Tree Care Handbook, Volume 1

Flowering Dogwood
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Cornus florida

The word Cornus means ‘horn,’ likely referring to the hard quality of the wood. The word florida means ‘freely flowering.’

Qualities

**Height at maturity:**
- Full sun: 15 feet
- Shade: 30 feet

**Spread at maturity:**
- Full sun: 20-25 feet
- Shade: 15 feet

**Preferred pH:**
- 6 to 7

**Flowers:**
- Precede leaves in early spring

**Fruit:**
- Develops in summer; ripens in early fall

**Vascular type:**
- Diffuse porous

**Wood weight (live):**
- 50 lb/cu\(^3\), dense, hard, shock resistant

**Mycorrhizal relationships:**
- Ectomycorrhizal and Arbuscular
Landscape Role

Aesthetic Placement
Most applicable as a specimen tree; or as a uniform, but visually weighty grouping. Dogwood functions strikingly as an accent in the background, and along densely forested edges.

Fauna Relationships
Flowering Dogwoods are a food source for birds and and many other animals. The ripe fruit (drupe) is high in fat content, and at least 36 species of birds and many different mammals eat them. Deer, beaver and rabbits will eat the twigs and bark.

Flora Relationships
Dogwood leaves are 2 to 3.5 percent calcium by weight and directly benefit other surrounding plants through decomposition.

Selected Cultivated Varieties
Flower color is shown in parentheses

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<th>Aesthetic</th>
<th>Discula resistant</th>
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<td>Cherokee Princess</td>
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<td>Cloud 9</td>
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<td>Weaver’s White</td>
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<td>Welchii</td>
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<td>White cloud</td>
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Common Problems

Performance

Small leaves
The presence of small leaves in flowering dogwoods is usually related to a root problem, often as a result of mechanical injury to the roots or from infection by root pathogens. Soil fill over the roots and water-logging can cause the small leaf syndrome.

Distorted shape
A twisted or punctured appearance of the leaves is usually a result of a leaf disease such as Dogwood Anthracnose or Powdery mildew.

An uncommon condition is the “Taco” dogwood, where the tree leaves appear to be folded upward along the length of the midrib. There is no known cause, and the condition is not likely to be pathogenetic.

Poor leaf color

Drought
Leaf tends to be light-green in color, texture is papery. The leaf petiole may be bent and nearly vertical.

Saturated soil
Leaf color is yellow, texture may be normal. *Septoria* leaf spot is common in the growing late season.

Nutrient deficiency
Probably the least common cause of poor color. Note that Dogwood response to fertilization is reportedly slow.

Inconsistent Flowering
Weak or consistent lack of flowering may be the result of unique genetic variation. Dogwoods are also reportedly subject to the influence of provenance, not blooming well if transplanted far from their individual ancestral location. Some dogwoods must reach a fully mature age to produce large crops of flowers.
Insects

**Dogwood borer**  
*Synantheledon scitula*

- Affects: Trunk or limbs, but causes dieback in canopy
- Symptoms: Active borers expel coarse, brown, sawdust-like frass, found around cracks in bark or at the base of infested plants. Tan-colored pupal skins, left protruding from the bark when adults emerge in the spring, are another sign that borers are present. Off-color foliage and crown dieback are early symptoms of Dogwood borer infestation.
- Conditions: Weakened or stressed trees are susceptible. Regions of the trunk that have been injured, such as trimmer injury, are predisposed to borer attack.
- Cultural Controls: Avoid mechanical damage to trunk and branches, especially from string trimmers and lawn mower injuries
- Chemical Control: Trees can be treated with bifenthrin or permethrin. Apply in late April and mid-July. Spray the trunk and lower scaffold limb surfaces.

**Club Gall Midge**  
*Resseliella clavula*

- Affects: twigs
- Symptoms: club-shaped swelling on twig, 13 to 25.5 mm long
- Cultural Control: sanitary pruning of infested twigs while larvae are present
- Chemical Control: not recommended due to the relatively minor impact of the disease. Some species of the Club Gall Midge family *Cecidomyiidae* may prey on other plants pests, such as aphids and scales.

Dogwood trees are a labeled species for the systemic insecticide Imidacloprid.
Diseases

Dogwood anthracnose

*Discula destructiva*

Affects: leaves, stems and trunk

Conditions: disease favored by cool, moist weather; spores mass on leaves & bark, splashing rain may contribute to spread.

Symptoms: small purple-bordered leaf spots or tan blotches. Leaves do not abscise in fall. Can spread to twigs and trunk, causing brown elliptical cankers.

Cultural Controls: dispose of diseased twigs and branches, and remove leaves of infected trees from the site.

Chemical Controls: Chlorothalonil, mancozeb+thiophanate methyl, or propiconazole as a preventive; 3 - 4 foliar sprays during leaf expansion in the spring, at 10-14 day intervals.

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

Spot anthracnose

*Elsinoe corni*

Affects: leaves and flowers

Symptoms: bracts in early spring have reddish-purple spots; leaves have very small spots, dark purple color, centers may turn pale yellow-gray and drop out; heavily infected leaves are smaller than normal, distorted and often killed.

Cultural Controls: evaluate irrigation, especially in spring, and reduce if necessary.

Chemical Controls: chlorothalonil, mancozeb, or thiophanate methyl+ mancozeb as a spray when buds begin to open; repeat when bracts have fallen, four weeks after bract fall, and in late summer after flower buds have formed.

Images from Robert L. Anderson, USDA Forest Service, Bugwood.org
**Powdery mildew**  
*Microsphaeria pulchra or Phyllactinia guttata (influence is contested)*  

Affects: leaves  
Conditions: infects in spring; warm days 60°F, cool nights, humid air.  
Symptoms: faint white, almost fuzzy coating on buds, stems, and leaf surface  
Cultural controls: Direct soil watering may help. Remove infected leaves (all infected tree species) from the site, or compost.  
Chemical Controls: **Myclobutanil, Propiconazole, Thiophanate-methyl, Triadimefon, Sulfur, Copper**

**Leaf Spot**  
*Septoria cornicola*  

Affects: leaves  
Conditions: appears in late summer or early fall  
Symptoms: dark brown inter-veinal spots, 6 mm diameter  
Cultural Controls: Dispose of infected leaves (all infected tree species) off site, or compost leaves thoroughly  
Chemical Controls: not recommended due to the relatively minor impact of the disease

**Crown Canker**  
*Phytophthora cactorum*  

Affects: Trunk and main limbs  
Conditions: Usually occurs on new transplants or trees with root injuries, especially in poorly drained areas  
Symptoms: In early stages, the canker may ooze dark-colored fluid. Diagnose by carefully removing thin layers of bark in the affected area. The inner bark, cambium, and sapwood will show discoloration.  
Cultural Controls: Improve drainage. Evaluate irrigation, and reduce if necessary.  
Chemical Controls: **Metalaxyl** (Subdue) is effective as a preventative treatment, applied at 2-3 week intervals.
Care

Pruning
Livewood
Pruning of live healthy limbs and branches should generally be dictated by the spatial needs of the landscape. Prune early in the tree’s maturity, but only when the tree is firmly established after planting. Forecast where future branches will conflict with the landscape, and remove potentially problematic branches while they are between 0.5 - 1 in./1.25 - 2.5 cm diameter.

For Dogwoods, there is no evidence that pruning live limbs or thinning for the sake of appearance is a beneficial practice in terms of tree health and longevity. Even moderate live wood pruning (over 10% of total canopy mass) may actually reduce the lifespan of mature Dogwoods.

Timing
Healthy Dogwoods may be pruned anytime outside of the flowering and leaf expansion period.

Deadwood
Remove dead limbs at the branch collar as soon as possible.

Mulching
Established and newly planted dogwoods are somewhat sensitive to changes in soil mulching. Never place mulches directly against a Dogwood’s trunk.

Pine straw - good, maximum depth 3 inches.
Pine bark - good, maximum depth 2 inches.
Leaves - good. Do not use leaves that may be infected by Discula anthracnose or other known leaf diseases.
Wood chips - Use only if other mulches are not available. Only use partially composted wood chips, to maximum depth of 2 inches.
Inorganic mulches - unknown affect

Irrigation
Delivery: Do not use sprinklers or misters. Use drip irrigation or soaking from a hose.

Frequency: dry periods in spring and summer, deep soaking no more than once per week

Soil target: Dogwoods will tolerate moderately dry soil for short periods. Do not water if the surrounding soil is poorly drained. Infrequent irrigation is best; discontinue if regional rainfall is normal.

Other Considerations
Dogwoods are relatively susceptible to herbicide and salt injury.