

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 Landscape and Garden 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 control this disease on heavily infected plants. If chlorothalonil doesn't seem to be effective, try mancozeb (Bonide 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 the tomato fruit will ripen inside.

"Tomatoes" on Potatoes

Under favorable weather conditions, potatoes produce fruit. These structures are borne on the top of the plant and look much like small tomatoes. (Tomatoes and potatoes are closely related). Potato fruits are not edible. They contain a toxic substance (solanine) that can cause illness if eaten. Also, potato fruits should not be saved for seed because progeny does not come true. Rather, remove and dispose of fruit so children do not eat them.

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 can be 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, 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.

Rose Rosette

Rose rosette is a serious problem in Kansas on wild roses (*Rosa multiflora*) in pastures and hedges. It is also found in domestic rose plantings. 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. Stems and petioles of *Rosa multiflora* plants may have reddish blotches or streaks. Rose plants infected with the rose rosette virus die rapidly, usually within one to two years. Rose rosette is caused by an aster yellows phytoplasma. Transmission of the disease has been shown experimentally through grafting and through an eriophyid mite, *Phyllocoptes frutiphilus*. 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.

Get Ready for Bagworms!

It is time to get ready to deal with that "infamous" insect pest known as the bagworm (*Thyridopteryx ephemerae formis*). Bagworms are out and about feeding on trees and shrubs, both broadleaf and evergreen. So, how can you alleviate the damage caused by bagworm caterpillars this year? You can initially start by "hand-picking" any bags formed last year, before the overwintering eggs hatch, and place them into a container of soapy water. This is very therapeutic and, if feasible, will quickly remove large populations before they cause significant plant damage. You may want to consider having a "bagworm hand-picking party" with prizes awarded to individuals that collect the most bags. For those less interested in the pleasures of "hand-picking," there are a number of insecticides labeled or registered for the control and/or suppression of bagworm populations including those with the following active ingredients (trade name in parentheses): acephate (Orthene), *Bacillus thuringiensis* subsp. *kurstaki* (Dipel/Thuricide), cyfluthrin (Tempo), lambda-cyhalothrin (Scimitar), trichlorfon (Dylox), indoxacarb (Provaunt), chlorantraniliprole (Acelepryn), and spinosad (Conserve). Many of these active ingredients are commercially available and sold under different trade names or generic products. However, several insecticides may not be directly available to homeowners. The key to managing bagworms with insecticides is to make applications early and frequently enough in order to kill the highly susceptible young caterpillars that are feeding aggressively on plant foliage. Older caterpillars that develop later in the season, in the bags, may be 3/4-inches long, and are typically more difficult to kill. In addition, females tend to feed less as they prepare for reproduction, which reduces their susceptibility to spray applications and any residues. The bacterium *Bacillus thuringiensis* subsp. *kurstaki* is active on young caterpillars; however, the active ingredient must be consumed to be effective, so thorough coverage of all plant parts and frequent applications will be required to avoid having to deal with later stages. This compound is sensitive to ultra-violet light degradation and rainfall, which reduces any residual activity.

Spinosad, which is the active ingredient in a number of homeowner products (including Borer, Bagworm, Tent Caterpillar & Leafminer Spray; Captain Jack's Dead Bug Brew; and Monterey Garden Insect Spray) works by contact and ingestion (stomach poison); however, it is most effective when ingested and it may be used against older or larger bagworm caterpillars. Cyfluthrin, lambda-cyhalothrin, trichlorfon, chlorantraniliprole, and indoxacarb may be used against both the young and the older caterpillars. However, again, thorough coverage of all plant parts, especially the tops of trees and shrubs, where bagworms commonly initiate feeding, and frequent applications are required. The reason why multiple applications will be needed when bagworms are first detected is because bagworms may "blow in" (called 'ballooning') from neighboring plants. If left unchecked, bagworms can cause significant damage, thus ruining the aesthetic quality of plants. In addition, they may actually kill plants, especially evergreens since they don't usually produce another flush of growth, and newly transplanted small plants.

If you have any questions regarding the management of bagworms, contact me at the Butler County Extension office at (316)321-9660.