

Greenhouse Tomato Growers' Glossary

Producing greenhouse tomatoes, like many endeavors, has its own world of terminology. But because of the integration of many different fields—horticulture, botany, plant physiology, plant pathology, entomology, and others—there are more terms in this field than perhaps any other agricultural pursuit. Also, greenhouse tomato production is rooted in European and Asian countries and was well established in Holland, England, and Japan, before being transported to Canada and eventually to the United States. So, some words have a more international base.

For of all of these reasons, this Greenhouse Tomato Growers' Glossary was assembled to help growers with learning the language of hydroponics and greenhouse tomato production. For more specific information, refer to other publications of the Mississippi State University Extension Service. All of these publications are online at <http://msucares.com>, or you may get copies from your county Mississippi State University Extension Service office:

Greenhouse Tomato Handbook, MSU Extension Publication 1828

Budget for Greenhouse Tomatoes, MSU Extension Publication 2257

Environmental Control for Greenhouse Tomatoes, MSU Extension Publication 1879

Greenhouse Tomatoes: Pest Management in Mississippi, MSU Extension Publication 1861

Starting Vegetable Transplants, MSU Extension Publication 1995

Fertigation: The Basics of Injecting Fertilizer for Field-Grown Tomatoes, MSU Extension Publication 2037

A Spreadsheet Approach to Fertilization Management For Greenhouse Tomatoes, MAFES Bulletin 1003

Helpful Terms To Know

abiotic disease: plant disease caused by factors other than living organisms, such as drought, nutritional deficiencies, pH problems, pesticide burn, and air pollution.

bacterium: microscopic, one-celled organisms reproducing by fission, lacking chlorophyll, and causing disease in tomato, such as bacterial canker, bacterial wilt, bacterial stem rot, pith necrosis, and bacterial soft rot.

biological control: using one or more living organisms to help control a pest or limit its population.

blade: the extended flat part of a leaf, not including the petiole.

blossom-end rot: a sunken, leathery brown or black spot on the bottom or near the bottom of a tomato fruit; not from a disease; usually from lack of water or not enough calcium in the fruit.

bullish: a plant with thick, leathery, dark-green leaves, little or no fruit, and very vegetative; may be caused by overfertilization with nitrogen or genetic off-type.

calyx: the green pointed structures beneath flower petals and at the top of the fruit; composed of individual sepals.



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canker: a sunken, discolored area of diseased plant tissue that is usually dry and corky in texture.

chlorosis: yellowing of normally green tissue caused by the lack of chlorophyll; can be caused by disease, lack of nutrients, shading, age, or other factors.

cluster: a group of flowers or fruits that set at the same point on the plant.

compound: a type of leaf composed of many parts or leaflets; non-compound leaves are called simple.

condensation: water droplets accumulate on the inside of plastic covering the greenhouse and then drip onto plants, resulting in artificial rain on the crop; can also form on leaf and fruit surfaces, promoting disease.

cool pad: see wet wall.

corolla: all of the flower petals considered together make up the corolla.

diagnosis: to determine what disease is affecting a plant. Visit <http://msucares.com/crops/comhort/tomatodisease/index.html> for help in diagnosing greenhouse tomato diseases.

disinfectant: an agent that kills or inactivates pathogens on greenhouse or plant surfaces.

dissemination: transfer of inoculum from diseased to healthy plants.

drench: a pesticide treatment that is applied to the soil, or medium, in which a plant is growing.

EC: abbreviation for electroconductivity; a measurement of how much electrical current a solution can conduct; corresponds to amount of fertilizer dissolved in solution.

efficacious: provides effective control.

electroconductivity: see EC.

emitter: device that puts water/fertilizer mixture directly into the growing medium.

epidemic: widespread, severe outbreak of disease.

fertigation: mixing or putting fertilizer into the irrigation water so fertilizer is delivered with irrigation water.

foliar spray: a pesticide that is sprayed on the leaves of plants.

fruit: the tomato that is eaten.

fruiting bodies: complex fungal structures containing spores.

fungicide: a chemical or biological product applied to plants to prevent infection by disease-causing organisms.

fungus: a microscopic organism lacking chlorophyll and the ability to manufacture its own food, with a body of spider web-like filaments.

glazing: the covering over a greenhouse; this can be polyethylene, polycarbonate, glass, or other transparent materials.

hand: see cluster.

head: the top of a plant.

honey-dew: a sugary substance deposited on leaves after insects such as aphids and whiteflies feed on the plant. Often a "sooty mold" grows on the honey-dew.

host: plant that is attacked by a pathogen.

hot spot: a small group of plants in one location in the greenhouse with a noticeable problem, such as whiteflies or russet mites.

hydroponic: using water to grow plants without soil; soil-less culture.

hyphae: threadlike filaments forming the mycelium of a fungus.

infection: when a pathogen is established in a host.

inoculum: any part of a pathogen that can cause disease.

insecticide: a chemical or product used to control insect pests.

internode: the part of the stem between leaves.

IPM: abbreviation for integrated pest management; using a variety of methods to manage an insect or disease rather than relying only on one method, such as releasing only one biological control agent or only treating with a pesticide.

leaflet: the subdivisions of a leaf; the tomato leaf is compound, so it is made up of many leaflets.

lean & lower: leaning plants over and dropping them when they are taller than the support wire; it is important to lean when lowering to avoid stem breakage; this needs to be repeated every 2 weeks or so in mature plants.

lesion: a localized area of diseased plant tissue (a leaf spot).

liquid concentrate: a formulation of pesticide sold in concentrated liquid form; it must be diluted with water before being applied.

media: (plural) material in which plants are grown, such as perlite, pine bark, and peat moss.

medium: singular form of media.

mho, millimho, micromho: units of electrical conductance used to estimate fertilizer concentration to determine how strong a fertilizer solution has been mixed; there are 1,000 millimhos in a mho, and 1,000,000 micromhos in a mho.

mycelium: a mass of fungal growth consisting of branching, threadlike hyphae.

necrosis: a dead or dying area of plant tissue.

node: the point on the stem where a leaf is attached.

NFT: nutrient film technique; using plastic sheeting and water to grow plants hydroponically.

oedema (edema): excess water available to the plant that it cannot use, resulting in enlarged plant cells that burst and give a blistered appearance on the lower leaf surface. This tissue eventually becomes corky.

parasite: an insect or other organism that searches for a pest species and deposits its eggs into that species. The immature parasites develop within the pest, eventually killing it.

parts per million: see ppm.

pathogen: a living organism that can infect a plant; in the context of biological control, a disease organism that attacks a pest species and helps control the pest.

pedicel: the "flower stalk" that holds a single flower.

peduncle: the "fruit stalk" that holds a cluster of fruit.

petiole: the "stem" of a leaf; attaches the plant stem to the leaf blade.

pH: measurement of how acidic or basic (alkaline) a solution is; less than 7 is acidic; more than 7 is basic.

plant disease: a malfunctioning plant; includes leaf spots, cankers, wilts, rots, nutrient deficiency and toxicity, and various fruit and environmental disorders.

pollinate (pollination): transfer of pollen from anther (male flower part) to stigma (female flower part); with greenhouse tomatoes, this is done with an electric pollinator or with bumblebees.

ppm: abbreviation for parts per million; the concentration of a fertilizer or any other material in water. Note: 10,000 parts per million = 1%.

predator: an insect or other organism that actively searches for and eats a pest species, thus helping to control or limit its population.

relative humidity: the amount of water in the air divided by the amount of water the air could hold if saturated, at a particular temperature; expressed as a percentage.

root or root ball: the below ground portion of a plant; a mass of roots at the base of the plant that can fill the container (bag, bucket) in which plants grow.

sanitation: removing plant debris from the greenhouse and applying disinfectants to greenhouse surfaces.

sclerotia: compact masses of hyphae, usually in the form of a hard, round, or irregularly shaped structure, which can survive adverse conditions.

scouting: regularly checking a crop for insect and disease infestations to determine pest population levels.

seedling: a very young plant.

sepal: the individual parts of a calyx; green pointed structure beneath flower petal and at top of fruit.

solubility limit: the most fertilizer that can be dissolved in water at a given temperature; the solubility limit increases as water warms.

spindly: a plant with thin stems, small leaves, and long internodes; leggy; opposite of stocky.

spore: a reproductive structure of a fungus (like a seed).

stem: the main trunk of the plant; has roots attached at the base and leaves, flowers, and fruit attached to above-ground portion; tomatoes are usually pruned to one main stem.

systemic: a pesticide that is absorbed by the plant, either through the roots or leaves, and translocated to other plant parts, where it controls insect or disease pests; also refers to a pathogen, such as a virus, that spreads inside the plant.

toxicity: a compound's ability to injure a plant, such as too much of a nutrient or chemical.

transpiration: the flow of water from the plant to the atmosphere, such as evaporation of moisture from the plant through the leaf surfaces.

transplant: a young plant past the seedling stage; replanting a small plant to a larger container.

truss: see cluster.

turgid: the stiffness of a plant because of internal water pressure; opposite of wilted; it is best to remove shoots (suckers) or leaves when plants are turgid so you can easily snap off shoots or leaves.

vapor pressure deficit (VPD): the difference between the actual water vapor pressure and the saturation of water vapor pressure at a particular temperature; at a low VPD, transpiration may be too low; at a high VPD, transpiration may be too high; you can manipulate VPD to make plants more vegetative or more generative.

vascular discoloration: black, brown, or reddish-brown color of the xylem and phloem tissues evident upon splitting the stem of the plant, often associated with wilt diseases.

virus: microscopic organisms having a strand of nucleic acid surrounded by a protein coat and capable of causing disease in tomato, such as tomato spotted wilt virus, tomato yellow leaf curl virus, and tomato mosaic virus.

water soluble package: a formulation of pesticide sold in water soluble packages that have a premeasured amount of dry, water soluble insecticide. The package dissolves when you put it in water, thus releasing the pesticide it contains.

wet wall: an evaporative cooling system, also called cool pad system; cools by pulling water-saturated air into the greenhouse that vaporizes, absorbing heat in the process; the exhaust fans then remove the warmed vapor.

wettable granule: a formulation of pesticide sold as a dry granule that must be dissolved in water before being applied.

wettable powder: a formulation of pesticide sold as a dry powder that must be dissolved in water before being applied.

wilt: loss of turgidity in plant tissue associated with the lack of water.



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By **Dr. Richard G. Snyder**, professor and vegetable specialist, Central Mississippi Research & Extension Center; **Dr. David M. Ingram**, associate Extension/Research professor, Central Mississippi Research & Extension Center, and **Dr. Blake Layton**, Extension professor, Entomology & Plant Pathology

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