Video of the Week:
Common Tomato Problems - Part II

UPCOMING EVENTS

Kansas Turfgrass Field Day - August 2 (Manhattan)
The field day program is designed for all segments of the turf industry - lawn care, athletic fields, golf courses, and grounds maintenance. Included on the program are research presentations, problem diagnosis, commercial exhibitors, and equipment displays. There will be time to see current research, talk to the experts and get answers to your questions. To register or download a copy of the program, go to http://2018turfday.eventbrite.com

The Commercial Vegetable Research Field Day - August 27 (K-State Olathe Research & Extension Cntr.)
Bring your walking shoes for this event as we will take a comprehensive tour of all our specialty crop research. Projects include tomato grafting, organic sweet potato, high tunnels, postharvest quality, variety trials, cover cropping techniques, and the effects of light on high tunnel crops. Stay for a cookout in the shade hosted by the staff and students.

TURFGRASS

Bermudagrass Control
Bermudagrass can make a nice lawn if you don't mind its invasiveness and short growing season. But many people dislike both these characteristics. Warm-season grasses, such as bermudagrass, zoysiagrass and buffalograss, green up later than cool-season grasses such as tall fescue and Kentucky bluegrass. They also go dormant earlier in the fall, which can make a lawn unattractive.

Bermuda that invades a cool-season lawn will be brown during much of the spring and fall while the tall fescue
portion of the lawn is green. Bermuda is much more drought and heat resistant than cool-season
grasses, so it will take over a cool-season lawn during the summer months if it is in full sun.

So, how do you control bermudagrass that has invaded a cool-season lawn? Research conducted
in 1996 showed that glyphosate (Round-up, Kleen-up, Killzall, Kleeraway) is the best herbicide
for the job. Glyphosate is a nonselective herbicide and will kill everything—including tall
fescue or Kentucky bluegrass. Therefore, you will need to reseed treated areas. In our study, we
applied a 2% solution of glyphosate on July 15 and again on August 15 on a bermudagrass plot
that was more than 15 years old. More than one year later, we saw no regrowth. Glyphosate
works best if bermuda is growing well. The better the bermudagrass is growing, the more
chemical is taken up and pushed into the roots. Water and fertilize if needed to get it going.

Spray about the middle of July (or when the bermuda is growing well). Use glyphosate (2%
solution). Wait two weeks and scalp the lawn (mow as low as possible and remove clippings.)
This will prevent dead grass from covering any bermuda that starts to recover. Wait another two
weeks and spray again with glyphosate if there is any green. Wait two more weeks and reseed.
(Ward Upham)

**ORNAMENTALS**

**Watering Newly Planted Trees and Shrubs**

Newly planted trees have not established the extensive root system needed to absorb enough water during hot,
dry, windy summers. Even trees two or three years old should receive special care.

Deep, infrequent watering and mulching can help trees become established. Newly transplanted trees need at least
10 gallons of water per week, and on sandy soils they will need that much applied twice a week. The secret is getting
that water to soak deeply into the soil, so it evaporates more slowly and is available to the tree’s roots longer. One way to do this is to punch a small hole in the side of a 5-gallon bucket and fill it with water. Let the water dribble out slowly next to the tree. Refill the bucket once, and you have applied 10 gallons. Very large transplanted trees and trees that were transplanted two to three years ago will require more water.

A perforated soaker hose is a great way to water a newly established bed or foundation planting. In sunbaked soil, you may need to rough up the surface with a hoe or tiller to get water to infiltrate easily. It may be helpful to set the kitchen oven timer, so you remember to move the hose or shut off the faucet. If you are seeing surface runoff, reduce the flow, or build a berm with at least a 4-foot diameter around the base of the tree to allow the water to percolate down through the soil, instead of spreading out.

Regardless of method used, soil should be wet at least 12 inches deep. Use a metal rod, wooden dowel, electric fence post or something similar to check depth. Dry soil is much harder to push through than wet. (Ward Upham)
Inexpensive Method of Watering Trees

We mentioned in an accompanying article about using a soaker hose to water trees. We thought it might be helpful to provide more details.

Soaker hoses are notorious for non-uniform watering. In other words, you often receive too much water from one part of the hose and not enough from another. On small trees, circling the tree several times with the soaker hoses will even out the amount of water applied but this isn’t practical for larger trees. Hooking both the beginning and the end of the soaker hose to a Y-adapter helps equalize the pressure and therefore provide a more uniform watering. The specific parts you need are shown in the photo above and include the soaker hose, Y-adapter and female to female connector.

It is also helpful if the Y-adapter has shut off valves so the volume of flow can be controlled. Too high a flow rate can allow water to run off rather than soak in.

On larger trees, the soaker hose can circle the trunk at a distance within the dripline of the tree but at least ½ the distance to the dripline. The dripline of the tree is outermost reach of the branches. On smaller trees, you may circle the tree several times so that only soil which has tree roots will be watered. (Ward Upham)

VEGETABLES

Heat Stops Tomatoes from Setting Fruit

Temperatures that remain above 75 degrees F at night and day temperatures above 95 degrees F with dry, hot winds will cause poor fruit set on tomatoes though cherry tomatoes seem to be more heat tolerant than slicers. High temperatures interfere with pollen viability and/or cause excessive style growth leading to a lack of pollination.

It usually takes about 3 weeks for tomato flowers to develop into fruit about the size of golf balls. Growth then becomes more rapid with the mature size being reached in an additional three to six weeks. A few more days are then needed to change color.

Though there are "heat-set" slicing tomatoes such as Florida 91, Sun Leaper and Sun Master that will set fruit at higher temperatures, that difference is normally only 2 to 3 degrees. Cooler temperatures will allow flowers to resume fruit set. (Ward Upham)
**Sweet Corn Earworm**

Corn earworm tends to be a problem every year on sweet corn in Kansas. The earworm moth lays eggs on developing silks at night. When the egg hatches, the larva crawls down the silk and into the ear. Feeding starts at the tip of the ear and works down. Though several earworms may hatch and attack a single ear, only one is usually present at harvest due to the cannibalistic nature of the insect. Control is challenging as silks continue to grow over a period of time. This means that even if silks are treated, new silk will appear that hasn't been protected.

Applications every 2 to 3 days are needed for insecticides to be effective, especially in early July when peak flight of these moths usually appear.

There is a three-week period from silking to harvest, but there is only a two-week period from when the silks appear to when they begin to dry. Since moths prefer juicy silks and shun those that have started to dry, insecticides are only needed the first two weeks of silking.

Homeowners can use cyfluthrin (Baythroid; Bayer Vegetable and Garden Insect Killer) or spinosad (SpinTor; Captain Jack's Dead Bug Brew; Conserve; Borer, Bagworm, Tent Caterpillar & Leafminer Spray). Spinosad is an organic product. Commercial growers have additional choices including zeta-cypermethrin (Mustang Max), bifenthrin+zeta-cypermethrin (Hero), spinetoram (Radiant) and flubendiamide (Belt).

Though more time consuming, mineral or other light horticultural oils may also be used as an organic control. The oil is placed inside the silk end of the ear with a medicine dropper (½ to 3/4 of a dropper) when the tips of the silks begin to wilt and turn brown. This will coat the earworms already present and likely suffocate them and earworms that enter the ear after the mineral oil is applied will also be controlled. Applying the oil before the silk has begun to brown may interfere with pollination, leading to incompletely filled ears. (Ward Upham)

**Tomatoes Slow to Ripen?**

The extremely hot weather we have had recently not only interferes with flower pollination (see accompanying article) but also can affect how quickly fruit matures. The best temperature for tomato growth and fruit development is 85 to 90F. When temperatures exceed 100 degrees, the plant goes into survival mode and concentrates on moving water. Fruit development slows to a crawl. When temperatures moderate, even to the low to mid 90s, the fruit will ripen more quickly.

Tomato color can also be affected by heat. When temperatures rise above 95 degrees F, red pigments don't form properly though the orange and yellow pigments do. This results in orange fruit. This doesn't affect the edibility of the tomato, but often gardeners want that deep red color back.
So, can we do anything to help our tomatoes ripen and have good color during extreme heat? Sure, there is. We can pick tomatoes in the “breaker” stage. Breaker stage tomatoes are those that have started to turn color. At this point, the tomato has cut itself off from the vine and nothing will be gained by keeping it on the plant. If tomatoes are picked at this stage and brought into an air-conditioned house, they will ripen more quickly and develop a good, red color. A temperature of 75 to 85 degrees F will work well. (Ward Upham)

**PESTS**

**Japanese Beetles**

Japanese beetles feed on over 300 species of plants including rose, birch, linden, crabapple, grape, Virginia creeper, and buckeye. Adults are approximately 7/16-inch long and metallic green with coppery wing covers. They sport a series of white dots made up of tufts of hair that project from under the edges of the wing covers on the back half of the insect. This characteristic is used to distinguish Japanese beetles from other similar beetles. Japanese beetles feed on leaves, flowers and wounded or mushy fruit.

Adults often feed on the green material on the upper surface of the leaf leaving a lacelike or “cellophane” appearance. Most feeding activity occurs over a 4 to 6 week period though individual beetles usually live about 30 to 45 days.

Japanese beetles tend to be gregarious and feed in groups, starting at the top of a plant and working down. Warm, sunny weather is preferred with beetles favoring plants in full sun. When disturbed, adults fold their legs and drop from foliage. Adult beetles can be killed by shaking the beetles from the plant into a jar or bucket containing soapy water. This is best done in the morning when the insects are sluggish.

Numerous insecticides can be used including pyrethroid products such as cyfluthrin (Tempo, Bayer Vegetable & Garden Insect Spray), bifenthrin (Hi-Yield Bug Blaster II) and cyhalothrin (Bonide Beetle Killer, Spectracide Bug Stop Indoor + Outdoor Insect Killer, Spectracide Triazicide, Bonide Caterpillar Killer). Carbaryl (Sevin) can also be used. The pyrethroid products normally give 2 to 3 weeks protection with carbaryl not lasting as long; usually 1 to 2 weeks. All of the above insecticides are detrimental to natural controls such a parasitoids and predators or other pests including the two-spotted spider mite. Neem products (Natural Guard Neem-Py, Fertilome Triple Action Plus) and Pyola (pyrethrins in canola oil) will provide deterrence for 3 to 4 days. Japanese beetle traps tend to attract more beetles than they kill and often do more harm than good and therefore are not recommended. (Ward Upham)

**MISCELLANEOUS**
Did you know that plant roots need air just like humans? To have healthy sustainable plants, soil must be made up of about 50% solid minerals (sand, silt, clay, and organic matter) and 50% pore space (air and water). We talked last week about soil texture and how it is composed of different combinations of sand, silt, and clay particles. Soil texture plays an important role in the amount of pore space available. "Building Better Soils for Better Crops" describes soil pore spaces as the space between soil particles where the relative change of water and air occurs, and they can vary in size. This is where soil particle size impacts the ability for water to infiltrate and percolate into and through the soil during rain events. For example, sand has the largest pore space between particles which allows air to fill the pore space easily as the water continues to flow deeper into the soil. On the other hand, clay has smaller pore spaces leading to water retention and a lack of air within pore spaces. Most plant roots cannot survive when soil pore space is completely saturated, and the space is filled with water, therefore it is important to make sure your soil drains well and allows for air exchange. It is also important to remember that too much drainage can be problematic as well. If your soil is made up of coarse sandy particles, water retention is reduced and your soil will dry out more quickly. Knowing your soil's texture will help you to understand the proper amount and frequency of your watering habits. To learn more about soil pore space and texture, follow this link, [https://bit.ly/2M9x1GH](https://bit.ly/2M9x1GH), to "Building Better Soils for Better Crops" chapter called Soil Particles, Water, and Air. To learn more about water movement through the soil, follow this link, [https://bit.ly/1XOUctm](https://bit.ly/1XOUctm), to a video provided by the NCRS. (Chandler Day)

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