small, invertebrate animal which has three body regions and six, jointed legs; insects may have two or four, or no wings
Insecticide

A chemical or a biological organism or byproduct used to kill or mitigate the action s of insects.
Instar

The interval of time between molts in the development of an immature insect

See… Larva, Metamorphosis
Integrated Pest Management (IPM) $^{1/2}$

A process in which all aspects of a pest-host system are studied and weighed to provide the resource manager with information for decisionmaking. The information provided includes the potential impact of the unregulated pest population on various resource values, alternative regulatory tactics and strategies, and benefit-cost estimates for these alternative strategies – Contd.
Integrated Pest Management (IPM) 2/2

Regulatory strategies are based on sound silvicultural practices and the ecology of the pest-host system. Strategies most commonly consist of a combination of tactics such as stand improvement plus selected use of pesticides. The overriding principle in the choice of strategy is that it be ecologically acceptable.
Inversion

A weather condition resulting when the temperature rises with elevation from the earth’s surface.

During an inversion the normal pattern of warm air rising does not occur or occurs very slowly and the cooler air above traps suspended materials (particulates, aerosols, etc.) in the low level warm air.
Invert Emulsion

Small droplets of water suspended in oil

In many cases, formation of an invert emulsion is undesirable in a pesticide mixture; most commonly it results in a sludge (the approximate consistency of mayonnaise) which clogs the hoses and valves of application equipment.
IRIS

The US EPA’s Integrated Risk Information System

This electronic database includes information related to the toxicological risks associated with pesticides
Irritant
(effect)

A reversible effect from a foreign chemical or substance as opposed to a corrosive effect

See also… Corrosive effect
IUPAC

The International Union of Pure and Applied Chemistry

A union of scientists which assigns standardized chemical names
Immersed Plant

Plants which grow completely submerged in water, but are not rooted to the bottom

See also… Emergents, Floaters, Submergents
Interim Reregistration Eligibility Document (IRED)

A document prepared by EPA for a pesticide undergoing reregistration which requires a RED and also has a cumulative risk assessment under FQPA. The IRED remains in place in lieu of and until a RED is finalized.

See also… RED, TRED
Kilogram
(kg)
A metric measure of mass equivalent to 1000 grams or approximately 2.204 pounds
Kilometer
(km)

A unit of length (metric) equivalent to 1000 meters or approximately 3281 feet or 0.62 miles
**Liter**

(L or l)

A metric measure of volume equivalent to 1000 cc or approximately 0.264 U.S. gallons
Label

The written, printed, or graphic matter on, or attached to, a pesticide container which includes basic chemical information, safety precautions, and legal application practices for the pesticide. The minimum information content of labels is legally controlled by the EPA under guidance in FIFRA and the WPS.
Labeling

The pesticide label, plus any supplemental instructions or guidance supplied by the pesticide's manufacturer, formulator, or distributor. Labeling includes the label, any supplemental labels, the MSDS, technical data sheets, other product summaries, use guidance pamphlets, etc. which are manufacturer produced.
Larva

An immature insect life stage.

See also… Instar, Metamorphosis
Larvicide

Insecticide designed to kill insects while in the immature (larval) stages of growth. Most commonly used to describe mosquito control insecticides, the term also includes caterpillar and other larvae controlling pesticides.
Latency Period

The time between first exposure to an agent and manifestation of a health effect
Lateral Movement

Movement of a herbicide through soil, generally in a horizontal plane, from the original site of application.
Pound
(lb)

A unit of measure of weight (English system) equivalent to 16 ounces or approximately 0.454 kg
Leaching

The movement of a substance downward or out of the soil as the result of water movement
LFL

Lower flammability limit
The minimum concentration of a gas in air at 1 atmosphere of pressure needed for that gas to burn

See also... UFL
Liquid
(liq)

The fluid state of matter (like water)
Differs from the solid and gaseous states
possible for the same matter
Lowest Dose Tested (LDT)

The lowest dose administered in an experiment.

Data reported as LDT indicate that effects seen at this level *may* have occurred at a lower dose level, but it is impossible to identify that dose.
Lowest Observed Adverse Effect Level (LOAEL)

The lowest exposure level at which there are statistically or biologically significant increases in frequency or severity of adverse effects between exposed populations and non-exposed (control) populations.
Lowest Observed Effect Level (LEL or LOEL)

The lowest exposure level at which there are statistically or biologically significant increases in frequency or severity of observable (not necessarily adverse) effects between exposed populations and non-exposed (control) populations.
Lysis

To break down, dissolve or decompose
Lytic

Capable of breaking something down
Meter
(m)
A metric unit of measure equivalent to 39.37 inches

Approximately 3 feet or 1 yard
Cubic meter
(m³)

A metric volume equivalent to a container 1 meter x 1 meter x 1 meter

Approximately 1.31 cubic yds
Malignant

Cancerous
Mammals

Warm-blooded animals which nourish their young with milk produced by the female of the species
Manual Control

The use of hand-held tools to control a pest population; control may be achieved by chemical application via a backpack sprayer, injector or other pesticide application tool, or by using hand-held cutting, ripping, or grubbing tools.
Margin of Safety (MOS)

The ratio between the animal NOEL and the estimated human dose received

A larger MOS indicates a smaller dose compared with the NOEL and thus a smaller human risk

In order to satisfy the criterion suggested by the EPA and adopted in Region 8, the quotient of this formula must be greater than or equal to 100.0 to pose an acceptable level of risk
Material Safety Data Sheet (MSDS)

A legal document listing the contents and characteristics of a pesticide or other chemical formulation, including: hazardous ingredients; physical data; fire and explosion hazard data; health hazard data; reactivity data; spill or leak response procedures; special protection information; and other special precautions.
Mechanical Control

The use of tools mounted on mechanical equipment such as a tractor of skidder, to control a pest population; control may be achieved by chemical application (via a boom sprayers, mist blowers, or other mechanical pesticide application tool) or it may be accomplished by the use of machine mounted cutting, ripping, crushing or macerating tools.
Median Lethal Concentration
(LC₅₀, LC50 or MLC)

One measure of toxicity - the concentration of a substance in an environment (generally air or water) which produces death in 50% of a population of test animals exposed to it for a specified period of time.

Expressed as milligrams of the substance per liter (air or water), or as parts per million or parts per billion.
Median Lethal Dose
(LD$_{50}$, LD50 or MLD)

A measure of toxicity - the amount (dose) of a substance which produces death in 50% of a population of test animals to which it is administered by any of a variety of methods

Expressed as milligrams of the substance per kilogram of animal body weight
Meristem

The growing point or area of rapidly dividing cells at the tip of a stem, root, branch, or leaf
Metabolite

A chemical derived from plant or animal metabolic breakdown or biochemical transformation of another chemical
Metamorphosis

A change in shape, form or structure, and size of an insect from the egg to adult stages; may be gradual or complete. Immature insects regardless of type of metamorphosis may go through as many as five instars.

See also… Metamorphosis – gradual, Metamorphosis – complete, Instar
Metamorphosis - Complete

A change in shape, form or structure, and size of an insect from the egg to adult stages in which immature (egg, larva, and pupa) and adult stages have significantly different appearance.

See also… Metamorphosis, Metamorphosis – gradual, Larva, Pupa
Metamorphosis - Gradual

A sequential or staged change in size of an insect from the egg to adult stages where the adult is basically a larger version of the immature (egg and nymph) stages.

See also… Metamorphosis, Metamorphosis-complete.
Milligram (mg)
A (metric) unit of measure of mass equivalent to 0.001 gm or approximately 0.000035 ounces
Milligram per kilogram (mg/kg)

Generally used measure of dose received, it represents 1 mg of substance per kg of body weight of the dosed animal.

Equals 1 ppm (part per million)
Milligram per liter
(mg/L)

Generally used measure of concentration of one substance (solid, liquid or gas) in another (generally liquid or gas)
Mile
(mi)

English system unit of measure of length equal to 5,280 feet
Microbial Breakdown

The breakdown of a complex substance into smaller component chemicals by microbes
Microfoil Nozzle

A nozzle, generally used in aerial applications, designed to produce a spray of relatively large, uniform droplets, with the objective of minimizing drift.
Microorganism
(Microbe)
A generic term for all organisms of microscopic size including bacteria, viruses, fungi and protozoa
Miscible Liquid

Liquids capable of being mixed in any proportion and remaining mixed under normal temperatures and pressures
Mitigation Measure

Any action taken to lessen adverse impacts or enhance beneficial effects; any action designed to change an effect
Milliliter
(ml)
A metric unit of measure of volume equal to 0.001 liter
Millimeter
(mm)
A metric unit of measure equal to one one-thousandth of a meter

0.001 meters
Model

A mathematical formula or set of formulae with data inputs (parameters) that can be adjusted so that the mathematical expression(s) closely describe a set of empirical data.
Monocotyledon
(Monocot)

A member of the Monocotyledoneae; usually characterized by having the following – one seed leaf (cotyledon), leaves with parallel veination, and generally diffuse (fibrous) root systems which arise adventitiously.

See also... Dicotyledon
Miles per hour
(mph)

An English system measure expressing distance as a function of time
MSHA

Mine Safety and Health Administration of the US Department of Labor

MSHA’s primary role is to administer the provisions of the Federal Mine Safety and Health Act of 1977
Multiple Chemical Sensitivity (MCS)

A syndrome in which individuals are postulated to be extremely sensitive to and negatively affected by concurrent exposure to extremely low levels of many chemicals.

The literature is unclear as to whether this syndrome is the result of additive or synergistic effects, or both or even if it is a single syndrome or a family of similar syndromes.
Mutagen

A substance capable of permanently altering the structure of DNA
Mutagenesis

The process of causing change to DNA
Mutagenicity

The capacity of a substance to cause heritable changes in genetic material (primarily DNA)
Mutant

An organism which differs from its parents as a result of an alteration in its genetic material
Mutation

An alteration or change in genetic material (primarily the DNA)
Mycoplasma

A microorganism intermediate in size between viruses and bacteria, which possesses many virus-like properties.
Maximum Exposure Limit (MEL)

The maximum permitted concentration of a chemical to which a worker may be exposed over an extended period of time (typically quoted as ppm for 8 hours). In many countries MELs are legally enforceable.

See also… AEL, OEL, PEL, STEL, TLV, TWA
n.a. or na

Not available or not applicable
(meaning dependant on context )
Name
(of a pesticide product)

See... Chemical name, Common name, Trade name
NAS

National Academy of Sciences
A non-profit elected society of scientists which provides a public service to the government by working outside the framework of government to ensure independent advice on matters of science
National Research Council (NRC)

The NRC has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public and the scientific and engineering communities.
National Response Center (NRC)

The NRC is the sole federal point of contact for reporting oil and chemical spills
NCI

National Cancer Institute
A component of the National Institutes of Health (NIH), one of eight agencies that compose the Public Health Service (PHS) in the Department of Health and Human Services (DHHS)
The NCI is the Federal government's principal agency for cancer research
Necrosis

Localized death of tissue usually characterized by browning and desiccation
Nematicide

A chemical, or a biological organism or byproduct (but most often a fumigant chemical) used to kill nematodes
Nematode
A microscopic roundworm
Neoprene

A synthetic rubber often used to make chemically resistant gloves, boots and spray hoses
NEPA

National Environmental Policy Act of 1969 as amended

Directs all federal agencies to consider and report the potential environmental impacts of proposed federal actions, and established the Council on Environmental Quality
NFMA

National Forest Management Act of 1976 as Amended

The National Forest Management Act requires the Secretary of Agriculture to assess forest lands, develop a management program based on multiple-use, sustained-yield principles, and implement a resource management plan for each unit of the National Forest System.
NFPA

National Fire Protection Association

A private non-profit organization, the NFPA is the leading authoritative source of technical background, data, and consumer advice on fire protection, problems and prevention.
Neurotoxicity

The ability to damage nerve tissue
Niche

The set of functional relationships of an organism or population to the environment it occupies; the area within a habitat occupied by an organism.

See also… Ecosystem, Habitat
NIH

National Institute of Health
US Department of Health & Human Services
The mission of the NIH is science in pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability
NIOSH

National Institute of Occupational Safety and Health

An Institute in the Centers for Disease Control, NIOSH is the sole federal institute responsible for conducting research and making recommendations for the prevention of work-related illnesses and injuries
NMFS

The National Marine Fisheries Service
National Oceanographic and Atmospheric Admin.  
US Department of Commerce

This Service has three main goals in its strategic plan: to rebuild and maintain sustainable fisheries; to promote the recovery of protected species; and, to protect and maintain the health of coastal marine habitats
No Observed Adverse Effect Level (NOAEL)

The highest exposure level at which there are no statistically or biologically significant increases in frequency or severity of adverse effects between exposed populations and non-exposed (control) populations.

See also… HDT, NOEL
No Observed Effect Level (NOEL)

The highest exposure level at which there are no statistically or biologically significant increases in frequency or severity of any observable (not necessarily adverse) effects between exposed populations and non-exposed (control) populations

See also… HDT, NOAEL
Non-crop Area

Land areas on which no vegetation is being grown for the purpose of producing an agricultural or forestry crop. These areas generally include highway, powerline, and other rights-of-way, wildlife openings in forests, industrial sites, fencelines, and other similar areas.
Non-selective Herbicide

A herbicide that is generally toxic to all treated plants
Some selective herbicides become non-selective when applied at high rates
Nontarget

Any plant, animal, or other organism that a method of application is not aimed to affect, but which may be accidentally injured during application
n.o.s.

Not otherwise specified
Noxious Weed

A weed regulated or specified by law as being especially undesirable, troublesome, and difficult to control
NRC
National Response Center
(1-800-424-8802)
National Research Council
(clarified by context)
NTIS

National Technical Information Service
US Department of Commerce

NTIS is the federal government's central source for the sale of scientific, technical, engineering, and related business information
National Toxicology Program
A unit of the U.S. Department of Health and Human Services the NTP coordinates toxicology research and testing activities within the Department and provides information about potentially toxic chemicals to regulatory and research agencies and the public.
Nymph

The early (immature) stages in the development of insects undergoing gradual metamorphosis (which lack a larval stage)
Oil

A liquid aromatic or paraffinic hydrocarbon compound

Oil may be used as an active ingredient (dormant oils), but it is more commonly used as inert diluents or carriers for other pesticides
Oncogenic

Causing tumor formation

Cancer causing
One-hundred-fold Margin of Safety \(^{(1/2)}\)

The safety factor suggested by the EPA as adequate to pose only a low risk to the typical (average) member of the human population

Equivalent to the NOEL / 100 / the dose
One-hundred-fold Margin of Safety (2/2)

In order to satisfy the criterion which has been adopted as a standard in Region 8, the value returned by this formula must be greater than or equal to 1.0 for both human and wildlife analyses.
OPP
Office of Pesticide Programs
U.S. EPA
OPP supports the registration and review of environmental and human health information on pesticides
OPPTS
Office of Prevention, Pesticides, and Toxic Substances
U.S. EPA
Promotes pollution prevention and the public's right to know about chemical risks
Oral Exposure

Exposure of an organism to a pesticide or other substance through the mouth, throat or stomach
ORD
Office of Research and Development, U.S. EPA
The principal scientific and research arm of the Environmental Protection Agency, ORD conducts research and fosters the use of science and technology in fulfilling EPA's mission.
Organic Compound

Any chemical compound which contains carbon
Organochlorine

A family of organic chemicals (contain carbon) which are distinguished by containing chlorine. Often, very persistent in the environment; examples include chlordane, lindane, and DDT

See also… Chlorinated hydrocarbon
Organophosphate

A family of organic chemicals (contain carbon) which are distinguished by containing one or more phosphorous atoms in their structure

Generally less persistent than organochlorines; all inhibit the action of cholinesterase, a blood clotting chemical

Examples include malathion, diazinon and parathion
Orifice

The opening in a nozzle tip through which liquid is forced to produce a continuous stream or a stream of droplets.
OSHA or O.S.H.A.

Occupational Safety and Health Administration

Occupational Safety and Health Act of 1970 as amended

(Meaning is context dependant)
Occupational Safety and Health Administration

Within the U.S. Department of Labor it’s primary goals are to save lives, prevent injuries and protect the health of America's workers
OST

Office of Science and Technology
U.S. EPA

Responsible for developing sound, scientifically defensible standards, criteria, advisories, guidelines, limitations and standards under the Clean Water Act and the Safe Drinking Water Act and for developing risk assessment methodologies and for providing risk assessment support for the Office of Water of the US EPA
OSWER

Office of Solid Waste and Emergency Response

U.S. EPA

Develop guidelines for the land disposal of hazardous waste and underground storage tanks; provides technical assistance to all levels of government to establish safe practices in waste management; support state and local governments in redeveloping and reusing potentially contaminated sites; manage the Superfund program to respond to abandoned and active hazardous waste sites; and encourage innovative technologies to address contaminated soil and groundwater.
Ovicide

A chemical designed to kill animal eggs
Over-the-top Application

A broadcast, banded or spot application made over the canopy of the crop trees (generally seedlings)
Ounce
(oz)

An English system unit of measure of either weight or volume

Weight = 1/16 pound

Volume = 1/32 quart or 1/128 gallon
Occupational Exposure Limit (OEL)

Generally, a (legally enforceable) limit on the amount or concentration of a chemical to which a worker may be exposed

See also… AEL, MEL, PEL, STEL, TLV, TWA
Occlusion Bodies

For insect viruses, a protein “overcoat” and everything within it keeps the virus particles occluded, or separate, from the outside environment. Because the occlusion bodies are the actual structural units that infect larvae, EPA has registered the occlusion bodies of individual viruses as the pesticide active ingredient.
Occupational Exposure

Exposure of a person to a chemical during performance of work for hire. It is often reviewed and standards are applied generally limiting the amount of exposure permissible on the job.
Pathogen

An organism capable of causing disease
Pellet

Dry formulation of pesticide and other components in discrete particles usually larger than 10 cubic millimeters designed to be applied without a liquid carrier.
Penetration

The process of entering, as in entering a leaf or stem
Perennial Plant

A plant (species) having a lifespan of more than two years

See also... Annual, Biennial
Permissible Exposure Limit (PEL)

A TWA or an absolute value, usually a regulatory value, which is the maximum permitted exposure to a hazardous chemical

See also... AEL, MEL, OEL, STEL, TLV, TWA
Persistence

The resistance of a herbicide to metabolic or environmental degradation or removal; a measure of the duration of retention of activity by a pesticide in the environment.
Personnel Protective Equipment (PPE)

Apparel and devices worn to protect the body from contact with pesticides or pesticide residues, including: coveralls; chemical-resistant suits, gloves, footwear, aprons, and headgear; protective eyewear; and, respirators (per WPS). In addition, labels may require long sleeved shirts, long pants, shoes and socks, and other items which are not specifically designated as PPE.
Pesticide
(FIFRA definition)

Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest

Any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant

[Note: the definition excludes certain animal drugs controlled by other laws]
Pesticide Interaction

The action or influence of one pesticide on another and the combined effect of the pesticides on the pest(s) or the crop.
pH

A measurement scale used to express acidity or alkalinity of a solution; pH 7.0 is neutral, pHs <7 are relatively more acidic as the value approaches 0, and pHs >7 become relatively more alkaline as the value approaches 14.
Phenoxy Herbicide

A chemical family of herbicides typified by having a benzene ring as its base and a methyl group as a side chain connected to the benzene ring by an oxygen atom.

In addition, all phenoxies have one to three chlorines linked separately to the benzene ring.

Phenoxy herbicides act as plant growth inhibitors, generally showing an auxin type of growth inhibition often expressed at low doses as epinasty.

Phenoxies include 2,4-D, 2,4,5-T, 2,4-DB, 2,4-DP, and MCPA.
Pheromone

A chemical produced by an organism to either attract or repel members of the same species.

Artificially produced pheromones are used to disrupt populations of insects often by disrupting mating patterns, or as baits to trap insects.
Photodecomposition

The breakdown of a complex substance (generally a chemical compound) into simpler components by the action of radiant energy.
Photolysis

Breaking down of a compound as a result of the action of radiant energy in the visible spectrum
Phytolysis

Breakdown of a compound or substance by plant biochemical action
Phytotoxic

Injurious or lethal to plants
Piscicide

A pesticide used to control fish
Plant Growth Regulator

A substance used for controlling or modifying plant growth processes without causing severe phytotoxicity
Poison

Any chemical or agent which is capable of causing illness or death when eaten, absorbed through the skin, inhaled, or otherwise absorbed by man, animals or plants; substances are poisonous with respect to specific organisms, few, if any, are universally poisonous. For regulatory purposes the word POISON means any pesticide having an oral LD$_{50}$ less than or equal to 50 mg/kg; a ‘highly toxic’ chemical.
Postemergence

After the emergence of a specified weed or planted crop

Refers to application of a pesticide after the plant emerges from the soil
Potable Water

Water suitable and intended for human consumption
Parts per billion (ppb)

A commonly used ratio equaling a concentration of one (gram for example) of one substance one billion grams of another substance

\[ \frac{1}{1,000,000,000} \text{ or } 1 \times 10^{-9} \]
Parts per million (ppm)

A commonly used ratio equaling a concentration of one (gram for example) of one substance one million grams of another substance

\[\frac{1}{1,000,000} \text{ or } 1 \times 10^{-6}\]
Parts per trillion (ppt)

A commonly used ratio equaling a concentration of one (gram for example) of one substance one trillion grams of another substance

\[
\frac{1}{1,000,000,000,000} \text{ or } 1 \times 10^{-12}
\]
Predicide

A pesticide used to control vertebrate predator pests
Predator

An insect or other animal that attacks, feeds on, and destroys other animals (including insects)
Preemergence

Before the emergence of a specified weed or planted crop

Refers to the application of a pesticide before the plant emerges from the soil
Private Applicator
(FIFRA meaning)

Any certified applicator who uses or supervises the use of any pesticide which is classified for restricted-use for the purpose of producing any agricultural commodity on property owned or rented by the applicator or his/her employer, or applied (if applied without compensation other than trading of personal services between producers of agricultural commodities) on the property of another person.

See also… Certified applicator, Commercial applicator
Protocol

A clearly described, generally accepted, repeatable method used in evaluating any specific endpoint
p.s.i. or psi

Pounds (of pressure) per square inch of surface
Pint
(pt)

An English system unit of measure of volume equal to:

16 liquid ounces

\[ \frac{2 \text{ cups}}{2 \text{ cups}} \]

\[ \frac{1/2 \text{ quart}}{1/2 \text{ quart}} \]

\[ 1/8 \text{ gallon} \]
Pupa

The resting stage of insects which undergo complete metamorphosis which occurs as the transition stage during which the insect matures from the larval to the adult stage

See also… Complete metamorphosis
PVC

Polyvinyl chloride

PVC is a vinyl polymer, a plastic similar to polyethylene
Pyrolysis

Breakdown of a chemical caused by fire
Quart
(qt)

An English system unit of measure of liquid volume equal to:

4 cups
2 pints, or
¼ gallon

Approximately equivalent to a metric liter
Rate

The quantity of active ingredient (ai) or parent compound acid equivalent (ae) expressed as mass per unit area (surface or volume) treated; for example lbs ai/ac or gm ae/ml

The speed at which a chemical reaction progresses
RCRA

Resource Conservation and Recovery Act of 1976

The law which gives U.S. The U.S. Environmental Protection Agency the authority to control hazardous waste from "cradle-to-grave"
Ready-to-use Formulation of a Pesticide (RTU)

A pesticide which, as formulated by the manufacturer and sold in stores, is designed to be used ‘as-is’ without further dilution or mixing with other chemicals.

See also… Formulated product, Technical grade
Reregistration Eligibility Document (RED)

A document prepared by the EPA which summarizes their conclusions about their risk assessment of a pesticide and outlines any risk management measures necessary for the pesticide to continue to be registered in the US

See also… IRED, TRED
Reference Dose (RfD)

An estimate of daily oral exposure to the human population (including sensitive subgroups) that is likely to be without deleterious effects during a lifetime. Uncertainty associated with this estimate may span an order of magnitude; uncertainty factors are generally applied to these estimates to reflect the limitations of the data used to derive the estimates.

See also… Hazard Quotient
Registered Pesticide

A pesticide that has been registered with the Environmental Protection Agency for use in the United States under authority granted in FIFRA

See… Registration
Registration

The process whereby a pesticide is approved for specified uses in the United States by the Environmental Protection Agency under the authority of FIFRA.

As part of the registration process, the EPA assigns a registration number and approves adequate company-prepared labels.

See also... EPA registration number, Label, Registered pesticide.
Release

The process of allowing desirable vegetation greater access to soil moisture, nutrients, and light by reducing or eliminating competing vegetation on a site.

See also… Thinning
Repellent

A pesticide used to keep animal pests away or to deter their activity
Reportable Quantity (RQ)

The minimum amount of spilled HAZMAT which must, under federal law, be reported to the NRC.
Reptile

Vertebrate animals that are cold-blooded and possess scaly skin, for example snakes, turtles and lizards
Residual Pesticide

The quantity of a herbicide or its metabolites remaining active in soil, water, plants, animals, or on their surfaces; a herbicide that persists, remaining active, in the soil for a relatively short period of time
Residue

The amount of pesticide that remains on or in agricultural products
Residue Tolerance

The concentration of a pesticide residue that is allowed in or on raw agricultural commodities as established by the EPA

See also… Tolerance
Resistance

The 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)

See also… Tolerance
Respirator

A device worn over the nose and mouth which filters air being breathed so as to protect the respiratory tract from damaging agents (noxious fumes, pesticidal dusts, etc.)
Restricted-Entry Interval (REI; under WPS)

The time after a pesticide application during which entry to the site is limited by law. The most common limitation imposed is that specified PPE is required to be worn by a worker or handler if they must reenter the area during the REI. REIs are specified on the pesticide label as are PPE requirements for early reentry.
Restricted-use Pesticide

A pesticide product for application only by certified applicators or persons under their direct supervision. Designation of ‘restricted-use’ generally reflects environmental or public health concerns which require a higher degree of care than is acceptable for the application of general-use pesticides. Legally specified records of use are required to be kept and maintained when using restricted use pesticides.

See also… General-use pesticide
Rhizome

A rootlike underground stem
Right-of-way (ROW)

Areas involved in common transport, including highways, roads, railroads, powerlines, pipelines, waterways, trails, and paths
Risk

The probability that a substance or its lack, an action or lack of action, or some other stimulus or lack of stimulus will produce harm under specified conditions
Risk Assessment (RA)

The determination of potential adverse health effects from exposure to chemicals, which includes both quantitative and qualitative expressions of risk.

Applies to both the process of evaluating risk and written documentation of that evaluation.
Risk Management

A decision making process that accounts for political, social, economic and engineering implications together with risk-related information in order to develop, analyze and compare management options and select the appropriate managerial response to a potential chronic health hazard.
Rodent

Any animal in the taxonomic Order Rodentia; examples include rats, mice, rabbits, squirrels, and beavers
Rodenticide

A pesticide used for rodent control
Science Advisory Board
Congress established the EPA Science Advisory Board in 1978 and gave it a broad mandate to advise the Agency on technical matters

See also… SAP
Safener

A substance which reduces toxicity of herbicides to crop plants by a physiological means
Safety factor

A number representing human tolerance for a chemical agent based on the NOEL determined in animal testing.
SAP

U.S. EPA OPP’s FIFRA Scientific Advisory Panel

Panels within the SAB which provide advice regarding pesticide regulation, guidance and registration actions

Compare to… SAB
SARA

Superfund Amendment & Reauthorization Act of 1986

A law which reauthorized CERCLA with the purpose of identifying, remediating and preventing the release of hazardous substances to the environment
SDWA
The Safe Drinking Water Act
Amendments of 1996
Under SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards.
Second (sec)

A unit of measure of time equal to 1/60 of a minute or 1/360 of an hour
Sedge

Any of the numerous grasslike vascular plants which have a solid (often square in cross section) stem as differentiated from the round hollow stem which typifies grasses

Sedges are classified in the family Cyperaceae
Seed Protectant

A chemical applied to seeds before planting to protect seeds and/or seedlings from pests; most commonly a fungicide, insecticide, or repellant.
Selective Herbicide

A pesticide that is more toxic to some plant species than to others
Sensitive Subgroup

Subpopulation which is more vulnerable to suffering negative effects from exposure to specific agents in the environment than are the average members of the population.
Sensitization

The process by which a living organism becomes allergic to a stimulus
Short-term Exposure

Multiple or continuous exposure to an agent for a short period of time, usually one week or less
Short Term Exposure Limit (STEL)

The maximum permissible concentration of a chemical (generally as ppm in air) for a defined short period of time (generally 5 minutes). Normally backed by regulation, they are legally enforceable limits.

See… AEL, MEL, OEL, PEL, TLV, TWA
Signal Word

One of three words (DANGER, WARNING, CAUTION) defined by law which must appear prominently on a pesticide label to indicate the relative toxicity of the product
Silvicide

A pesticide used to kill unwanted brush and trees (a subset of herbicide)
Site
(per FIFRA)

The area(s) of land or water defined on the product label to which a pesticide may be applied. Under the 1988 reauthorization of FIFRA the site of application must be present on the label in order for an applicator to legally apply that pesticide on that site.
Site Preparation

Preparation of an area for planting or natural regeneration, may involve herbicidal application to removal of potentially competing plant growth.
**Slurry**

Thin watery mixture of dirt or clay (and often a pesticide) into which seedling roots are dipped to provide protection during cold storage or during early outplanting.
Soil-active

A herbicide which, when applied to or present in the soil, is readily absorbed by plant roots and subsequently negatively affects the plant.
Soil Injection

Placement of a herbicide beneath the soil surface with a minimum of mixing or stirring of the soil, as with an injection blade, knife, or tine
sol

Solubility or soluble
(depending on context)
Soluble Concentrate (S)

A liquid formulation which forms a solution when added to water
Soluble Granule (SG)

A dry granular formulation which forms a solution when added to water
Soluble Powder (SP)

A finely divided dry pesticide formulation that dissolves in water
Solution

A liquid or solid chemical dissolved (not suspended) in water. Also, an ester or other oil-soluble chemical dissolved in oil
sp

Specific (as in sp. grav. = specific gravity),

Species

(depending on context)
Special Local Need Registration (SLN)

Registration of a pesticide by U.S. EPA which allows its use in a single state for a stated purpose and generally for a limited time.
Spot Treatment

Pesticide application to restricted portions (or spots) within a larger unit
Square
(sq)

Generally used when referring to measurements of area such as sq. ft. or sq. mi.
Stolon

A horizontal branch from the base of a plant which produces new plants from buds at its tip

Also called a runner
Streamline

A basal herbicide application in which a stream of liquid herbicide mixture is directed at each individual targeted stem until it is visibly wet (generally by 2-5 ml of the mixture.) The herbicide is normally diluted in the application mixture.

See also… Thinline
Stylet

A small, hypodermic-like mouth structure of nematodes used to pierce plant or animal tissue for the purposes of feeding
Subchronic Exposure

Exposure to a substance spanning about 10% of the lifespan of an organism (Exposures of longer duration than acute or short-term and shorter than chronic)
Submersed Plants
(Submegents)

A rooted aquatic or marine plant that grows with all or almost all of its vegetative surface below the surface of the water

See also… Emergents, Floaters, Immersed Plants
Sufficient Challenge

The theory that exposure to very small amounts of a foreign chemical may stimulate the body’s defense mechanisms and make the body stronger.
Sulfonyleurea

Organic herbicide family with a sulfur containing urea bridge between two benzene rings – one of which has Nitrogen substituted for Carbon at 2 or 3 locations on the ring. They inhibit amino acid synthesis in roots and shoots. Included here are Oust (sulfometuron methyl) and Escort (metsulfuron methyl)
Superfund

Federal authority, established under CERCLA, to respond directly to releases or threatened releases of hazardous substances that may endanger the environment.
Surface Acre

Surface area of water equal to 43,560 square feet

See also… Acre foot
Surfactant

A material that favors or improves the emulsifying, dispersing, spreading, or wetting, properties of a liquid
Susceptibility

The sensitivity to or degree to which a plant is injured by a herbicidal treatment

The degree to which a potential host is vulnerable to attack by a pathogen, or a population or individual is vulnerable to insect attack

(Meaning from context)
Suspend
(FIFRA regulatory action)

To revoke one or all registered use(s) of a pesticide with the requirement that no further use be made of the chemical

Suspension immediately revokes all permissions formerly allowed which are listed (as voided) in the suspension order

See also… Cancel
Suspension

Finely divided solid particles or liquid droplets dispersed in a solid, liquid, or gas

See also... Suspend
Swath

A linear treated area of variable length whose width is the width of a single pass of a sprayer boom
Synergism

The effect produced by two chemicals applied together where the total response is greater than the sum of their independent effects

See also… Additive effect, Antagonism
Synthetic Chemical

A chemical made in a laboratory or industrial plant
Systemic Pesticide

A pesticide which, when introduced into an organism, is moved to another part of that organism where it acts against the pest; most correctly used to describe the action of fungicides or insecticides.

See also… Contact herbicide, Contact insecticide, Translocated herbicide
Subchronic Toxicity

Toxicity of a substance expressed after multiple doses given for longer than a day and less than half of the projected life expectancy of the test individuals

See also… Acute toxicity, Chronic toxicity
Tank Mix

A combination of two or more formulated pesticides mixed together after purchase and prior to application
Technical Grade

An active ingredient as produced by a manufacturer prior to formulation and packaging as a pesticidal product

See also… Formulated product, Ready-to-Use product
Teratogen

An agent capable of producing damage to an embryo which results in birth defects.
Teratogenic

Capable of causing structural defect in offspring, generally acting during the development of individual organs; capable of causing birth defects
Thinline

A basal herbicide application in which a thin stream of undiluted herbicide is directed at groups of target plants.

The applicator uses a side-to-side motion of the nozzle to achieve the desired stem coverage.

See also… Streamline
Thinning

The process of selectively removing undesirable or less desirable plants to improve the average growth rate and form of the remaining plants.

May be done in a variety of ways, with or without the use of herbicide.

See also… Release
Threshold

A dose or exposure level below which no deleterious effect is expected to occur
Threshold limit value (TLV)

The average concentration of airborne contaminants in mg/m$^3$ for an 8-hour workday and a 40 hour work week to which nearly all workers may be repeatedly exposed, day after day, without adverse effects. TLV guidelines are published by the ACGIH.

See also... AEL, MEL, OEL, PEL, STEL, TWA
Thiocarbamate

A subset of the carbamate insecticides which has a sulfur atom substituted for an oxygen atom in the linking of the carboxyl group; includes eptam
Time Weighted Average (TWA)

The average concentration of a chemical to which it is permissible to expose a worker over a specified period of time (generally 8 hours)

See also… AEL, MEL, OEL, PEL, STEL, TLV
Tolerance

The ability to continue normal growth when exposed to a potentially harmful agent

A permissible level of a substance in or on another

See also… Resistance, Residue tolerance
Toxicity

The natural capacity of a substance to produce injury to an organism; may vary by route of exposure.
Toxicology

The study of harmful interactions between chemicals and biological systems
Toxic Substance

A chemical substance or agent which may cause an adverse effect or effects to biological systems
TRAC

Tolerance Reassessment Advisory Committee

US EPA

Obsolete Committee (ended 1999) to provide advice and counsel to the Administrator of the EPA regarding a strategic approach for organophosphate pesticide tolerance reassessment
Trade Name
(Product name)

A brand name, trademark or other designation by which a commercial product is identified

See also… Chemical name, Common name
Translocated Herbicide

A herbicide that is moved within a plant from the point of application to the point of action; may be either phloem-mobile or xylem-mobile. However, the term is often restricted to mean a foliar applied herbicide which moves downward from the leaves to the roots.

See also… Contact herbicide, Systemic pesticide.
Triazine

A fungicide which is formed of a substituted benzene ring base in which alternating carbons in the ring have been replaced by a nitrogen atom giving a $C_3N_3$ ring rather than the $C_6$ ring as in benzene.

Triazines interfere with protein synthesis and chloroplast development.

Examples include atrazine and simazine.
TSCA

Toxic Substances Control Act of 1976 as amended

Grants the Administrator of the Environmental Protection Agency the authority to regulate chemical substances and mixtures, which present an unreasonable risk of injury to the public health or the environment, and to take action with respect to chemical substances and mixtures, which are imminent hazards.
Tumor

An abnormal, uncontrolled growth of cells

Synonym: Neoplasm
Tolerance/Reregistration Eligibility Document (TRED) 1/2

A document issued by the EPA for a pesticide requiring a tolerance reassessment under FQPA, but not needing a RED for one of three reasons – Contd.

See also... IRED, RED
Tolerance/Reregistration Eligibility Document (TRED) 2/2

Reasons for issuance of a TRED and not a full RED include:

- Pesticide initially registered after Nov. 1, 1984 and not subject to reregistration
- RED completed for pesticide prior to August 3, 1996 when FQPA was enacted
- Pesticide not registered for use in the US; import tolerance only
Upper flammability limit
The concentration of a gas in the air at 1 atmosphere pressure at which it becomes too concentrated to burn; the mixture is too ‘rich’ to burn

See also... LFL
Microgram (ug)  
A metric unit of mass equal to 0.001 gram
Ultra Low Volume (ULV)

Applications of very small amounts of undiluted pesticide (1/2 pint or less, or an equivalent amount of undiluted dry material) per acre
Ultra Light Weight Granular Formulation (ULW)

A formulation produced as extremely fine granules and designed for aerial application by specialized blowers
Uncertainty factor

(UF) \(\frac{1}{3}\)

One of several (up to) 10-fold factors, used to derive an RfD from experimental data. UFs are intended to account for: (1) the variation in sensitivity among the members of the human population (intraspecies variation); ---Contd.
Uncertainty factor

(\text{UF})^{2/3}

UFs are intended to account for: (2) the uncertainty in extrapolating animal data to humans (interspecies variability); (3) the uncertainty in extrapolating from data obtained in a study with less than lifetime exposure to project lifetime exposure; ---Contd.
Uncertainty factor

(UF) \(^{3/3}\)

UFs are intended to account for: (4) the uncertainty from extrapolating from a LOAEL rather than from a NOAEL; and, (5) the uncertainty associated with extrapolating from an incomplete data base (incomplete or unavailable data)
United Nations/North America Number (UN/NA No.)

A unique 4-digit number applied to a chemical for identification and tracking purposes by the U.N.
United States Patent Number
(U.S. Pat. No.)
A unique number assigned by the United States Patent Office which protects the holder of the patent from production by unlicensed persons or companies in the US
Upper Bound

A plausible upper limit to the true value of a quantity

This is usually not a true statistical limit with confidence interval
USDA

U.S. Department of Agriculture
Cabinet level Executive Department of the US government with the following mission

Enhance the quality of life for the American people by:
Supporting production of agriculture
Ensuring a safe, affordable, nutritious, and accessible food supply
Caring for agricultural, forest, and range lands
USDA
(Cont.)
Supporting sound development of rural communities
Providing economic opportunities for farm and rural residents
Expanding global markets for agricultural and forest products and services
Working to reduce hunger in America and throughout the world
Vapor
(vap)
A substance in the gaseous state as opposed to being solid or liquid
Vascular Plant

A plant with specialized conducting cells (xylem and phloem) that convey water and food throughout the plant.
Vector

A carrier, such as an insect, that transmits a pathogen
Vertebrate

An animal with a bony spine
Volatile

Evaporating at normal temperature and pressure
Volatility

The ability of a solid or liquid to evaporate at normal temperature and pressure; readily vaporized
Weed

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

Any plant that is ‘out of place’ by the observers definition
Weed Control

The process of reducing weed growth 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 Granular (WG)

A dry pesticide formulation of discrete particles 10 mm³ or larger designed to be suspended in water for the purposes of application
Wettable Powder (WP)

A finely divided dry pesticide formulation that can be suspended readily in water
Wetting Agent

A chemical that helps a pesticide spread and coat (wet) a surface more evenly. Wetting agents reduce the amount of a spray that rolls off smooth or waxy leaves, and helps sprays to spread out on hairy leaves.

Detergents are sometimes used as wetting agents.
Worker
(WPS description)

A worker is anyone who: (1) is employed (including self-employed) for any type of compensation and (2) is doing tasks such as harvesting, weeding, or watering, relating to the production of agricultural plants on a farm, forest, nursery, or greenhouse. The term does NOT include persons who are employed by a commercial establishment to perform tasks as crop advisors.

See also… Crop Advisor, Handler
Worker Protection Standard (WPS)

U.S. EPA regulations enacted in 1992 intended to protect agricultural and forestry workers from exposure to pesticides, as specified in 40 CFR Part 170
WSSA

Weed Science Society of America
U.S. based organization of scientists involved in the various aspects of research and the management of weed plants
Weight
(wt or wgt)

Relative heaviness
The force with which an object is attracted towards the earth or other celestial body by gravity – the product of mass times the local gravitational acceleration