VEGETABLES

Do Not Over-Fertilize Tomatoes

Though tomatoes need to be fertilized to yield well, too much nitrogen can result in large plants with little to no fruit. Tomatoes should be fertilized before planting and sidedressed with a nitrogen fertilizer three times during the season.

The first sidedressing should go down one to two weeks before the first tomato ripens. The second should be applied two weeks after the first tomato ripens and the third one month after the second. Common sources of nitrogen-only fertilizers include nitrate of soda, urea, and ammonium sulfate. Blood meal is an organic fertilizer that contains primarily, but not exclusively, nitrogen.

Use only one of the listed fertilizers and apply at the rate given below.
- Nitrate of soda (16-0-0): Apply 2/3 pound (1.5 cups) fertilizer per 30 feet of row.
- Blood Meal (12-1.5-.6): Apply 14 ounces (1.75 cups) fertilizer per 30 feet of row.
- Urea (46-0-0): Apply 4 ounces (½ cup) fertilizer per 30 feet of row.
- Ammonium Sulfate (21-0-0): Apply 0.5 pounds (1 cup) fertilizer per 30 feet of row.

If you cannot find the above materials, you can use a lawn fertilizer that is about 30 percent nitrogen (nitrogen is the first number in the set of three) and apply it at the rate of 1/3 pound (3/4 cup) per 30 feet of row. Do not use a fertilizer that contains a weed killer or weed preventer.
(Jane Upham)
Physiological Leaf Curl in Tomatoes

Every year we have calls from gardeners who have tomato plants with leaves that curl up. When tomato plants grow vigorously in mild, spring weather the top growth often exceeds the root development. When the first few days of warm, dry summer weather hit, the plant 'realizes' that it has a problem and needs to increase its root development. The plant tries to reduce its leaf area by rolling leaves. The leaves curl along the length of the leaf (leaflet) in an upward fashion. It is often accompanied by a thickening of the leaf giving it a leathery texture. Interestingly, leaf roll is worse on some varieties than others.

Though rolling usually occurs during the spring to summer shift period, it may also occur after a heavy cultivating or hoeing, a hard rain, or any sudden change in weather. This leaf roll is a temporary condition that goes away after a week or so when the plant has a chance to acclimate, recover from injury, or the soil has a chance to dry out. (Ward Upham)

Tomato Leaf-Spot Diseases

This time of year two common leaf-spot diseases appear on tomato plants. Septoria leaf spot and early blight are both characterized by brown spots on the leaves.

Septoria leaf spot usually appears earlier in the season than early blight and produces small dark spots. Spots made by early blight are much larger and often have a distorted “target” pattern of concentric circles. Heavily infected leaves eventually turn yellow and drop. Older leaves are more susceptible than younger ones, so these diseases often start at the bottom of the plant and work up.

Mulching, caging, or staking keeps plants off the ground, making them less vulnerable. Better air circulation allows foliage to dry quicker than in plants allowed to sprawl. Mulching also helps prevent water from splashing and carrying disease spores to the plant.
In situations where these diseases have been a problem in the past, rotation is a good strategy. It is too late for that now, but keep it in mind for next year. Actually, rotation is a good idea even if you have not had problems in the past. But many gardens are too small to make it practical. If you have room, rotate the location of the tomatoes each year to an area that has not had tomatoes or related crops (peppers, potatoes, eggplant) for several years.

If rotation is not feasible, fungicides are often helpful. Be sure to cover both upper and lower leaf surfaces, and reapply fungicide if rainfall removes it. Plants usually become susceptible when the tomato fruit is about the size of a walnut. Chlorothalonil is a good choice for fruiting plants because it has a 0-day waiting period, meaning that fruit can be harvested once the spray is dry.

Chlorothalonil can be found in numerous products including Fertilome Broad-Spectrum Fungicide, Ortho Garden Disease Control, GardenTech Daconil and others. Be sure to start protecting plants when the disease is first seen. It is virtually impossible to stop it on heavily infected plants.

If chlorothalonil doesn’t seem to be effective, try mancozeb (Mancozeb Flowable). Note that there is a five-day waiting period between application and when the fruit can be harvested. You may wish to pick some tomatoes green just before you spray if you use Mancozeb as they will ripen inside. (Ward Upham)

Onions Developing

This is the time of year that onions grow and develop rapidly. Regular watering (if needed) and a light fertilization are helpful to maximize growth. Onions develop so that as much as 2/3 of the bulb remains out of the soil. This is normal and there is no need to cover the bulb with soil. Onions are nearing harvest time when the tops begin to fall over. You may wish to break over the tops that haven’t fallen to encourage drying of the neck. Allow a few days to pass and then dig the onions to ensure they don’t sunburn. Temporarily store them in a dry, well-ventilated area for a week or two before cutting the tops to insure the necks are completely dry. Remove the foliage (or braid the leaves) and store in a cool, dry location. (Ward Upham)

**FLOWERS**

**Rose Rosette**

Rose rosette is a serious disease caused by an aster yellows phytoplasma. It is carried from one rose to another by a spindle-shaped, yellow to brown mite. Transmission of the disease has also been shown experimentally through grafting or through
contaminated pruning shears. Infection is thought to start with rapid elongation of a new shoot. The rapid shoot growth may continue for several weeks to a length of two to three feet. Following shoot elongation, a witches' broom or clustering of small branches occurs. The stems develop excessive thorniness and produce small, deformed leaves with a reddish-purple pigmentation. Though KnockOut roses are resistant to many diseases, they are susceptible to this one.

There is no effective control measure for infected plants. In garden settings, infected plants should be removed and destroyed, including roots. Any roots that remain after plant removal may produce infected shoots which can harbor the disease.

If possible, eliminate all multiflora rose plants from the vicinity as they are extremely susceptible and will act as a carrier. Multiflora rose is the wild rose often seen growing in ditches and pastures.

Since the disease can be transmitted by pruning shears, disinfect the shears when moving from one plant to another by using rubbing alcohol or a disinfectant such as Lysol. (Ward Upham)

**PESTS**

**Squash Bugs**

Squash bugs are the grey, shield-shaped bugs that feed on squash and pumpkin plants. If you have had problems with these insects in the past, you know that they are almost impossible to control when mature. This is because the squash bugs have a hard body that an insecticide has difficulty penetrating. Thus, spraying when the insects are small is important. We are now seeing the nymphs of the first generation. These nymphs will eventually become adults, which will lay eggs that will become the second generation. The second generation is often huge and devastating. Therefore, it is important to control as many squash bugs now as possible.

Because squash bugs feed by sucking juice from the plant, only insecticides that directly contact the insect will work. General use insecticides such as permethrin (Bug-B-Gon Multi-Purpose Garden Dust, Green Thumb Multipurpose Garden and Pet Dust, Bug-No-More Yard and Garden Insect Spray, Eight Vegetable, Fruit and Flower Concentrate, Garden, Pet and Livestock Insect Control, Lawn & Garden Insect Killer), malathion, rotenone, and methoxychlor provide control if a direct application is made to young, soft-bodied squash bugs. This means that you MUST spray or dust the underside of the leaves because this is where the insects live. (Ward Upham)
Bean Leaf Beetle

It never ceases to amaze me how quickly things change. How the onset of insect activities in 2012 occurred 3-4 weeks ahead of “normal,” and this year, we were running 2 weeks behind schedule (although things always seem to eventually fall into line). My earlier current-year visits to the Manhattan Community Gardens were not picture-worthy. Cool and wet weather kept gardeners away. At the end of April, other than a few rows of leaf lettuce, spinach, radish, cabbage transplants and a couple of potato plants barely breaking the soil surface, most plots simply were barren ----- not even worked. When I revisited late last week, what a transformation ----- gardeners had actively planted, plants were robust, and there was quite a bit of insect activity.

Bean leaf beetle feeding was readily apparent in most plots as evidenced by the appearance of “holey” foliage. While individual beetles are small (averaging 3 – 3.5 mm in length), they can “gang up” on plants. If beetles arrive early, they can destroy newly emerged seedling plants. In most plots, bean plants appeared well-developed, indicating that beetles may have been late-to-arrive. Looking down on plants, one sees only an occasional beetle. This is because beetles prefer feeding on the undersides of leaves. The control of bean leaf beetles can best be achieved by delivering insecticide treatments to lower leaf surfaces. Liquid formulations might be suggested over dust formulations which (when sprinkled) collect on upper leaf surfaces. (Bob Bauernfeind)

What is that Giant Moth?

We have seen adults of the giant (great) leopard moth [Hypercombe (formally, Ecpantheria) scribonia] this week in Manhattan, KS. Adults, which are the largest Tiger Moth in Kansas, are distinctly white with black to blue colored open-circular spots on the forewings. Some spots are hollow, whereas some are solid. The adults have a wingspan of 3.0 to 4.0 inches. The wings eventually become translucent at the outer margins with wear. They have a metallic blue abdomen that contains orange markings. Adults are active from May through September and may be found near light sources at night. The larvae or caterpillars, which are often referred to as “Woolly Bears,” are approximately 2.0 inches in length. The caterpillars are black and fuzzy, with tufts of black stiff hairs or bristles that radiate from the body and red to orange colored bands (areas) between the body segments. They are typically present in the spring. Caterpillars may feed on a diversity of broad-leafed plants including maples and willows, and weeds such as dandelion. However, they are not considered a pest. In fact, just like pillbugs, they
roll-up when disturbed. The giant leopard moth overwinters as a caterpillar and there is usually one generation per year. (Raymond Cloyd)

**MISCELLANEOUS**

**Slime Molds**

Slime molds are primitive organisms that are common on turf and mulch. Slime molds are not fungi and are no longer classified as such. They belong to the Kingdom Protista rather than Kingdom Fungi. On turf, you might often see large numbers of small gray, white or purple fruiting structures, called sporangia on leaf blades during cool and humid weather throughout spring, summer, and fall. Affected areas are often several inches to 1 foot in diameter. During wet weather, the fruiting structures may appear slimy. As the structures dry out in hot weather, they become ash gray and break up easily when touched.

Homeowners often are concerned that this is a disease organism that will kill the grass, but slime mold feeds on bacteria, other fungi, and dead organic matter. It simply uses the turf as a structure on which to grow. However, slime mold can damage turf by completely covering leaf blades and interfering with photosynthesis. Chemical control of slime molds is not necessary. Use a broom or a heavy spray of water to dislodge the mold.

Slime molds on mulch often attract attention because of their bright colors and disgusting appearance. Common names are often quite descriptive. For example, the "dog vomit" slime mold is a bright, whitish color that resembles its namesake. It eventually turns brown and into a hard, white mass. There is also the "scrambled egg" slime mold, "the yellow blob" slime mold and the "regurgitated cat breakfast" slime mold. Slime molds do not hurt anything, but most people do not find them attractive and want to get rid of them. Simply use a shovel to discard the offensive organism and then stir up the mulch for aeration. (Ward Upham)

**Contributors:** Ward Upham, Extension Associate

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