

Dieback and Canker of Camellia

The camellia has been a fixture in landscapes across the South for nearly two centuries. Hybrids and cultivars of the common camellia, *Camellia japonica*, are the most recognized and widely planted camellias. The sasanqua camellia, *Camellia sasanqua*, is also widely used in Alabama landscapes in screen, foundation, and accent plantings. Other cultivated camellia taxa include *C. oleifera*, *C. reticulata*, and *C. saluensis*.

The disease anthracnose, also known as dieback and canker, is caused by the fungus *Glomerella cingulata*. It will severely damage and often kill camellias. Although widely recognized as a damaging disease in landscape plantings of all camellia taxa, dieback and canker has become increasingly common in container grown sasanqua camellia. Cultivars of sasanqua camellia and *C. reticulata* are more susceptible to this disease than are those of the common camellia.

Symptoms

The first symptom of dieback and canker is a noticeably dulling or yellowing of the normally shiny deep green leaves on the diseased shoots. Within a few weeks, the dull green foliage wilts, turns yellow, and finally turns reddish brown (Figure 1). Typically, the twisted dead leaves remain attached to the dead shoot or branch. Well-defined, sunken, usually lens-shaped (elliptical) cankers with a prominent callus ring develop around the edges of pruning wounds or form at the base of the dead shoots (Figure 2). The cankers at the base of diseased shoots will continue to enlarge until the scaffold limbs or root collar is girdled.

Shoot dieback can appear at any time during the growing season. In the landscape, individual shoots on a diseased camellia gradually die over a period of one or two years until the entire plant is dead. The black, pinhead-sized fruiting bodies of the causal fungus *G. cingulata* appear on the sunken face or surface of the canker in a roughly circular pattern. The orange-pink spore masses of the causal fungus may be seen in the spring and early summer immediately after several days of showers.

Disease Cycle

In the nursery and landscape, the causal fungus *G. cingulata* overseasons in cankers on diseased plants. After several days of overcast, wet weather, masses of spores ooze from the fruiting bodies embedded in the shoot cankers and are spread to healthy shoots by



Figure 1. Typical dieback symptoms on a sasanqua camellia

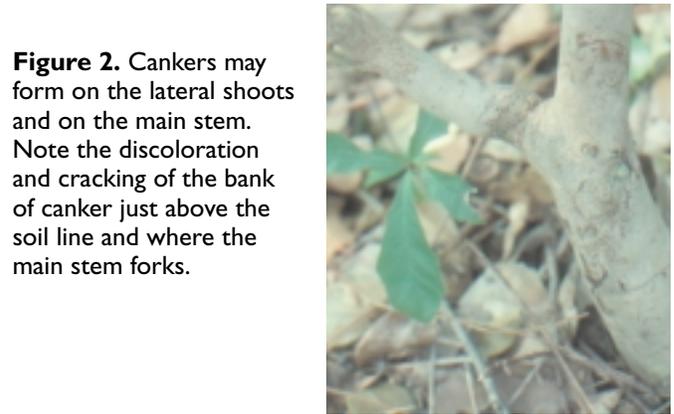


Figure 2. Cankers may form on the lateral shoots and on the main stem. Note the discoloration and cracking of the bark of canker just above the soil line and where the main stem forks.

splashing water and contaminated pruning tools. The causal fungus may be introduced into established plantings or existing blocks of container stock on diseased cuttings, liners, and container stock. Specifically, the causal fungus invades camellia through leaf scars, pruning wounds, and graft unions. Although symptoms may be seen only a few weeks after infection, shoot dieback often does not become noticeable for several months. In the landscape, the stress caused by excessive heat and drought can accelerate the rate of canker expansion.

Control

Crop sanitation is the key to preventing disease outbreaks and minimizing damage caused by existing infections. Hobby growers and nursery personnel must be aware that dieback and canker can easily spread during propagation. In the nursery, stock plants should be isolated from production blocks and should receive the highest level of care to minimize the risk of infection. Regardless of location, cuttings and scion wood must be taken only from canker-free plants. Although soaking camellia cuttings in a suspension of 3336 50W or Halt 50W (1 tablespoon per gallon of water) may help prevent the spread of disease, this fungicide treatment could interfere with root initiation on cuttings.

In the landscape and nursery, camellias, especially susceptible sasanqua and *C. reticulata* selections, should be routinely inspected for cankers and typical dieback symptoms. If the main trunk or root collar of container stock is cankered, the plants are unsalable and should be discarded. Discolored or flagging shoots should be removed as soon as those symptoms are seen. To remove the entire canker, cuts must be made in green wood. Diseased rooted cuttings, liners, and newly grafted container or field stock rarely survive and should be immediately discarded. To avoid accidentally inoculating pruning cuts with *G. cingulata*, pruning tools and cutting knives should be cleaned after each cut with isopropyl alcohol or a similar surface disinfectant. When routinely pruning or shaping camellias, make relatively flush cuts that will quickly heal. See Extension publication ANR-202, "The Culture of Camellias: The State Flower of Alabama," and ANR-258, "Pruning Ornamental Plants," for more information on proper pruning procedures. Short branch stubs, which are often the result of poor pruning practices, usually do not heal and are often colonized by *G. cingulata*.

Following good establishment and maintenance practices can minimize the risk of dieback and canker. The best time of the year to plant camellias is mid fall to early winter. Camellias established in the spring and summer are extremely sensitive to heat and drought stress and must be watered to prevent injury or death. During late spring, summer, and fall droughts, water established camellias every 5 to 7 days. To maintain plant health and vigor, camellias need about 1 to 1½ inches of rainfall or irrigation per week during the growing season.

All camellias do best when established on partially shaded sites, protected from the morning sun, and in slightly acidic, well-drained soil. Before planting, deeply work up an area several times the size of the root ball and fertilize according to soil test recommendations. Amend poorly drained clay soils with one part sand, well-rotted saw dust or pine bark, or a clay buster product and two parts of soil and plant on raised beds. Set the plants so that the top of the root ball sits at or just above the soil level and firm up the soil around the root ball to prevent settling. Do not plant camellias on sites prone to flooding or where water ponds. Mulch a circle at least 2 to 3 feet around each newly established plants with aged pine bark, pine straw, or composted leaf duff. Periodically, spread a thin layer of fresh mulch around the base of established camellias. Finally, remove or kill any lawn grasses or weeds trying to colonize the mulched areas around the base of established plants. See Extension publication ANR-202, "The Culture of Camellias: The State Flower of Alabama," and ANR-410, "Establishing Woody Ornamentals," for more information on recommended establishment and management practices.

Camellia taxa differ in their susceptibility to dieback and canker. Overall, the common camellia (*C. japonica*) is considered to be the least sensitive to dieback and canker. In particular, the cultivars 'Professor Sargent,' 'Rose Emery,' 'Governor Moulton,' and 'Woodville Red' are recognized as being partially resistant to this disease. Common camellia, however, are usually grafted onto sasanqua camellia rootstock and may be attacked by *G. cingulata* at the graft union. Also, the combination of drought and heat stress may increase the susceptibility of common camellia to dieback and canker. While most selections of sasanqua camellia are susceptible to this disease, the cultivars 'Daydream' and 'Setsugekka' may have some resistance. The *C. reticulata* cultivars 'Butterfly Wings,' 'Chang's Temple,' 'Chrysanthemum Petal,' 'Cornelian,' 'Crimson Robe,' 'Lila Naff,' 'Mandalay Queen,' 'Mouchang,' 'Moutancha,' 'Pagoda,' 'Professor Tsai,' 'Purple Gown,' 'Shot Silk,' 'Tali Queen,' 'White Retic,' 'William Herrich,' and 'Willow Wand' as well as the *C. reticulata* hybrids 'Budda,' 'Captain Rawes,' and 'Confucius' are also highly susceptible to dieback and canker. The susceptibility of the selections of other less widely cultivated camellia taxa relative to the common or sasanqua camellia is not known.

Fungicides that contain the active ingredients thiophanate-methyl or azoxystrobin are cleared for the control of dieback and canker (anthracnose) on camellias. Although the effectiveness of these fungicides has not been clearly established, they probably will work best when used as protective treatments on healthy plants and in combination with recommended maintenance practices. Fungicide treatments are unlikely to improve the health and vigor of camellias suffering from extensive shoot dieback. In the spring and summer, applications should be made at intervals indicated in Table 1, especially during extended periods of cloudy, wet weather. For best results, apply the fungicide as a heavy spray and be sure to thoroughly wet the leaves, shoots, and main trunk.

Table 1. Fungicides Labeled for the Control of Dieback and Canker (Anthracnose) on Camellia

Fungicide	Spray Interval	Application Rate	
		Per gal.	Per 100 gal.
thiophanate - methyl			
3336 50W	7 to 14	1 T.	12 to 16 oz.
3336 4.5F	days	- -	12 to 20 fl. oz.
Cavalier 50WSB		1 T.-	12 to 16 oz.
Fungo 50WSB		- -	16 oz.
Fungo Flo		- -	20 fl. oz.
Halt 50W		1 T.	12 to 16 oz.
azoxystrobin			
Heritage 50W	7 to 28	- -	1 to 4 oz.
	days		

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Use pesticides only according to the directions on the label. Follow all directions, precautions, and restrictions that are listed. Do not use pesticides on plants that are not listed on the label.

The pesticide rates in this publication are recommended only if they are registered with the Environmental Protection Agency and the Alabama Department of Agriculture and Industries. If a registration is changed or cancelled, the rate listed here is no longer recommended. Before you apply any pesticide, check with your county Extension agent for the latest information.

Trade names are used only to give specific information. The Alabama Cooperative Extension System does not endorse or guarantee any product and does not recommend one product instead of another that might be similar.

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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