



Arkansas Plant Health Clinic Newsletter

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Basil

Basil Downy Mildew, caused by *Peronospora belbahrii*, can cause complete crop loss under conditions favorable for disease. The pathogen is most active during warm, wet weather, but can sporulate in temperatures as low as 59°F. Infected leaves initially turn yellow in areas restricted by veins. As the disease progresses, the entire leaf turns yellow with irregular black spots. Fluffy gray spore masses appear on the undersides of the infected leaves during humid or wet conditions. Downy mildew usually starts at the bottom of the plant and moves upward. Downy Mildew is introduced into a planting via infected seed or transplants, and by windblown spores. The spores can also be moved via clothing, hands, and tools. Cultural controls such as increased row width and enough distance between individual plants to allow good air circulation are helpful. Overhead irrigation should be avoided in favor of drip irrigation. If overhead irrigation cannot be avoided, water early in the day so leaf wetness is limited. Scout planting frequently and immediately remove plants with symptoms. Place a bag over the diseased plant to prevent as much of the spores from being shaken off as possible. Pull up the plant and remove from garden

area. Fungicides are only effective if applied prior to infection. Ridomil Gold SL, Quadris, and Fosphite are labeled for control of Downy Mildew in Basil. Homeowners may use Actinovate or Milstop. There is limited resistance to Downy Mildew in sweet basil. Eleonora has intermediate resistance and is a good choice where Downy Mildew has been a problem. Purple-leafed varieties of basil, Thai basil, lemon basil, and spice basil are less susceptible.

Basil Downy Mildew-*Peronospora belbahrii*



Photo by Sherrie Smith, University of Arkansas
Cooperative Extension



Basil Downy Mildew *sporangiophore and sporangia-Peronospora belbahrii*

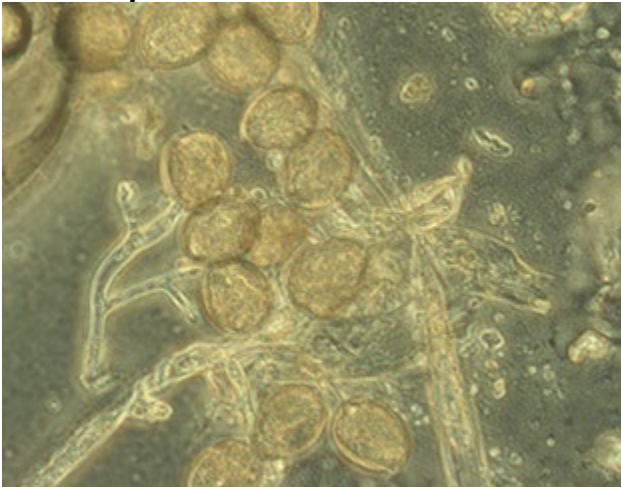


Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Mimosa

Mimosa trees are common trees in the south. Although often seen as a weed, many people value mimosa for their pink flowers and the tropical look they add to landscapes. The biggest disease problem with mimosa is Mimosa wilt, a vascular wilt caused by *Fusarium oxysporum* f. sp. *perniciosum*. Symptoms are leaf yellowing and leaf wilt by midsummer. Most infected trees die branch by branch over several months, but some die within a few weeks of starting to wilt. Almost all infected trees die within a year of first wilting. In advanced stages, infected trees ooze a frothy liquid from cracks and grow sprouts on trunks. Brown streaks are observable in roots and branches. This is a soilborne disease, and unfortunately, not much

can be done for a tree with vascular wilt. Never use high-nitrogen fertilizers. A balanced fertilizer (10-10-10) may help alleviate symptoms in infected trees that are not too far-gone. Infected trees should be watered frequently to decrease wilt symptoms, and dead branches should be removed and burned. Two wilt-resistant varieties are available, Charlotte, with light-colored flowers, and Tryon, with deeper red flowers.

Mimosa Wilt-*Fusarium oxysporum* f. sp. *perniciosum*



Photo by Amy Simpson, University of Arkansas Cooperative Extension



Mimosa Wilt-*Fusarium oxysporum* f. sp. *perniciosum*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Oak

Oak Wilt, caused by the fungus *Ceratocystis fagacearum*, is a fatal disease of oaks. Infected trees die when they respond to the fungus by

producing defensive compounds that shut off the water supply. All species of oak are susceptible to Oak Wilt. The red oak group is **highly** susceptible and red oaks do not recover once infected. White oaks, however, have some resistance to Oak Wilt. Several species of sap beetles of the family *Nitidulidae* spread the disease from tree to tree. The beetles feed on spore mats produced on trees killed by the fungus the previous season. The mats form between the wood and bark on wilted trees. They produce a scent that is highly attractive to sap feeding beetles. When the beetles move to uninfected trees to feed on sap from wounds, they deposit the fungus that has stuck to their feet. It can also be spread by roots from infected trees forming root grafts with roots of trees of the same species. Symptoms in red oaks are rapid wilting of leaves in the upper crown of the tree. The wilt usually spreads downward from the crown. Leaves wilt from the tip to the bases with the edges turning pale green, then light tan or brown. Many of the fallen leaves will still have a green base. Once these symptoms are noticed, the red oak will generally be completely wilted in a couple of weeks. When white oaks become infected, they usually wilt very slowly, dying one branch at a time. The leaf discoloration sometimes resembles autumn leaf color. It can take 1 to 20 years to kill white oaks or occasionally they may recover. Prevention of Oak Wilt starts with taking care not to wound trees during the growing season when sap beetles are active. Although the clinic does not generally recommend pruning plants to treat wounds, it is advisable when a red oak has been wounded to prevent sap-feeding beetles from



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transmitting Oak Wilt. Once a tree has become infected, trenching between the affected tree and nearby oaks prevents the disease from spreading via root grafting. Trenches should be 60 inches deep and a minimum of 4 inches wide. This only works if the trenching is done before the infected tree is removed. There has been some success with injections into root flares with the systemic fungicide propiconazole.

Oak Wilt (root grafts)-*Ceratocystis fagacearum*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Oak Wilt-*Ceratocystis fagacearum*



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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