

1995 RUTGERS Turfgrass Proceedings



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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, Cook College, Rutgers University in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. It also allows these professionals to reach a more general audience, which includes the public. Articles appearing in these proceedings are divided into two sections.

The first section includes lecture notes of papers presented at the 1995 New Jersey Turfgrass Expo. Publication of the New Jersey Turfgrass Expo Notes provides a readily available source of information covering a wide range of topics. The Expo Notes include technical and popular presentations of importance to the turfgrass industry.

The second section includes technical research papers containing original research findings and reviews covering selected subjects in turfgrass science. The primary objective of these papers is to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

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Dr. Ann B. Gould, Editor
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IDENTIFICATION AND CONTROL OF WOODY ORNAMENTAL DISEASES

Dr. Ann B. Gould¹

What is a *disease*? A disease is any disturbance of normal plant function, structure, or economic value brought about by a disease causing agent (pathogen) or an environmental condition. Agents that cause diseases are *infectious* (living or biotic) or *non-infectious* (environmental problems).

To effectively diagnose a plant disease

1) Identify the plant(s) affected. 2) Check reference materials. Many references list and describe the common disease problems associated with a given host plant. 3) Examine each individual plant for "clues." Plant diseases are diagnosed by interpreting *symptoms* and *signs*. A *symptom* is the response of a plant to a disease agent. A *sign* is a visual indication that a pathogen is associated with the diseased tissue. 4) Observe the "pattern" in the field or landscape. 5) Determine the number of different species affected. 6) Inquire about growing conditions, recent weather conditions, and growing practices. 7) Have the causal agent isolated and identified, if necessary.

Specific Diseases of Ornamental Plants

In the following table, the symptoms and management strategies of several common landscape diseases are described.

SYMPTOM	BIOTIC DISEASE
Leaf Blotch	<p>Horsechestnut Leaf Blotch</p> <p><i>Proper management:</i> Improve plant vigor and remove leaf litter. Avoid over-head watering.</p> <p><i>Chemical control:</i> Only if absolutely needed: chlorothalonil or mancozeb according to label recommendations.</p> <p><i>Can be confused with:</i> Leaf scorch.</p>

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SYMPTOM	BIOTIC DISEASE
<p>Leaf Blotch and Distortion</p>	<p>Ash Rust</p> <p><i>Proper management:</i> Improve plant vigor. Avoid planting white ash along the coast.</p> <p><i>Chemical control:</i> Only if absolutely needed: Mancozeb at budbreak. Repeat twice at 10- to 14-day intervals according to label recommendations.</p>
<p>Bark split and sunken depressions</p>	<p>Cankers of shade trees and conifers</p> <p><i>Proper management:</i> Improve plant vigor. Avoid moisture stress and wounding. Prune affected branches. Disinfect tools between cuts.</p> <p><i>Chemical control:</i> None.</p> <p><i>Can be confused with:</i> Frost cracking, winter injury, and lightning.</p>
	<p>Botryosphaeria canker of Rhododendron</p> <p><i>Proper management:</i> Management of dieback includes a combination of practices. All dying branches should be removed well below discolored wood during dry weather. Pruning tools should be surface sterilized between cuts. Unnecessary wounds, winter injury, and other environmental stresses should be avoided.</p> <p><i>Chemical control:</i> Fungicides such as mancozeb, chlorothalonil, or vinclozolin that are recommended for control of other azalea diseases may also provide some protection from dieback.</p> <p><i>Can be confused with:</i> Winter injury, Phytophthora Root and Crown Rot of rhododendron.</p>
<p>Stem Blight or Dieback</p>	<p>Dogwood Anthracnose (flowering dogwood)</p> <p><i>Proper management:</i> Improve plant vigor, avoid moisture stress, avoid wounding, and prune affected branches 6 to 8 inches below affected tissue during dry weather with sterilized pruning tools. Avoid planting dogwoods in shady or crowded areas.</p> <p><i>Chemical control:</i> Chlorothalonil and propiconazole (Banner) provide fair control of the leaf spot phase of this disease only. Apply fungicides according to label recommendations.</p> <p><i>Can be confused with:</i> Scorch, winter injury, spot anthracnose (<i>Elsinoe corni</i>), Septoria leaf spot, Botryosphaeria canker.</p>

SYMPTOM	BIOTIC DISEASE
<p>Stem Blight or Dieback (cont.)</p>	<p>Anthracnose of Shade Trees (sycamore, ash, maple, walnut, oak, etc.)</p> <p><i>Proper management:</i> Improve plant vigor. Prune dead branches. Rogue very sensitive plants. Remove leaf litter.</p> <p><i>Chemical control:</i> Only if absolutely needed: Chlorothalonil, copper, mancozeb, or thiophanate-methyl according to label recommendations. Controls leaf phase of disease only.</p> <p><i>Can be confused with:</i> Scorch due to environmental factors.</p>
	<p>Diplodia Tip Blight</p> <p><i>Proper management:</i> Improve plant vigor. Prune during dry weather. Use tolerant varieties.</p> <p><i>Chemical control:</i> Apply benomyl or thiophanate-methyl on Austrian, red, and Scotch pine according to label recommendations.</p> <p><i>Can be confused with:</i> Moisture stress, mechanical injury.</p>
	<p>Juniper Tip Blight</p> <p><i>Proper management:</i> Avoid wounding, maintain plant vigor, and prune dead branches.</p> <p><i>Chemical control:</i> Thiophanate-methyl or Zyban (=Duosan) at budbreak according to label recommendations</p> <p><i>Can be confused with:</i> Mechanical injury, salt injury, moisture stress.</p>
	<p>Pachysandra Leaf and Stem Blight</p> <p><i>Proper management:</i> Improve plant vigor and avoid moisture stress, winter injury, and mechanical injury. Remove leaf litter to reduce humidity and control scale insects, if present.</p> <p><i>Chemical control:</i> Apply chlorothalonil or mancozeb plus thiophanate-methyl according to label recommendations.</p> <p><i>Can be confused with:</i> Winter injury.</p>

SYMPTOM	BIOTIC DISEASE
<p>Wilt</p>	<p>Verticillium Wilt of Shade Trees (maple and tulip poplar)</p> <p><i>Proper management:</i> Improve plant vigor. Use resistant plants. Sterilize soil or plant in a new location. Practice sanitation.</p> <p><i>Chemical control:</i> Fumigate soil.</p> <p><i>Can be confused with:</i> Moisture stress, maple decline.</p>
	<p>Phytophthora Root and Crown Rot (also known as Rhododendron Wilt) (rhododendron and azalea)</p> <p><i>Proper management:</i> Plant resistant cultivars in well-drained soils.</p> <p><i>Chemical control:</i> Drench propamocarb, ethazole, metalaxyl, or fosetyl-Al in May and repeat at 4- to 6-week intervals as needed. Apply chemicals according to label recommendations.</p> <p><i>Can be confused with:</i> Botryosphaeria canker, winter injury.</p>

Recommended References

Ball Field Guide to Diseases of Greenhouse Ornamentals. 1992. Margery Daughtrey and A. R. Chase. Ball Publishing, Geneva, IL.

Compendium of Apple and Pear Diseases. 1990. A. L. Jones and H. S. Aldwinckle. American Phytopathological Society, St. Paul, MN.

Compendium of Elm Diseases. 1981. R. Jay Stipes and Richard J. Campana. American Phytopathological Society, St. Paul, MN.

Compendium of Ornamental Foliage Plant Diseases. 1987. A. R. Chase. American Phytopathological Society, St. Paul, MN.

Compendium of Rhododendron and Azalea Diseases. 1986. Duane L. Coyier and Martha K. Roane. American Phytopathological Society, St. Paul, MN.

Compendium of Rose Diseases. 1983. R. Kenneth Horst. American Phytopathological Society, St. Paul, MN.

Compendium of Turfgrass Diseases. 1992. Richard W. Smiley, Peter H. Dernoeden, and Bruce B. Clarke. American Phytopathological Society, St. Paul, MN.

Diagnosing Injury to Eastern Forest Trees. 1987. United States Department of Agriculture-Forest Service. John M. Skelly, et al., editors. Penn State College of Agriculture.

Diseases and Pests of Ornamental Plants. P. P. Pirone. Ronald Press.

Diseases of Ornamental Plants. 1975. Junius L. Forsberg. University of Illinois Press, Urbana, IL.

Diseases of Shade Trees. 1989. Terry A. Tattar. Academic Press, San Diego.

Diseases of Trees and Shrubs. 1987. Wayne A. Sinclair, Howard H. Lyon, and Warren T. Johnson. Cornell University Press, Ithaca, NY.

Field and Laboratory Guide to Tree Pathology. 1981. Robert O. Blanchard and Terry A. Tatter. Academic Press. Academic Press, New York.

Westcott's Plant Disease Handbook. 1990. R. Kenneth Horst, editor. Van Nostrand Reinhold, New York.

Other Bulletins, Fact Sheets and References are available from your local library, local County Extension Office, or from the Publications Distribution Center (Cook College, P. O. Box 231, New Brunswick, NJ 08903).