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D. S. Wysong

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SHADE AND FOREST TREE DISEASES

D. S. Wysong
Agricultural Extension Plant Pathologist

1. OAK LEAF BLISTER: *Taphrina caerulescens.* All species of oak are subject to attack by this fungus. The disease may become severe on red oak especially during cool, wet springs. Affected leaves have circular, raised, or wrinkled areas on the upper surfaces and depressions on the lower surfaces. Infected leaves usually remain attached, and the disease rarely causes damage to established trees.

2. POWDERY MILDEW: Most shade and forest trees are attacked by one or more species of fungi causing powdery mildew. Oak leaves are susceptible, for instance, to *Microsphaera alni, Phyllactinia corylea,* and *Sphaerotheca lanestris* while *Uncinala circinata* attacks only maple. However, all fungi causing this type of disease produce an unsightly gray to white powder on affected leaves commonly seen in late August and September. Frequently, small black dots (fruiting bodies of the fungus) can be seen embedded in the powdery growth. Powdery mildew seldom causes noticeable leaf injury and controls usually are not justified.

3. ANTHRACNOSE OF SYCAMORE: *Gnomonia veneta.* The fungus causes twig, bud, shoot, and leaf blight. Twig blight occurs before leaves appear in the spring and results in the death of the tips of 1-year-old twigs. Small black pimples may be embedded in the bark of killed twigs. Repeated annual killing results in bunchy or gnarled growth. Bud blight occurs as the buds begin to expand in the spring. The infection originates from cankers on the twigs surrounding the developing leaf bud. Shoot blight appears as a sudden dying of expanding shoots and immature leaves. Leaf blight occurs later in the season. Infected leaves have small to large, irregular dead areas along the veins. The disease may be controlled by a thorough application of a phenylmercury compound at the time of bud swelling. If zineb is substituted for the phenylmercury, two applications should be made, the first at bud break and the second about 7 days later.

4. EASTERN GALL RUST ON PINE: *Cronartium quercuvm.* The fungus causes the development of globose, reddish brown galls, on the stems and is often accompanied by witches' broom. Most species of hard pines are susceptible to this disease. In more temperate climates the same organism is capable of attacking some species of oak.

5. PINE NEEDLE RUST: *Coleosporium solidaginis.* Many species of two and three-needled pines are susceptible to this disease. Red pine is the most susceptible. The disease develops in the spring as small cream-colored, bag-like pustules on needles. The pustules then rupture releasing spores which infect goldenrods and asters. The rust overwinters on these alternate hosts. The following year, new spores form on these hosts and are disseminated by wind to pines. The disease causes a needle drop and stunting of young pines but older pines are not severely damaged. The disease may be effectively controlled by destroying all goldenrods and asters near valuable plantings.

6. LITTLE LEAF OF PINE: *Phytophthora cinnamomi.* The disease is characterized by a gradual deterioration of the tree, evidenced by reduction in growth and in the length of the needles, hence the name "Little Leaf." The disease is most commonly associated with shortleaf pine. A definite relationship exists between the disease and poor drainage. This environment favors the development of Phytophthora. Although the shortleaf pine is not found in Nebraska, numerous species of Phytophthora are present.

7 & 8. HEART ROT: A number of fungi belonging to the genera *Fomes, Lenzites, Poria* and *Polyporus* are associated with internal wood rots of trees. Many of these organisms develop on either live or dead wood. In living tissue, infection is characterized by a white or brown heart rot. Growth of these fungi on dead tissue hastens the process of decomposition. Avoid wounding the base of live trees as this provides a pathway to infection. Keeping trees in good vigor by watering and fertilizing also helps to prevent colonization by decay producing fungi.

9. ANTHRACNOSE OF DOGWOOD: *Elsinoe corni.* Dogwoods are not native to Nebraska, but horticultural selections of ornamental dogwoods have been introduced into home plantings. Spot anthracnose is one of the most common diseases of dogwood. The spots produced on floral bracts are reddish-purple and may be as large as one-tenth of an inch in diameter. If spotting is severe the flowers become disfigured. Buds, stems and fruit may also become infected. The disease is favored by extremely wet and humid weather, especially during flowering. Good control can be achieved by spraying with Captan (2 tbls./gal.) as the plants begin to bloom.

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Extension Service, University of Nebraska-Lincoln College of Agriculture Cooperating with the
U. S. Department of Agriculture and the College of Home Economics
E. F. Frolik, Dean J. L. Adams, Director

SHADE AND FOREST TREE DISEASES

An Aid to Identification and Control

1. OAK LEAF BLISTER

2. POWDERY MILDEW

3. ANTHRACNOSE ON SYCAMORE

4. EASTERN GALL RUST OF PINE

5. PINE NEEDLE RUST

6. LITTLE LEAF OF PINE

7. FRUITING STRUCTURE OF THE HEART ROT FUNGUS

8. FRUITING STRUCTURE OF THE FOMES ROOT AND BUTT ROT FUNGUS

9. ANTHRACNOSE OF DOGWOOD

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