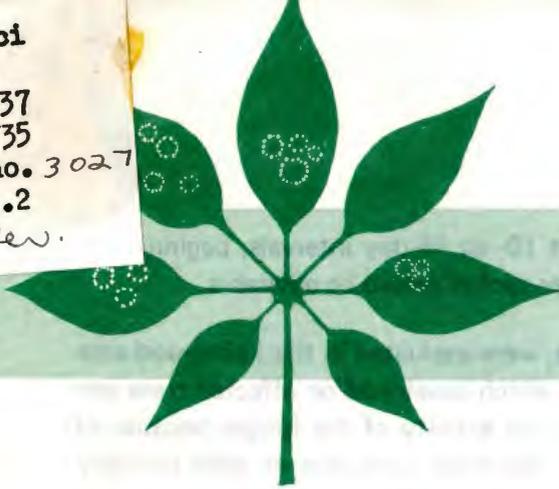


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ANTHRACNOSE OF NATIVE OAKS

In June, 1968, it was observed that leaves on some of the Oregon white oak trees (*Quercus garryana*), also called Garry or scrub oak, were dying in the American Lake area of southern Pierce County. The trees were affected by a fungus disease known as anthracnose. A survey revealed that many of the white oaks were moderately to severely affected by the disease in the American Lake area, but that the disease was absent or present only in low amounts in other areas. It appeared that oaks surrounded by tall Douglas-fir trees often were more severely affected than those in open areas. A number of trees appeared to be dead on July 1, 1968. Repeated defoliation probably caused a gradual starvation of the trees, ending in death. Comments by residents of the area indicated that the disease had been present and spreading for the previous two to three years. The disease had been previously reported in Oregon and Washington, but apparently had not developed in epidemic proportions until 1968. Since this outbreak in 1968, however, the disease has apparently been of little significance.

The causal organism *Gloeosporium quercinum**, causes scattered brown spots or brown, dead areas along the veins of the leaf. Severely affected leaves become curled and twist downward. Defoliation may occur. The fungus may invade the twigs, forming small cankers which may result in twig dieback.

Work in Pennsylvania indicated that the weather conditions favoring development of anthracnose of white oak are a mild winter and a prolonged spring with moderate to high amounts of precipitation in April and May. Of these two factors, rainfall seems to be the most important. Total precipitation is not as important as the number of days and hours during which rain falls.

Spores of the anthracnose fungus are spread by rain. Rain also plays an important part in spore germination, but other factors, including high relative humidity and slow evaporation, are also of importance. Under cloudy, humid conditions, water does not evaporate rapidly from plant surfaces, thus favoring the germination of a large number of the fungus spores. The winter of 1967-68 and spring of 1968 provided the conditions described as favorable for disease development. The higher incidence of the disease in areas surrounded by large Douglas-firs confirms that reduced air circulation and evaporation are important factors in the development of the disease.

In areas where the disease is troublesome year after year, the recommendations for control of the fungus include spraying with a fungicide when the leaf buds are beginning to open. Various states suggest the

*Conidial stage of *Gnomonia quercina*

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fungicides Cyprex (dodine), zineb, or maneb. Three applications at 10- to 15-day intervals, beginning at bud break, are necessary for satisfactory control. The use of a spreader-sticker would be advisable.

Several spray compounds, including some of those mentioned above, were evaluated in the Lakewood area by commercial spray applicators in an effort to protect new foliage which developed on affected trees late in the summer of 1968. While there was a significant reduction in the activity of the fungus because of dry, warm weather, observations also indicated that each of the materials used was at least partially effective. Complete control of the disease could not be expected with mid- to late-season applications, but the results were encouraging.

Based on the recommendations from other states and the limited observations made in the summer of 1968 in Washington, the following fungicides are recommended for use in Washington:

FUNGICIDE	RATE
Dodine (Cyprex) 65% WP	1 lb./100 gals. of water (2 tsp./gal.)
Zineb 75% WP, or maneb 80%WP	2 lbs./100 gals. of water (4 tsp./gal.)

Apply the fungicide when the buds first swell, followed by two additional applications at 10- to 15-day intervals. Thorough coverage of the entire tree and correct timing are necessary for satisfactory control. If practical, rake up and destroy fallen leaves, and prune out diseased and dead branches and destroy them.

Prepared by Roy M. Davidson, Jr., research technologist, Western Washington Research and Extension Center, Puyallup, Washington, Washington State University.