



FOREST and SHADE TREE PESTS

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Powdery Mildew of Dogwoods

SIGNIFICANCE

Since 1994, powdery mildew infections on dogwoods (*Cornus* spp.) have been reported to be more prevalent in the eastern United States. This is consistent with local (Florida) experience; observations by local plant/tree disease specialists and specimens submitted to the Florida Department of Agriculture's Division of Plant Industry Diagnostic Laboratory indicate that powdery mildew levels have been "higher than normal" in recent years. While no particular explanation for this phenomenon has been validated, environmental conditions favorable to the powdery mildew pathogens and conducive to the development of disease are certainly a plausible option.

THE PATHOGENS

Powdery mildew fungi are obligately parasitic ascomycetous fungi belonging to the family Erysiphaceae. Two species (or groups) of powdery mildew fungi are known to occur on dogwoods in the eastern U.S.; *Microsphaera penicillata* and *Phyllactinia guttata*. Recent evidence, however, suggests that perhaps only the former is pathogenic on *Cornus florida*. The taxonomy of powdery mildew fungi, like in many other complex groups of fungi, is complicated and uncertain. Because the sexual (and taxonomically more definitive) stages of powdery mildews are not common in Florida, many powdery mildews are recognized and identified by symptoms only and/or the occurrence of their more common asexual stage(s). These asexual stages have been commonly assigned to the Deuteromycete form-genus *Oidium*, although the argument has been forwarded that many of these organisms are better classified in the form-genus *Acrosporium*. Apparently, there are as many as seven other form-genera into which these asexual stages have been or could be placed.

THE DISEASE

Powdery mildew infections on dogwood are typically initiated in the spring on leaves, succulent stem tissues, and flowers. Infections appear initially as raised, circular areas on leaves covered with powdery white fungus cells. In time, infected leaves are characteristically distorted, and some reddish leaf pigmentation and tissue necrosis may occur. Reduced photosynthesis and increased transpiration have been attributed to powdery mildew infections. Infections are enhanced by high humidities, warm days, and cool nights and are apparently limited to epidermal cells of host leaves. The presence of free water on host tissues apparently inhibits germination of powdery mildew spores.

CONTROL

Several fungicides are available for control of powdery mildew on dogwood. Other measures that have been proposed and are likely to be helpful include 1) avoiding nitrogen fertilization and pruning to minimize succulent/susceptible tissue production and 2) promoting crown/foliage

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aeration to minimize high humidities conducive to infection. In addition, there are varieties of flowering dogwood that have apparent resistance to powdery mildew. Whether or not these are adaptable to Florida's climatic conditions is unknown by the author.

FORESTRY OFFICES

1. Escambia, Santa Rosa, and Okaloosa Counties

Blackwater Forestry Center
11650 Munson Highway
Milton, FL 32570 850/ 957-6140

2. Bay, Calhoun, Gulf, Holmes, Jackson, Walton, and Washington Counties

Chipola Forestry Center
715 West 15 Street
Panama City, FL 32401 850/872-4175

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Tallahassee, FL 32304 850/ 488-1871

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618 Plantation Road
Perry, FL 32348 850/ 838-2299

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7247 Big Oaks Road
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1600 N.E. 23rd Ave
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