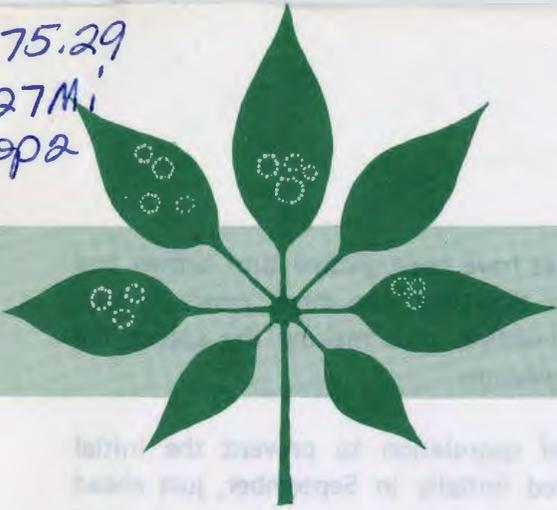


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PLANT DISEASES

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PROCUREMENT SECTION
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TWIG BLIGHT OF ARBORVITAE

Twig blight (Berckman's blight) of Oriental Arborvitae is caused by the fungus *Coryneum berckmanii*. Principal hosts are the ornamental varieties of *Thuja orientalis*, but the other species attacked is Italian cypress—*Cupressus sempervirens* var. *stricta*. Varieties of *Thuja orientalis* attacked are var. *compacta*, *conspicua*, *beverleyensis*, *elegantissima*, and *stricta*.

Twig blight is characterized by the blighting of the small branches, causing them to change from the normal green to a reddish brown. At first the blighted branches are inconspicuous, but secondary infections soon appear in the surrounding foliage and render the plants unsightly. Many of the small, dead branchlets fall from the infected areas onto larger branches. The foliage invaded by the fungus soon turns light gray; the branchlets killed by girdling become reddish brown in late spring when the weather becomes warm and dry. As the new growth develops in blighted areas, the fungus is spread by spores to the young contiguous foliage. Reinfection continues until the plant becomes so devitalized that it dies. The disease may be recognized by these various stages of browning and by the presence of the black spore pustules of the fungus.

Primary infections occur on the young scale leaves of the terminal branchlets in October. Infection is facilitated by small wounds, but the fungus can penetrate uninjured tissue. The fungus invades and girdles small and succulent stems, but it is unable to girdle the large stems that have become woody. It develops only small cankers on the woody stems at the base of the blighted branchlets. Apparently, natural infection does not occur on the large woody stems.

Fruiting of the fungus is restricted to the scale leaves or the stems that are small enough to be enclosed by scale leaves. Abundant spore formation results when the small stems are girdled, but spore pustules form singly or in groups of two or three on the scale leaves that are invaded by the fungus.

Under northwest climatic conditions, the primary infection occurs in October, or as soon as the fall rains begin. By November, infection centers one to two inches in diameter develop. Extensive spread of the fungus occurs at this time. Spores are formed in the new infections, and these spores are washed or splashed to healthy foliage where they germinate and cause secondary infection. Thus, the disease continues to develop until February or March. Until then, injury to the plant is evidenced only in the tissue actually invaded by the fungus. As the weather becomes warmer and drier, the

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spread of the fungus stops, but many of the small branchlets that have been girdled turn brown and die. Since the greater part of the injury becomes conspicuous at this time, one might conclude that the fungus is still developing; however, the fungus has become inactive, thus making the spores the only means of reinfection and spread each fall. The disease is not systemic.

Control of the disease is aimed at the fungus at the time of sporulation to prevent the initial infection in the fall. For this reason the sprays should be applied initially in September, just ahead of when the rains normally begin, and again in early November. Prior to spray applications, the diseased branches should be pruned out and burned. Fixed copper, at the rate of 3 pounds per 100 gallons (2 tablespoons per gallon), has given satisfactory protection.

Prepared by Arlen D. Davison, Extension Plant Pathologist, Western Washington Research and Extension Center, Puyallup.

Principal hosts are the ornamental varieties of *Thuja orientalis* but the other species of *Thuja* are also attacked. Varieties of *Thuja orientalis* attacked are: *var. compacta*, *var. elegantissima*, and *var. occidentalis*.

Twigs blight is characterized by the blighting of the small branches, causing them to die from the normal green to a reddish brown. At first the blighted branches are inconspicuous but secondary infections soon appear in the surrounding foliage and render the plants unsightly. Many of the small, dead branchlets fall from the infected areas onto large branches. The foliage invaded by the fungus soon turns light gray; the branchlets killed by girdling become reddish brown in fall and when the weather becomes warm and dry. As the new growth develops in blighted areas, the fungus is found by spores to the young contiguous foliage. Reinfection continues until the plant becomes so debilitated that it dies. The disease may be recognized by these various signs of growing and by the presence of the black scaly pustules of the fungus.

Primary infections occur on the young scale leaves of the terminal branches in October. Infection is facilitated by small wounds, but the fungus can penetrate uninfused tissue. The fungus invades and girdles small and succulent stems, but it is unable to girdle the large stems that have become woody. It develops only small colonies on the woody stems at the base of the blighted branchlets. Apparently, natural infection does not occur on the large woody stems.

Fruiting of the fungus is restricted to the scale leaves of the twigs that are small enough to be enclosed by scale leaves. Abundant spore formation results when the small stems are girdled, but spore pustules form singly or in groups of two or three on the scale leaves that are invaded by the fungus.

Under northwest climatic conditions, the primary infection occurs in October, or as soon as the fall rains begin. By November, infection centers one to two inches in diameter develop. Extensive spread of the fungus occurs as the spores are formed in the new infections and these centers are washed or splashed to healthy foliage when they germinate and cause secondary infection. Thus, the disease continues to develop until February or March. Until then, injury to the plant is widespread only in the tissue actually invaded by the fungus. As the weather becomes warmer and drier,

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