



## Arkansas Plant Health Clinic Newsletter

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### Tree galls

The clinic received several shade tree samples last week with galls on the leaves or twigs. Galls are abnormal growths of tissue caused by a reaction between chemicals produced by an insect or mite and plant hormones. The resulting gall structure protects the invader and its eggs from chemicals, predators, and provides a rich food source. Once the gall appears remedial actions are ineffective except for pruning. Leaves and twigs showing galls may be pruned out and destroyed where practical. This reduces the insect population and provides some relief for the following season. If chemical control is attempted sprays should be applied at bud break the following spring. Fortunately, most galls leaf and twig galls are harmless to the plant.

### Oak Roly-Poly gall-*Andricus* spp.



Photo by Mike Hamilton, University of Arkansas Cooperative Extension

### Oak Jumping Gall-*Neuroterus saltatorius*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

### Oak Vein Gall-*Macrodiplosis quercusoroca*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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## Tomatoes

Tomato spotted wilt virus (TSWV) is appearing across the state. Symptoms include stunting, wilting, and sometimes a one-sided growth habit. Young leaves often turn a bronze color with numerous dark spots. Growing tips may die back. Young plants with these symptoms will usually not produce fruit. Older plants will fruit, but the fruit will have chlorotic rings. There is no cure or treatment for this viral disease. Affected plants should be pulled up and destroyed to prevent the disease from being spread to new plants by thrips. The clinic has a test for TSWV that only takes 30 minutes to run. We also test for cucumber mosaic virus and tomato mosaic virus.

Fusarium wilt is another tomato problem we've been seeing. Young plants are often stunted with drooping leaves. The vascular system will be brown, and the bases of infected stems enlarged. On older plants the symptoms often develop on one side of the plant with leaflets turning yellow and drooping. There is no cure or treatment. Plants with Fusarium wilt should be pulled up and destroyed. Resistant varieties are available.

Early blight is appearing and starting to cause some serious damage. It first appears as small brownish black lesions, often with yellow halos on the older foliage. Large spots will have concentric rings in the dark brown area of the spot. Plants can become completely defoliated by this disease. The lesions may also be found on stems and fruit. Fungicides give good protection and should be applied at the first sign of infection. There are resistant varieties available.

Another problem of tomatoes this time of year is bacterial disease. Bacterial canker causes a systemic wilt of the plant. Lower leaves usually wilt first. Adventitious roots may form on the stem. Stems may display brown streaks with cankers often but not always forming. Eventually the pith becomes discolored. This disease is often confused with bacterial wilt but does not produce as much bacterial streaming. Crop rotation is encouraged with both diseases. Several tomato cultivars have some resistance to bacterial wilt.

## Tomato Fusarium Wilt- *Fusarium oxysporum* f.sp. *lycopersici*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension



## Tomato Early Blight-*Alternaria solani*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

## Tomato Spotted Wilt Virus(TSWV)-Tospovirus



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

## Tomato Spotted Wilt Virus(TSWV)-Tospovirus



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

## Pepper

Bacterial spot of pepper is a serious disease afflicting pepper and tomato. On pepper black circular spots appear on the leaves, with a pale tan central area giving a shot hole effect. On a heavily infected leaf the spots will merge and give the appearance of early blight. Leaves become distorted, shrivel, and fall off. On tomatoes the spots are surrounded by a yellow halo. Streams of rod-shaped bacteria may be observed under the microscope. Fruit will get small dark brown to black raised spots rendering them unmarketable. Overhead irrigation should be avoided where possible. Clean seed and a 2-year crop rotation will reduce incidence. Copper fungicides are effective at the seedling stage.



## Bacterial Spot of Pepper- *Xanthomonas campestris* pv. *vesicatoria*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

## Melon Angular Leaf Spot- *Pseudomonas syringae* pv. *lachrymans*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

## Melon

Angular leaf spot is also a bacterial disease. Small round to irregular leaf spots spread until confined by the veins. Droplets of bacteria may ooze out. The leaves will dry in a few days, turn brown, and their centers will fall out leaving angular holes. Seed from infected crops should never be saved. A 2-year rotation and avoiding cold wet soils go a long way to reduce incidence. Fungicides are listed in MP154 but are not always effective.

## Melon Angular Leaf Spot- *Pseudomonas syringae* pv. *lachrymans*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension



This bulletin from the Cooperative Extension Plant Health Clinic (Plant Disease Clinic) is an electronic update about diseases and other problems observed in our lab each month. Input from everybody interested in plants is welcome and appreciated.

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