



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.

## Strawberry

Lesions on strawberry stolons and petioles are often associated with anthracnose crown rot. Lesions begin as small red streaks, and rapidly become dark, sunken, elongated lesions. Pink spore masses form under humid conditions. When lesions encircle the stem, its leaf wilts and dies. The first symptom of anthracnose crown rot is wilting of the youngest leaves on the plant. Once the crown rot is extensive, the entire plant wilts and dies. Anthracnose on strawberry is most often caused by *Colletotrichum fragariae*. Spread and severity of the disease may be reduced by practices that keep the foliage as dry as possible. Fields where high rates of nitrogen are used, especially ammonium sources of nitrogen, have significantly higher disease levels. Captan, Captevate, Abound, Cabrio, and Pristine are labeled for control of anthracnose on strawberries. To be effective, sprays should be started before the onset of the disease. Follow label for best results.

### Strawberry anthracnose



Sherrie Smith University of Arkansas Cooperative Extension

### Strawberry anthracnose crown rot



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## Dogwood

Several viruses are known to affect flowering dogwood. Cherry leaf roll virus, (CLR), may cause ringspots, mosaics, and oak-leaf patterns on the leaves. Significant stunting of trees infected with the virus has been documented. Distortion and twisting of the bracts has also been associated with CLR. Symptoms usually occur in the spring and disappear as the weather warms. The mode of transmission is currently unknown. Virus is not curable. Trees with virus should be removed to prevent the possible spread of disease to other trees.

### Dogwood CLR



Sherrie Smith University of Arkansas Cooperative Extension



Every spring samples arrive with **Dogwood Spot anthracnose**, caused by *Elsinoe corni*. This is the most common foliage disease of flowering dogwood. Spot anthracnose seldom kills a tree, but can weaken it and is unsightly. The disease is worse on trees planted in full sun than on trees in shaded locations. Spots on the bracts and leaves are small (usually  $\frac{1}{16}$  to  $\frac{1}{25}$  inch diameter), circular to elongated, with a reddish-purple margin and yellow to tan center. Spots developing on young leaves may have a yellow halo while those on the mature leaves do not. Heavily spotted bracts and leaves are often severely distorted. Badly diseased bracts and leaves are sometimes shed by the tree. The lesions on young shoots and berries are elongated with purple margins. Berries may be deformed. A fungicide applied every 7 to 10 days starting at bud break through bract fall, and repeated 4 weeks after bract fall, will control Spot anthracnose. Heritage, Daconil Ultrex, Daconil Weatherstik, Immunox, Eagle, Mancozeb, and Halt are labeled for dogwood Spot anthracnose.

### Dogwood Spot anthracnose



Division of Plant Industry Archive, Florida Department of  
Agriculture and Consumer Services, Bugwood.org

### Dogwood Spot anthracnose



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**Dogwood anthracnose**, caused by the fungus *Discula destructiva*, is a different disease than Dogwood spot anthracnose, caused by the fungus *Elsinoe corni* discussed above. This disease can be serious, killing the tree in a few seasons. Symptoms begin in the lower crown and progress up the tree. Leaf lesions start as tan spots with purple rims, but can rapidly enlarge to large leaf blotches. Leaves that are completely blighted don't fall off during autumn. The fruiting bodies of the fungus may be observed with a hand lens on the underside of infected leaves. Infections progress through petioles into shoots and the dead petioles may form a crook that resembles fire blight. Cankers develop, usually at leaf scar sites, girdling and killing the shoot, while cankers occurring on the trunk can eventually kill the tree. Water sprouts often form on the trunk and branches where twig and branch cankers are located. These water sprouts are extremely vulnerable to infection. In certain situations, it only takes 2 or 3 years for a badly infected tree to be killed. Fortunately, good management practices can control Dogwood anthracnose in the landscape but these practices must be consistently followed to protect trees for the long term, since native dogwoods and neighboring trees that are not managed may provide sources of infection each season:

1. Carefully prune out all diseased, dying and dead twigs and limbs.
2. Spray all plants with a systemic foliar fungicide labeled to control dogwood anthracnose



(examples include fungicides containing propiconazole (Banner Maxx) or tebuconazole (Bayer Advanced Disease Control Products) at bud break in the spring. Good coverage of the entire tree with the spray is very important.

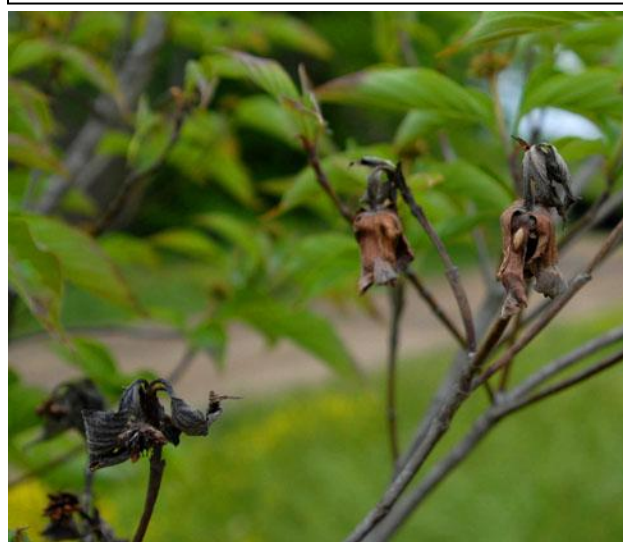
3. About two weeks after the systemic spray, apply a protectant fungicide labeled to control dogwood anthracnose containing chlorothalonil (like Daconil products), thiophanate-methyl (Cleary's 3336 for example) or a product containing both like Spectro 90 WDG. Again, complete coverage of the entire tree is essential. While commercial landscape companies have power sprayers that can effectively spray trees, most dogwoods are small enough to allow the use of trombone tree sprayers for homeowner use. An example is the Trombone® Model 61224 sprayer by Hudson Sprayer Company <http://www.hdhudson.com/consumer-catalog.html#61224>
4. In addition to pruning and fungicides, avoid overhead irrigation if possible. If overhead irrigation must be used, water in the early morning so that the tree can dry out before night. It is very important that dogwoods be watered well during our hot summers to prevent drought stress, which may further encourage the disease.
5. Since we do not currently know how widespread or damaging the disease is in the state, suspect samples should be collected and given to the local Cooperative Extension Service office for submission to the Plant Health Clinic for diagnosis.
6. Resistant varieties and types of dogwood are available and should be considered for new plantings or to replace diseased trees. Refer to the following chart for resistant cultivars.

<i>Cornus florida</i>	<i>Cornus Kousa</i>	<i>Cornus florida x kousa</i>
Appalachian Spring	Big Apple	Aurora
	China Girl	Celestial
	Elizabeth Lustgarten	Constellation
	Gay Head	Ruth Ellen
	Greensleeves	Star Dust
	Julian Milky Way	Stellar Pink
	Steeple	
	Temple Jewel	

### Dogwood Anthracnose



Rick Cartwright University of Arkansas Cooperative Extension



Jim Robbins University of Arkansas Cooperative Extension



### Trunk canker-dogwood anthracnose



Robert L. Anderson, USDA Forest Service, Bugwood.org

### Trunk/twig canker



Charles Hoysa, Virginia Cooperative Extension, Bugwood.org

### Reniform Nematode (*Rotylenchulus reniformis*) by Ronnie Bateman

The reniform nematode is known in Arkansas as the number two nematode pest in cotton. Where present this nematode is detected in consistently higher numbers than are generally found in root-knot infested fields. In favorable conditions this nematode can reproduce extremely fast. Research samples from reniform infested sites have shown population increases of 30,000 per pint of soil from early May planting until late June in cotton.

Less commonly known is the fact that the reniform nematode parasitizes a number of our more common garden crops. Host plants for the reniform nematode in the typical home garden are: okra, squash, cabbage, beets, carrots, tomatoes, lettuce, lima beans, snap beans, cowpea, eggplant, Irish potatoes, onions, cantaloupes, watermelon, sweet potatoes, cucumbers, and pumpkin. Non-host vegetable crops that could be used in a rotational scheme in the home garden include: onion, sweet pepper, hot pepper, spinach, turnip, peanuts, and corn.

This nematode is particularly problematic on sweet potatoes in Louisiana. In severely infested fields plants will be stunted and discolored (Figure 1) and yield will be affected due to decreased potato size, quantity of potatoes, and quality will be lowered (Figure 2). In areas of Texas, Georgia, and Florida watermelon and cantaloupe yields are affected. Once this nematode becomes established in a site its ability to reproduce in amazingly high numbers basically insures that the infested host will suffer at least some yield loss.

Visual symptoms of damage from reniform nematode in the home garden include: stunted plants, reduced yield due to reduced fruit size and decreased fruit quantity, wilting, and plant yellowing. The root system of the plant will have shorter roots (especially the tap root) but will have no galls present as will be found with infestation from the root-knot nematode. Since other factors (including other nematodes) can cause a lot of the same symptoms a general nematode assay is necessary to determine if reniform nematodes are present in a site. For nematode sampling information contact your local county extension agent or go to

[http://www.aragriculture.org/nematodes/nematode\\_clinic.htm](http://www.aragriculture.org/nematodes/nematode_clinic.htm).



Figure 1. Reniform damage to sweet potato. Untreated left. Treated right. Louisiana State University



Figure 2. Poor quality infected roots right. Treated left. Louisiana State University