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Arkansas Plant Health Clinic Newsletter

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Grapes

Pierce's Disease is caused by a small, nutritionally fastidious, gram-negative bacterium called *Xylella fastidiosa*. Known as Bacterial leaf scorch in other hosts, Pierce's Disease is a systemic disease vectored by sharpshooter leafhoppers. Muscadine and other native grapes are susceptible, but less affected than table grapes. Vines that are stressed by drought and high temperatures have the most pronounced symptoms. Chlorotic spots develop on leaf blades near the point of initial infection. The surrounding tissue begins to wither and dry, frequently in concentric rings by late summer. Leaves often drop from the vine, leaving the petiole still attached to the shoot. Adjacent leaves on the infected shoot both above and below the initial point of infection develop symptoms. Late in the season islands of green tissue surrounded by brown mature wood are noticeable on infected canes. These islands of wood that failed to mature can be seen on canes throughout the winter, or until canes are pruned or killed by frost. Only one or several canes on a vine may show symptoms initially. Eventually the entire vine becomes compromised. Budbreak in spring may be delayed as much as two weeks. New shoots grow slowly, are stunted, and berries often dry up. The first leaves that form on new shoots are smaller than normal with tissues along leaf vines a dark green against a chlorotic background. Later leaves appear normal, but internodes are shortened. Some infected vines die almost immediately while others live for five or more years before dying. Native species may be infected but survive. The only effective control for Pierce's Disease is the use of resistant cultivars. Sticky traps in the vineyard help to determine when to spray for sharpshooters. However, insecticidal treatments to control sharpshooter insects have been inconsistent. Propagating wood may be immersed in water at 45°C for 3 hours. This kills the bacterium in the wood but does not prevent re-infection from sharpshooters carrying the bacterium. Broad spectrum tetracycline antibiotics have been to some degree effective in small vineyards but are not always feasible on a commercial scale. Infected vines should be removed during the dormant season. This reduces inoculum levels in the vineyard.

Grape Pierce's Disease-*Xylella fastidiosa*

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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Grape Pierce's Disease-*Xylella fastidiosa*

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Magnolia

Southern magnolias (*Magnolia grandiflora*) are large, majestic trees with fewer disease problems than many other ornamental trees. They grow best in acidic soils (pH 5.0-6.0) that are well drained, loamy, and moist. They grow well in part shade to full sun and have large water requirements—40 to 80 inches per year. In spite of their large water requirements, they will not thrive in heavy, soggy soils, being prone to root rots under those conditions. Magnolias that are environmentally stressed are also subject to a canker disease called Shearia dieback of magnolia, causal agent *Shearia fusa*. This is a fungal disease that causes trunk and branch cankers, resulting in dieback of plant parts above the cankered area. Premature leaf drop, yellowing and branch dieback are symptoms. Root problems cause similar symptoms, so check carefully for limbs with sunken cankers before assuming Shearia dieback. Prune cankered branches from the tree and destroy or otherwise remove from the property. Submit soil to check that the soil profile is optimal for magnolia culture. Fungicides are not very effective against canker diseases.

Magnolia Shearia Dieback/Canker-*Shearia fusa*

Photos by Sherrie Smith, University of Arkansas Cooperative Extension

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Apple

Bitter rot is found wherever apples and pears are grown. Without fungicide protection, entire crops can be lost within a few weeks when environmental conditions favor the disease. *Colletotrichum gloeosporioides*, teleomorph *Glomerella cingulata* is the causal agent. Initial symptoms are tiny gray-brown flecks on the fruit. Lesions usually do not develop further until the fruit begins to ripen. Conidial type lesions are circular and become sunken as they enlarge. Acervuli, (fruiting bodies), are produced in concentric circles around the infection point. Perithecial type lesions are usually not sunken and are a darker brown color. Both types of lesions extend to the core in a cone shape. Some fruit mummify and remain attached to the tree throughout the winter while others drop. Leaf lesions begin as small red flecks that enlarge to irregular brown spots. Badly infected leaves drop prematurely. Good sanitation is a key element in controlling Bitter rot. Remove all diseased fruit, leaves, and any cankered limbs from the orchard. No commercial cultivar is resistant, so fungicides should be applied at 10–14-day intervals, starting at green tip in the spring. Maneb, Mancozeb, and Zineb are most effective against Bitter rot, although Captan also gives good control.

Apple Bitter Rot-*Colletotrichum gloeosporioides*

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Apple Bitter Rot-*Colletotrichum gloeosporioides*

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Cucumber

Scab caused by *Cladosporium cucumerinum* affects most cucurbit crops. Losses in susceptible cultivars can exceed 50%. Leaf symptoms begin as pale green water-soaked lesions that are irregularly shaped. The lesions enlarge as they age and turn gray to brown in color. The center of the lesion eventually falls out leaving a shot hole or ragged tears in the leaves. The newest leaves may be deformed and twisted by the numerous lesions. Lesions on petioles are more elliptical, but otherwise look like leaf lesions. Fruit lesions begin as minute greasy looking sunken specks. These enlarge, becoming circular to oval and gray colored. Sometimes the fruit lesions ooze sticky exudates. Spots may merge causing large scabby areas on the fruit. Fungicides are helpful if applied prior to fruit infection. Quadris, Cabrio, Bravo Weathstik, Bravo Ultrix, Equus, Mancozeb, and Maneb are labeled for scab. Practice crop rotation so that 2 or more years pass between susceptible cucurbit crops. Avoid using overhead irrigation as this makes for more favorable conditions for disease. There are resistant cultivars available.

Cucumber Scab-*Cladosporium cucumerinum*

Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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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.