AN INTEGRATED APPROACH TO CONTROL OF CANKER DISEASES IN WOODY ORNAMENTALS

IV. BOTRYOSPHAERIA CANKER

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Botryosphaeria canker, caused by the fungus *Botryosphaeria dothidea* (syn. *B. ribis*), is a common canker disease of woody plants in landscape and forest settings throughout the temperate and tropical regions of the world. The disease affects plants in more than 100 genera, and is most troublesome on fruit, nut, and ornamental hosts (Table 1). *B. dothidea* is an opportunistic pathogen (or disease agent) that lives in dead wood, but readily attacks trees and shrubs that have been wounded or weakened by environmental stresses such as drought or winter freezing injury. The disease can result in a branch dieback that may kill or severely reduce the aesthetic value of trees.

SYMPTOMS

Symptoms of Botryosphaeria canker vary with the species and age of the host and the severity of the predisposing stress. The fungus kills bark and sapwood tissue, causing areas of dead tissue, called cankers, to form. Cankers range from small, elliptical lesions that may coalesce into large diffuse areas of blighted tissue, to large, sunken, and elongate cankers delimited by callus tissue. Affected bark turns dark, rough, and may peel away. Multiple cankers of various sizes often develop on branch tissue, growing slowly until the limb is girdled and killed. The entire plant may be killed once the canker moves from the branch into the main stem.

DISEASE DEVELOPMENT

*B. dothidea* survives the winter in groups of small, round “fruiting bodies” (or structures that produce spores) embedded near the surface of cankered tissue killed by the fungus. Infections occur when spores are splashed by rain or carried by wind from these fruiting bodies to susceptible tissue. Spore dispersal can occur during most of the year, but is most extensive during late spring and early summer. Infection occurs when germinating fungal spores penetrate wounds or other openings in the bark. Pruning wounds, cracks, leaf scars, lenticels, sunscald lesions, and senescent branches are all good entry sites for the fungus. Symptom development may take 3 months to a year.

MANAGEMENT AND CONTROL

An integrated approach to control of most canker diseases, including Botryosphaeria canker, begins with the selection of disease-free planting material. Be sure to choose top quality material from a reputable dealer so that the disease is not moved into the landscape. Always inspect plant material thoroughly before planting.

Most healthy, vigorous plants are resistant to Botryosphaeria canker. Environmental stress, however, can readily predispose plants to attack.
Healthy trees and shrubs can resist infection and
will slow or prevent spread of the disease
throughout the branch. When planting new trees
and shrubs, choose a site that is suitable to the
horticultural requirements of the species. For
example, planting sun-loving plants in shady loca-
tions, or growing species outside their natural
range, can predispose these plants to this can-
k er disease. On older, established trees, main-
tain or improve plant vigor with proper pruning,
fertilization, and irrigation. Drought stress pre-
disposes trees to canker development, so wa-
tering trees during times of drought is important.

Since *B. dothidea* is an opportunistic fungus
that infects stressed plants through existing
openings, it is important to protect plants by care-
fully avoiding all unnecessary wounding. Closely
monitor and control insects, mites, and other
potential disease problems. Through careful
monitoring and early detection, Botryosphaeria
canker can be eradicated before a significant
reduction in the aesthetic value of the tree oc-
curs. Branches with symptoms of canker should
be promptly pruned during dry weather at least
6 to 8 inches below affected tissue. If possible,
remove the branch from the tree by properly cut-
ting the limb flush to the branch collar, not flush
to the trunk. To prevent the spread of this dis-
ease on pruning tools, surface-sterilize tools be-
tween cuts with denatured alcohol or 10% bleach.
Since the fungus can persist and sporu-
late in dead plant material for extended periods,
branches cut from diseased trees should be
taken from the site and, if possible, composted.

Fungicides or wound paints have not proven
to be an effective control of most canker dis-
eases, including Botryosphaeria canker, and are
not recommended. For current management
recommendations, contact your local County Ex-
tension Office.

### Table 1. Common woody hosts of Botryosphaeria canker

<table>
<thead>
<tr>
<th>alder</th>
<th>catalpa</th>
<th>hawthorn</th>
<th>mulberry</th>
<th>rhododendron</th>
</tr>
</thead>
<tbody>
<tr>
<td>apple</td>
<td>chestnut</td>
<td>hibiscus</td>
<td>oak</td>
<td>rose</td>
</tr>
<tr>
<td>ash</td>
<td>chinaberry</td>
<td>hickory</td>
<td>peach</td>
<td>Russian olive</td>
</tr>
<tr>
<td>azalea</td>
<td>cotoneaster</td>
<td>holly</td>
<td>pear</td>
<td>spice bush</td>
</tr>
<tr>
<td>barberry</td>
<td>crabapple</td>
<td>honey locust</td>
<td>pecan</td>
<td>sumac</td>
</tr>
<tr>
<td>basswood</td>
<td>currant</td>
<td>hop hornbeam</td>
<td>persimmon</td>
<td>sweetfern</td>
</tr>
<tr>
<td>birch</td>
<td>dawn redwood</td>
<td>horse-chestnut</td>
<td>photinia</td>
<td>sweet gum</td>
</tr>
<tr>
<td>bittersweet</td>
<td>dogwood</td>
<td>juniper</td>
<td>pieris</td>
<td>sycamore</td>
</tr>
<tr>
<td>black locust</td>
<td>Douglas-fir</td>
<td>katsura tree</td>
<td>plane tree</td>
<td>tree-of-heaven</td>
</tr>
<tr>
<td>blueberry</td>
<td>elder</td>
<td>linden</td>
<td>pine</td>
<td>tulip poplar</td>
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<tr>
<td>brambles</td>
<td>elm</td>
<td>magnolia</td>
<td>poplar</td>
<td>viburnum</td>
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<tr>
<td>buckeye</td>
<td>firethorn</td>
<td>maple</td>
<td>privet</td>
<td>walnut</td>
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<tr>
<td>buckthorn</td>
<td>fringe tree</td>
<td>mimoosa</td>
<td>pussy willow</td>
<td>waxmyrtle</td>
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<tr>
<td>butternut</td>
<td>fuchsia</td>
<td>mountain ash</td>
<td>quince</td>
<td>willow</td>
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<tr>
<td>camellia</td>
<td>grapevine</td>
<td>mountain laurel</td>
<td>redbud</td>
<td>yellowwood</td>
</tr>
</tbody>
</table>