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Anthracnose of Flowering Dogwood *Discula destructiva*

In the Northeast, the flowering dogwood, *Cornus florida*, has been showing symptoms of decline for more than a decade. Recently, this disease has spread to parts of Ohio, West Virginia, Virginia, North Carolina, South Carolina, Tennessee, Alabama, and Georgia. Unhealthy dogwood trees are a common sight in Suffolk, Nassau, and Westchester Counties.

Dogwoods in more natural, understory settings are declining as well as those growing as ornamentals in full sun; young trees are failing as well as mature specimens. A fungus disease called dogwood anthracnose is responsible for the deterioration of these trees.

Symptoms: The anthracnose disease is often not noticed until one or more of the lower branches of a dogwood are dead, so that they fail to flower or leaf out in the spring (**Figure 1.**). The earliest sign of trouble, however, is a spotting and blighting of the foliage by the anthracnose fungus, *Discula destructiva*. Spots are of two types: small, purple-rimmed spots (**Figure 2.**) or larger tan blotches (**Figure 3.**) that may enlarge to kill the entire leaf. The same fungus, which causes leaf infections also, infects the dogwood twigs. The twigs are killed back several inches and turn tan and dry (**Figure 4.**). Flower bracts may become spotted or blighted (**Figure 5.**) if rainy weather conditions prevail during flowering.

Watersprouts (**Figure 6.**) frequently appear in great numbers on the trunks and branches of trees with these leaf and twig infections, and the fungus, also, often kills them. This is especially damaging to the tree, because the fungus may grow down the watersprout into the bark at the base, killing the bark in a patch several inches in diameter, called a canker. Numerous cankers may coalesce to completely girdle and kill a main branch.

Once the fungus infection begins on a tree, it seems to build and spread very quickly. If no preventive measures are taken, a tree may be dead only a few years after the initial signs of leaf infection. Other fungi may attack a tree already weakened by the anthracnose, helping to speed its decline.

Role of Environmental Factors: Dogwoods, being shallow-rooted trees, are particularly sensitive to summer and autumn droughts. Drought conditions may increase the susceptibility of dogwoods to anthracnose and hasten their death. Extended rainy periods in spring and fall will promote disease development and spread.

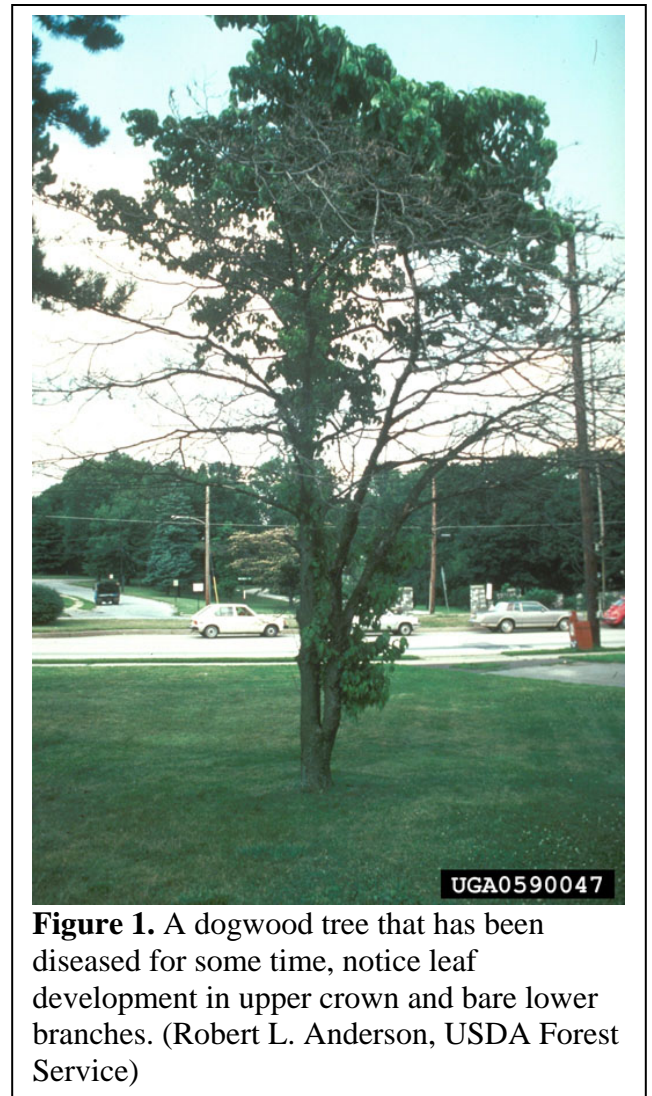


Figure 1. A dogwood tree that has been diseased for some time, notice leaf development in upper crown and bare lower branches. (Robert L. Anderson, USDA Forest Service)

Management: Badly diseased dogwood with only a few active branches left probably can not be saved. If your trees are just beginning to show signs of the disease, however, it is important to try to improve their health before it is too late.

First, prune out any dead watersprouts and lower branches, to reduce the amount of fungus inoculum. Always prune in dry weather. Gathering up fallen leaves from beneath your dogwood trees in the autumn may also help to cut down on the potential for disease next spring.

Combating the fungus disease with pruning and fungicide applications will be helpful only if trees are also given the very best of care. Dogwoods must be protected from drought with mulching and supplemental watering during summer and fall dry spells. A mulched area around the base of the tree will reduce the likelihood of lawnmower wounds on the trunk, which predispose the tree to attack by borers (insects that bore in the trunk causing damage to the interior wood).

It is recommended that sufficient levels of all essential elements be maintained so that an acceptable growth rate and condition of health be maintained in the tree. To determine the need for a fertilizer application it is recommended that a [soil nutrient analysis \(soil test\)](#) be run to determine soil nutrient levels as well as a soil pH analysis to determine soil acidity. In addition a foliar nutrient analysis can determine the nutrient content in the leaves of the tree.

In the absence of soil and/or foliar nutrient analysis a fertilizer ratio of 3:1:1 or 3:1:2 should be used. Fertilizers with slow- or controlled-release nitrogen should be used when fertilizing trees. This will reduce the potential for nitrate leaching as well as reducing problems associated with salt or fertilizer “burn.” Fertilizer uptake in deciduous hardwood trees corresponds with the time of root growth. In general, root growth will start before budbreak in the spring and end after leaf drop in autumn. Therefore the maximum nutrient uptake will occur after budbreak in the spring and up to color change in the autumn. Application of quick release (soluble) fertilizers should be avoided when trees are dormant between leaf drop and budbreak because uptake is minimal and leaching potential is greater. In addition avoid fertilizer applications if the ground is frozen to prevent runoff as well as during periods of drought when roots will not readily absorb fertilizer and when the potential for damage from fertilizer salts is high. If a subsurface application of fertilizer is being used the preferred depth of such an application should be 4-8 inches. Deeper applications will be delivering fertilizer beyond the fine roots of most trees.

The preceding information on tree fertilizing was obtained from *Best Management Practices Tree and Shrub Fertilization*, companion publication to the *ANSI A300 Standard for Tree, Shrub, and Other Woody Plant Fertilization*, International Society of Arboriculture, Champaign, Illinois.



Plant resistant species and cultivars. Most species and hybrids of *Cornus* – except *C. florida* and *C. kousa* ‘Autumn Rose,’ ‘Moonbeam,’ and ‘Wolf Eyes’ - are resistant to this disease. *Cornus florida* ‘Spring Grove’ and ‘Sunset,’ and several *Cornus florida* x *Cornus kousa* hybrids such as ‘Constellation,’ ‘Ruth Ellen,’ ‘Star Dust,’ ‘Stellar Pine,’ and ‘Celestial’ are also resistant.

Consider using other small flowering trees in the landscape. Some good choices recommended by experts are: *Cornus mas*, the Cornelian cherry; *Oxydendrum arboreum*, sourwood; *Franklinia alatamaha*, Franklinia or Franklin tree; *Styrax japonica*, Japanese snowbell; *Malus* sp., improved disease resistant crabapples; and *Cercis canadensis*, American redbud.

Fungicide recommendations for homeowners: apply **chlorothalonil, mancozeb, or propiconazole** according to label directions.

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Figure 5. Spotted and blighted flower bracts. (Robert L. Anderson, USDA Forest Service)



Figure 6. Watersprouts forming on a branch. (Robert L. Anderson, USDA Forest Service)

Pesticide and management recommendations obtained from *Part II Guide to Pest Management around the Home – 2005-2006 Pesticide Guidelines*, Cornell Misc. Bulletin S74II. Contact our office for information on ordering copies.

The Pesticide Management Education Program (PMEP), in cooperation with the New York State Department of Environmental Conservation (NYSDEC), maintains a web site with a searchable database for pesticide products currently registered in New York State. Homeowners who have Internet access can locate currently registered products at <http://pmep.cce.cornell.edu/pims/current>. Several different queries are available that will produce a summary for the product(s) that the system locates. If the system fails to locate the product in question, then that product is not currently registered in New York State. The database also provides a summary of important information related to every product currently registered. Two data fields “Status” and “Expiration Date” are provided in each summary. Products with a status of “Registered - Discontinued” are currently registered but will probably be discontinued for use, sale, and distribution in New York State after the date noted in the “Expiration Date” field.

This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension specialist or your regional DEC office. Read the label before applying any pesticide.

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