

Powdery Mildew on Dogwood



The flowering dogwood (*Cornus florida*) is a very popular native tree in Delaware landscapes and in wooded areas. The flowering dogwood has few equals when it comes to providing a spectacular show of spring color. However, this wonderful tree is not without its problems. Dogwood borers, errant lawnmowers, and *Discula* anthracnose have limited the life of many a dogwood in Delaware. Now a new emerging fungal disease is disfiguring this tree and is being noticed by landscape maintenance personnel and homeowners alike. Powdery mildew, caused by the fungus *Microspheera*, is widespread in Delaware and the surrounding region. Wherever the flowering dogwood is grown, powdery mildew is increasing in occurrence and severity.

Symptoms

Powdery mildew can occur early in the season (mid-May) if weather conditions are favorable and can be identified by the patches of white powdery fungal growth on the upper surface of newly emerging leaves. This infection will often cause the new growth to be twisted or deformed.

Older infected leaves have green-brown or green-purple blotches that progress into dark brown to tan dead patches as the summer progresses. The white fungal growth is not as noticeable on the older leaves. Symptoms may appear on the new growth throughout the summer and fall. It is difficult to evaluate the effect of powdery mildew infections on landscape trees but the loss of photosynthesis and water due to leaf infections could be weakening trees. This weakening could make infected trees more susceptible to dogwood borers or *Botryosphaeria* canker disease. Research in Tennessee has shown increased height and caliper of healthy trees compared to infected container grown plants. The aesthetic effects are obvious, the disease reduces the attractiveness of the trees.

Recent observations from areas with nursery production indicate that the disease is capable of reducing growth of very small trees that are used for root stock and budwood.



Control

There are several things that landscapers and homeowners can do to prevent powdery mildew:

1. For existing trees discourage the disease by avoiding heavy nitrogen fertilizer use, heavy overhead watering and excessive pruning. These practices produce succulent growth that is more easily infected by the fungus.
2. Provide a thin layer of mulch over the root system, prune out dead branches, and provide good air movement so the foliage dries quickly.
3. Planting disease resistant cultivars is the best long-term solution to powdery mildew control. Plant pathologists and horticulturists have identified a number of disease resistant and moderately resistant cultivars of flowering dogwood. Ratings have also been taken of mildew resistance on Kousa dogwood and the new dogwood hybrids, *Cornus rutgeriensis*. The following list was gleaned from a number of sources including our own dogwood collection at the University of Delaware Botanic Garden in Newark and the Research and Education Center in Georgetown.

Flowering dogwood, *Cornus florida*

Resistant	Susceptible	Very Susceptible
Cherokee Brave	Cherokee Princess	Autumn Gold
Jean's Appalachian Snow	Barton	Cherokee Sunset
Karen's Appalachian Blush	Cloud Nine	Double White
Kay's Appalachian Mist	Cherokee Chief	Presidential
	Green Glow	Pygmy
	Springtime	Rainbow
		Red Beauty
		var. rubra
		Snow Princess
		Cherokee Daybreak
		First Lady

Kousa dogwood, *Cornus kousa*

All the Kousa dogwoods evaluated have shown excellent resistance except Bush's Pink and Poinsett evaluated in Tennessee.

Flowering dogwood- Kousa dogwood hybrids, *Cornus x. rutgeriensis*

All these have very little mildew and can be considered resistant and very acceptable in the landscape under Delaware conditions. Under very favorable conditions for infection there may be some infection.

Resistant

Galaxy (Celestial)

Mixed reactions varying from resistant to susceptible

Aurora

Constellation

Stellar Pink

Least resistant (most susceptible)

Ruth Ellen

Stardust

Flowering dogwood-Pacific dogwood, *C. florida* x *C. nuttallii* hybrid

Eddie's White Wonder – Moderately susceptible to susceptible

Other dogwood species

Pagoda dogwood, *C. alternifolia* - resistant

Bigleaf dogwood, *C. macrophylla* - resistant

Redosier dogwood, *C. sericea* -moderately resistant

Tatarian dogwood, *C. alba* -moderately resistant

Silky dogwood, *C. amomum*- resistant

Chemical Control

Fungicides can be used to control powdery mildew on established landscape trees that have been previously damaged by this fungus. Trees stressed by drought, insect damage, or soil and root disturbance are especially vulnerable to the damaging effects of powdery mildew. Fungicide control of powdery mildew on plants that are annually infected is suggested.

Banner MAXX, Cleary's 3336, Compass, Heritage, Strike, Eagle, and Systhane are commercially available fungicides that provide excellent control of powdery mildew applied every three weeks, until early August. Homeowners can use products containing Cleary's 3336 (thiophanate-methyl), Bonide Infuse Systemic Disease Control (propiconazole) and Immunox (myclobutanil). Recent research has shown that the biorational pesticides neem oil (Triact, Dyna-Gro Pure Neem Oil), potassium bicarbonate (FirstStep, Kaligreen, and Bonide Remedy), and paraffinic oil (Sunspray UF oil) are also effective if applied every 2-3 weeks. All sprays should be first applied when the first signs of infection are present, and repeated at the appropriate interval.

Caution: The information and recommendations in these fact sheets were developed for Delaware conditions and may not apply in other areas.

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