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Causes of Tomato Wilt

Tomatoes are in almost everyone's garden; however, as much as we love to grow tomatoes we must admit that it's not always easy to do. In fact, sometimes it's downright heartbreaking.

One of the heartbreaks of growing tomatoes occurs when our plants wilt. Wilt occurs suddenly or gradually when leaves, shoots or stems droop or collapse. In our part of the world, there are six common causes of tomato wilt.

The first two causes of tomato wilt are the lack of or excess water. We all understand why leaves droop or plants die from lack of water; however, tomato plants that stand in water for very long wilt. If soils stay saturated, plants will die. This is why we recommend planting in well-drained soil or in raised beds.

A third and prominent cause is a disease known as Bacterial Wilt. Many gardeners describe plants with this disease as looking like they had hot water poured on them. They are fine one day and the next are permanently wilted. Bacteria actually clog the plumbing system of the plant resulting in a virtual drought.

Bacterial Wilt can be diagnosed with a simple test. First, remove the plant from the soil. Rinse the roots and lower stem. Once rinsed, cut a section from the lowest part of the stem, just above the roots, about four inches long. Have a jar of water ready so that the stem section can be suspended in the water, bottom end down. Then, watch the bottom end of the stem for a wispy, cloudy, milky ooze. This is bacterial streaming. The bacterial ooze is almost transparent, but can be seen releasing from the stem.

There isn't much that can be done for Bacterial Wilt except to remove and destroy affected plants. Future plantings should be made in a different location. Tomatoes may be grown in containers, but if roots grow from the bottom of the container into infected soil they may contract the disease. Do not reuse stakes or ties.

Other common causes of tomato wilt include Southern Blight, Fusarium Wilt and Root Knot Nematodes. Nematodes and Fusarium may be avoided by planting tomato varieties that are resistant to both of these pests. Southern Blight, however, is another one of those "overnight" killers like Bacterial Wilt. It can be recognized by white fungal growth at the soil line or by beige "seed pearl" sized balls of white, beige or brown.

If your plants wilted, call your local County Extension office to try to determine the reason so that it can be avoided next time.

Eddie Smith, Ph.D., C.A., Co. Coordinator & Extension Agent
MSU-ES Pearl River County
Phone: (601) 403-2280 E-mail: eddie.smith@msstate.edu

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CONTACT INFORMATION

Forrest County
Phone: (601) 545-6083
Email: mtt52@msstate.edu

George County
Phone: (601) 947-4223
Email: h.steede@msstate.edu

Hancock County
Phone:(228) 467-5456
Email: C.Stephenson@msstate.edu

Harrison County
Phone: (228) 865-4227
Email: tim.ray@msstate.edu

Jackson County
Phone: (228) 769-3047
Email: evan.ware@msstate.edu

Lamar County
Phone : (601) 794-3910
Email: rosso@msstate.edu

Perry County
Phone: (601) 964-3668
Email: b.odum@msstate.edu

Pearl River County
Phone: (601) 403-2280
Email: eddie.smith@msstate.edu

Stone County
Phone: (601) 928-5286
Email: hbj4@msstate.edu

Christian Stephenson, Ph.D., C.P.H., C.A., Co. Coordinator & Extension Agent
MSU-ES Hancock County
Phone: 228-467-5456 E-mail: c.stephenson@msstate.edu

Cutworms

Cutworms are caterpillar pests that get their name from feeding on plants in the early spring. Feeding by cutworms can completely cut through the stem of young transplants and newly emerged seedlings. These caterpillars are the larval stage of several species of night flying moths in the Family Noctuidae. Corn, peppers, tomatoes, and beans are all attractive hosts for cutworms, but they will attack many other herbaceous plants.

Cutworm eggs are deposited singly or in small clusters on low-growing plants or plant residue. Young caterpillars feed on the roots or foliage of weeds or emerging crop plants until they reach about 1/2 inch in length. At this stage they begin feeding on seedling stems, either cutting completely through them or burrowing into them. Cutworm caterpillars can grow as large as 2 inches long and may go through several generations in a year. Although they are present throughout the growing season, these insects are rarely a problem after spring.

In the spring the garden should be checked regularly for plants that have been cut off near the ground. Also check for plants that are wilting due to feeding on the stem that has not cut all the way through. Damage is easier to see in the late afternoon when cutworms are more active, or in the early morning when damage is fresh. Cutworms hide in the soil when they are not feeding, and you may be able to find them by rolling over clumps of soil or other places where they can hide within about a foot of the plant.

In order to control cutworms, make sure to remove plant residue and weeds from the garden area to reduce egg-laying sites. Tilling the garden three weeks before planting can expose and destroy overwintering larvae. Tilling also removes plant residue. In addition, you can place a "cutworm collar" around your plants. Aluminum foil or cardboard can be wrapped around the lower stem of young plants to protect them from cutworm feeding. Make sure the collar extends a few inches into the soil and several inches above ground to provide the best protection. Cutworms can also be controlled by applications of Carbaryl (Sevin) or permethrin insectides. As always, be careful to follow the label when applying any insecticide treatment.

Garden Calendar: May

Planting

* Plant Crape Myrtles when plants are in color.
* Plant annuals and perennials early in the month and keep well watered.
* Set out Chrysanthemums.
* Continue planting Gladiolus. Can also plant Calla Lilies, Ginger Lilies, Tuberose, and Cannas.
* Take Hydrangea cuttings and let root in coarse sand.
* Plant in shade: Impatiens, Coleus, Sweet Alyssum, Lobelia, and annual Dianthus.
* Plant in the full sun: Verbena, Periwinkle, Ageratum, Marigolds, Zinnas, Petunias, Wax Begonia, Clematis, Four-o'clocks, and Portulaca.
* Plant these Vegetables and Fruits this month: Cucumber, Tomato, Pepper, Squash, Peas, Beans, Eggplant, Corn, Okra, Parsley, Watermelon, and Cantalope.

Pest Control

* Keep an eye on garden pests and diseases: red spiders, thrips, aphids, lacebugs, lacewings, mealy bugs, caterpillars, slugs, snails, mildew, fungus, and crown rot.

Pruning

* This is the last month to prune Azaleas and Camellias as new buds are formed in June.
* Gardenias can be pruned by bringing a bouquet inside to beautify the house.
* Cutting bouquets regularly will keep your plants pruned and prolong the blooming season.
* Cut in early morning or late afternoon and put into water immediately.
* Remove seedpods from bulbs and irises; they sap the plants' strength.

Mulch

* Mulch layer helps maintain moisture and can protect roots from extremes in temperature.

Miscellaneous

* Water deeply during weeks that it does not rain.

Home Accent

* Repot house plants during their active growing period: April through September.
* May is a good month to repot and divide overcrowded ferns.

In Bloom

Confederate Jasmine, Gardenias, Begonias, Impatiens, Salvia, Geraniums, Roses, Hydrangeas, Magnolias, Azaleas, Clematis, Phlox, Sweet William, Deutzia, Honeysuckle, Golden-Rain Tree, Pomegranate, Mock Orange, and Weigela.





Tim Ray, C.A., Co. Coordinator & Extension Agent
MSU-ES Harrison County
Phone: (228) 865-4227 E-mail: tim.ray@msstate.edu

Macronutrients – Symptoms of Deficiencies

Each nutrient or element serves an important function within plants. If one of those elements are deficient, the plants natural processes are disrupted thus providing a symptom of that deficiency. Being able to recognize those symptoms may allow you to provide the deficient nutrient to the plant through fertilization. There are six major nutrients that plants need to survive. These are called macronutrients, because they are needed in larger quantities than the other elements. Nitrogen (N), Phosphorus (P), and Potassium (K) are the three main nutrients contained in most fertilizer combinations and are considered primary nutrients. The secondary macronutrients are also important for plant growth and development but aren't needed in the larger quantities as N, P, and K. These are Calcium (Ca), Magnesium (Mg), and Sulfur (S).

Some nutrients are mobile within plants while others remain where they are. This affects how nutrient-deficiency symptoms appear. Nutrients that are mobile can move from older leaves to the sites of new growth, especially if those nutrients are in short supply. Consequently, when these nutrients are lacking, symptoms first appear in the older (lower and inner) leaves. Mobile macronutrients include N, P, K and Mg. Nutrients that are immobile cannot be translocated to young, new growth. As a result, deficiency symptoms first appear in younger (upper and outer) leaves. Macronutrients that are immobile include S and Ca.

Nitrogen is a constituent of protein, so it is involved in all physiological processes that occur in plants. It is a mobile element, so symptoms will appear on the older leaves first. A general yellow to yellow-green appearance (chlorosis) on the older leaves will signal a N deficiency while younger leaves may remain green. There is also a decrease in plant vigor. However, too much N will cause excessive growth and a decrease in flowering and fruiting. Phosphorous is important in root development, flowering, and fruit formation. It is also a mobile element so deficiency symptoms will appear on older leaves first. A purpling of petioles and undersides of leaves are symptoms of P deficiency. Phosphorus is seldom deficient in plants grown in-ground. Potassium deficiency will result in reduced growth, marginal yellowing of older leaves (mobile), leaf scorching and leaf drop. Potassium influences the absorption of other nutrient elements. It is an important nutrient for stress protection such as drought, cold, and disease. In lawns, most soil test results I've seen in Harrison County indicate a K deficiency.

Calcium is a constituent of cell walls and is important in root development. It is seldom deficient in woody plants. Calcium is an immobile element so symptoms will appear on younger leaves first. Death of shoot tips, yellowing, and necrosis (death of leaf tissue), and distortion (cupping) of leaves are symptoms of Ca deficiency. Magnesium is a component of chlorophyll so it's important for photosynthesis. It is mobile so it affects older leaves first. Chlorosis and necrosis of interveinal tissue are symptoms of Mg deficiency. Sulfur, like Nitrogen, is also a constituent of protein and involved in all physiological processes in plants. Sulfur and Nitrogen have very similar deficiency symptoms, which is leaf chlorosis. However, S is an immobile element so symptoms will appear in younger leaves first as opposed to N which affects older leaves first.

Understanding the mobility of a nutrient within plants, along with symptoms, can help you narrow down a nutrient deficiency, but it's always best to acquire a soil sample from your local Extension office. These samples will provide recommendations to help with deficiencies. You can contact your local Extension Agent to assist with understanding your soil test results.

Typical N deficiency in this azalea. Older leaves are chlorotic while the outer, younger leaves are green. In S deficient plants, this would be opposite.

P deficiency in tomato. P is a mobile nutrient, so symptoms appear on older leaves first.

K deficiency symptoms include marginal yellowing of older (lower) leaves. Note the upper (younger) leaves are still green.

Ca deficiency symptoms occur on the newer or younger leaves first, since it's an immobile nutrient. Note the cupping appearance of the leaf.

Ross Overstreet, C.A., Co. Coordinator & Extension Agent
MSU-ES Lamar County
Phone: (601) 794-3910 E-mail: r.overstreet@msstate.edu

Lawn Care

Lawns are now beginning to show spring growth. Be careful not to push the grass by forcing early growth with lots of fertilizer. If fertilizer is put on too early, it will feed winter weeds and not the turf. A good rule of thumb to follow is to apply fertilizer after your third lawn mowing. Typically this begins in April in the coastal counties and into May moving northward. This is when you should begin to fertilize your lawn. A soil test is recommended to determine your soil's nutrient levels to ensure application of proper nutrients and to only apply what it actually needed.

Fertilizer analyses are listed on the bag as percentages of Nitrogen, Phosphorous, and Potassium (N-P-K).

In order to convert the fertilizer product you have available into units of nitrogen, divide the desired amount of nitrogen by the percentage of nitrogen found in the product you have available. For example, for most applications you will want to apply 1 pound of nitrogen per 1000 square feet, divide the desired 1 pound by the percentage of that nutrient found in the product, .13 in the case of a 13-13-13 product. (1lb N/.13 N=7.69 lbs of actual fertilizer product to equal 1 pound of nitrogen).

Along with fertilizer applications, cutting heights are important for healthy grass. Cutting grasses that need to be left tall is a common mistake. Choose an even higher cut for grass in shade. Sharpen your mower blade before the season and at least once a month while the turf is actively growing to ensure a quality cut, which can help prevent disease and insect damage. Replace that old oil with new and stale gas with fresh before you start your mower this spring.

Recommended cutting heights for the different turfgrasses are:

Common bermudagrass:

1½ inches

Hybrid bermudagrass:

1 inch

Zoysiagrass:

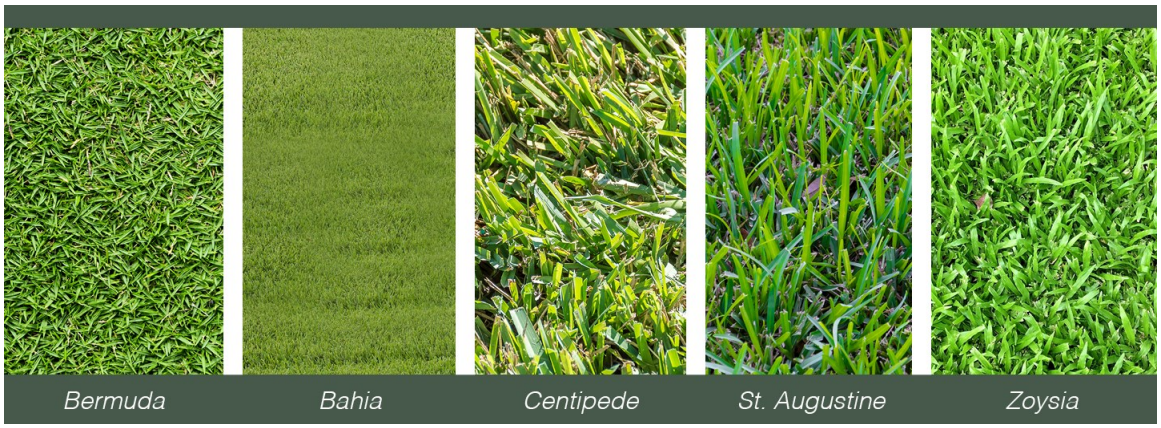
1-1½ inches

Centipede/carpetgrass:

1½-2 inches

St. Augustinegrass:

2½-3 inches



For shady areas raise the mower deck another ½ inch for all species

Christian Stephenson, Ph.D., C.A., Co. Coordinator & Extension Agent
MSU-ES Hancock County
Phone: 228-467-5456 E-mail: c.stephenson@msstate.edu

Azalea and Camellia Leaf Gall

Leaf gall on azalea

Leaf galls caused by fungi in the genus *Exobasidium* are relatively common on azaleas and camellias in Mississippi. These galls most commonly appear in years with extended periods of cool, wet weather in the spring. As their name implies, the symptoms caused by this disease appear on leaves, though it is also possible for these fungi to affect stems, flowers, and seed pods.

Symptoms of leaf gall are easily observed and appear as thickened leaves, often with a distorted shape. These galls start out green but will turn white and powdery as the fungus develops spores. Ideally, affected leaves should be removed prior to developing this powdery coating of spores, as the spores can be spread by both wind and splashing water to infect young tender growth on the plant. If allowed to remain, the leaves will eventually turn brown and shrivel before dropping to the ground. These fallen leaves may serve as a source of the fungi to reinfect the plant the following year.

Leaf gall on camellia

Despite the appearance of this plant disease, most plants are not severely damaged by infections, though some varieties may be more susceptible. Leaf galls on azaleas and camellias can be effectively managed by good cultural practices. Good sanitation is important for managing leaf gall by reducing the amount of the fungus present in the environment around the plant. Additionally, practices that promote good air circulation around the plant will allow the foliage to dry more quickly and reduce the ability of the fungi to establish an infection.

When putting in a new plant, be sure to maintain appropriate plant spacing. It is also good to be aware that air movement may be restricted if plants are placed in enclosed areas such as courtyards. Regular maintenance pruning for landscape plants can be used to thin foliage and allow more air movement to further reduce problems with leaf galls, as well as many other potential disease problems. One of the easiest and most important ways to manage leaf gall is to regularly inspect plants and remove any affected leaves. Any fallen leaves should also be removed from around the base of the plant and disposed of to prevent future problems.

Evan Ware, C.A., Extension Agent
MSU-ES Jackson County
Phone: 228-769-3047 E-mail: evan.ware@msstate.edu

Torpedograss

Torpedograss is a very difficult weed to control in home lawns across the Gulf Coast. When the perennial grass is fully mature, it can grow up to 3 feet tall, but it often goes unnoticed for some time in lawns that are kept mown. Home gardeners will usually not notice torpedograss until there is a large enough area growing and a difference in lawn color and texture gives it away. Torpedograss gets its name from its sharply pointed rhizomes (below ground stems) and stolons (above ground stems). It spreads mainly by pointed rhizomes that grow horizontally through soil that can even puncture weed barriers. The grass will form a seed head, but the seeds are reported as unviable in our climate.

Torpedograss is naturally found in areas with wet soils but can also survive drought conditions. It prefers open, sunny sites (like your lawn) but can also grow in part shade. The ability to thrive in many conditions makes it easy for it to spread throughout and thrive in different areas in your home garden – these traits also cause it to be very persistent and difficult to get rid of. There is usually little control success from hand pulling or tilling. Mechanical control can increase the spread of Torpedograss when pieces of rhizomes left behind grow into new plants. For this reason, chemical control is preferred. Unfortunately, there are no effective selective herbicides available for use in St. Augustine or Centipede lawns. Herbicides with the active ingredient quinclorac can be used selectively on Bermudagrass and Zoysia lawns for suppression when applied according to label. Sometimes the only chemical option is to use a non-selective herbicide (glyphosate or imazapyr) to spot spray areas, and then to replant your lawn. In certain cases with very bad infestations, it may be best to kill an entire lawn area and re-sod. Regardless of your course of action, managing this tough weed will require constant vigilance and action. Always read and follow herbicide labels and contact your local Extension office if you need guidance before application.

Heath Steede, Co. Coordinator/ Extension Agent
MSU-ES George County
Phone: (601) 947-4223 E-mail: h.steede@msstate.edu

Cedar Apple Rust

You may have noticed an orange fungus pustule on your mayhaw, pear or apple fruit and leaves. This is a fungus called cedar apple rust. Cedar apple rust is a common disease that appears on cedar trees as orange galls following wet weather. After these galls appear, the wind will then distribute spores to mayhaw, pear and apple trees where the fungus will attach to leaves and fruit. This fungus will cause fruit to fall off prematurely and can cause defoliation.

The best way to control this fungus is with a fungicide called Immunox. Immunox should be applied at ½ fluid oz. per 1 gallon of water. Applications should begin just before the blossoms open and be continued at 7 -10 day intervals and stopped 14 days before harvest. Another way to minimize the occurrence of this fungus is to remove cedar trees in the vicinity of your fruit trees.

Online Private Applicator Certification Program

A *private applicator* is a certified applicator who uses or supervises the use of restricted-use pesticides to produce an agricultural commodity on his or her own land, leased land, or rented land or on the lands of his or her employer. Private applicators must be at least 18 years old.

In response to limited face-to-face training during the COVID-19 situation, the Mississippi Department of Agriculture–Bureau of Plant Industry has approved an online private applicator certification program developed by the MSU Extension Service. Persons needing to obtain or renew their private applicator certification can complete the online training (two video training modules and a competency exam) by using the following link: http://extension.msstate.edu/content/online-private-applicator-certification-program. The fee for training and testing is $20, payable online by credit card, debit card, or eCheck.