

## Anthracnose

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### Identification, Biology & Management

Anthracnose is a term applied to a group of foliar diseases which affect many hardwood tree species including London Plane and Willow. Anthracnose of London Plane and willow, caused by the fungi *Marssonina salicicola* and *Apiognomonia veneta* are common conditions across the UK. These diseases are most prevalent and destructive in early spring when cool, moist weather conditions favour their development. Infection results in leaf and shoot blight, defoliation, and twig dieback. Several consecutive years of defoliation will severely weaken trees, predisposing them to invasion by insect pests and secondary disease causing organisms, such as canker and root decay fungi.

### Symptoms

Foliar symptoms include irregular brown to purplish lesions (dead areas) that usually develop along leaf veins. Alternately discrete curricular or angular lesions may occur on leaves and twigs (Figure 1).

Lesions on the foliage often coalesce, resulting in distortion, blight, and defoliation. Blight and defoliation usually occur in early spring when leaves are small and succulent. Crowns of severely diseased trees appear thin and scrubby (Figures 2-3). Often, the foliage is tufted on ends of branches, while the centre of the tree is defoliated. Willows and London Plane defoliated by anthracnose usually produce a second set of leaves in late spring or summer. These new shoots may also be killed. Cankers may also form on twigs and small branches resulting in distortion and dieback.

### Causal Agents

The pathogens causing these symptoms, (*Marssonina salicicola*, *Apiognomonia veneta*) overwinter in twig cankers and within specialized structures on diseased, fallen leaves. Coinciding with bud-break in the spring, massive numbers of spores are produced. Spores are disseminated by

wind and rain splash onto susceptible plant tissue. Under cool, moist conditions, spores germinate and infect susceptible plant tissue and begin their destructive activity. Shortly after lesions develop, spores are produced on the diseased plant tissue. These spores then spread to healthy tissue where they cause new infections.

Figure 1: Anthracnose lesion on willow stem



Providing moist weather conditions prevail, summer spores are produced from the lesions. These spores are responsible for infections of the leaves that occur in late spring and summer, after which anthracnose may continue to grow in the twigs during the autumn and in the spring prior to bud-break.

Figure 2: Willows displaying symptoms of anthracnose



### Control

**Cultural Practices:** Sanitation which eliminates sources of the overwintering fungi, will provide some degree of control. Diseased leaves should be collected and destroyed in autumn, and diseased twigs and branches should be pruned out and destroyed. Periodic pruning will allow optimum light and air penetrations of the crown, which will inhibit disease development by allowing more rapid drying of plant tissue following rain fall. Fertilisation will maintain tree vigour and help offset the deleterious effects of any premature defoliation from anthracnose. Research has shown that high nitrogen soil amendments can encourage tree resistance and help suppress anthracnose following infection.

**Chemical Control:** There are synthetic fungicides registered for the control of willow and plane anthracnose, which will provide high degrees of control. Phosphite sprays and/or soil drenches to stimulate tree vitality are recommended in addition to the above fungicidal treatments. Bartlett research trials conducted at the University of Reading show phosphites useful in the suppression of this disease.

Figure 3: London Plane displaying symptoms of anthracnose



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