

Powdery Mildew on Dogwood

By the Bartlett Lab Staff
Directed by Kelby Fite, PhD

Powdery mildew on dogwoods is caused by fungi in the genera *Microsphaera* and *Phyllactinia*. This disease is quite common in both the landscape and nature. Powdery mildew fungi are obligate parasites, meaning that they survive only on living plant tissue, so they do not rapidly kill plant tissue following infection. Unless there are other stress factors involved, this disease is not lethal. However, powdery mildew can cause significant aesthetic damage and has been found to reduce winter hardiness. Powdery mildew fungi prefer warm and humid weather, but unlike most fungal pathogens, are inhibited by free water on leaf surfaces. Symptoms are typically present from late-spring through autumn.

Figure 1: Powdery mildew infection on dogwood leaves



Symptoms

The name of this disease adequately describes the primary symptom. White or gray fungal colonies on the upper and lower surfaces of newly expanded leaves are apparent when conditions are conducive to disease development (Figure 1). Powdery mildew fungal colonies can usually be seen without a hand lens, but in some cases magnification must be used to see early signs of infection. Often, the powdery growth is followed by curling and stunting of the youngest leaves. Red or purple discoloration of the mature foliage can sometimes be seen as well. Scorching of the leaves is also quite common.

Disease Cycle

The fungi responsible for this disease belong to the group known as the Ascomycetes. These fungi overwinter in plant debris as protective spore structures called cleistothecia, and release spores in the spring when conditions become favorable. These

spores are the source of initial infection of the plant each season. The fungus then produces a different type of spore that re-infects the leaf tissue throughout the summer. These spores are carried by the wind and rain to infect healthy leaves.

Control

Management of powdery mildew is achieved by a combination of different control tactics. Removal and destruction of infected leaf litter from the area will reduce the amount of inoculum available for primary infection the next season. Pruning of the overstory to promote light and air penetration of the canopy will help to reduce the humidity near the leaf surface and discourage fungal growth. Light fertilization in the dormant season will reduce the amount of succulent, susceptible growth that is produced during the growing season.

Perhaps the most important means of management is the use of resistant cultivars when planting. Several

resistant cultivars of *Cornus florida* are now available, and *Cornus kousa*, including cultivated varieties, displays resistance as well (Table 1). *C. florida* x *kousa* hybrids show moderate to high resistance. Even with the above practices, regular fungicide treatments may also be necessary starting when symptoms first appear.



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Table 1: Resistance to powdery mildew by cultivar

Resistant	Moderately Resistant	Susceptible
Cherokee Brave ¹	Barton White ¹	Autumn Gold ¹
Big Apple ²	Cloud 9 ¹	Dwarf White ¹
China Girl ²	Double White ¹	First Lady ¹
Gay Head ²	Fragrant Cloud ¹	Junior Miss ¹
Greensleeves ²	Rainbow ¹	Ozark Spring ¹
Julian ²	Springtime ¹	Pink Beauty ¹
Milky Way ²	Weaver’s White ¹	Pink Flame ¹
National ²	World’s Fair ¹	Purple Glory ¹
Satomi ²	Steeple ²	Red Beauty ¹
Temple Jewel ²	Constellation ³	Rubra Pink ¹
Aurora ³	Ruth Ellen ³	Stokes Pink ¹
Galaxy ³	StarDust ³	Wonderberry ¹
Stellar Pink ³	Cherokee Chief ¹	Cherokee Sunset ¹
Appalachian Spring ¹	Cherokee Princess ¹ Cherokee Daybreak ¹	
Milky Way Select ²	Welch’s Bay Beauty ¹ Elizabeth Lustarten ²	

1. Flowering dogwood (*Cornus florida*)
2. Kousa dogwood (*Cornus kousa*)
3. Hybrid dogwood (*Cornus kousa* x *florida*)