



Arboriculture Research Note

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MARSSONINA CANKER AND LEAF SPOT (ANTHRACNOSE) OF WEEPING WILLOW

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SUMMARY

Marssonina canker and leaf spot damages the leaves and shoots of Weeping willows and, less frequently, other willows during spring and early summer. Though it can seriously disfigure trees, the disease is not fatal. Chemical control is possible to prevent or limit the damage.

Introduction

1. Prior to 1963, Marssonina canker and leaf spot (Anthracnose) was uncommon but now it periodically causes widespread damage to Weeping willows in southern Britain. Leaves fall prematurely and shoots are killed and, although not fatal, the damage is disfiguring and can result in the loss of the pendulous habit.
2. There is hardly any published research information on this disease and its control. There is scope for more detailed research.

Symptoms

3. Anthracnose is a disease of the leaves, shoots and twigs. In spring, brown or purplish spots, becoming black in the centre, develop on leaves and the current year's shoots. The death of parts of leaves during their growth results in sickle-shaped, twisted or otherwise distorted leaves and these fall prematurely¹. Lesions on the shoots can cause distortion of the shoots and, if they are girdled, death of the distal parts. Later in the season non-girdling shoot lesions develop into small rough twig cankers. On older shoots the rough cankers from previous years' infections can be found partially occluded by callus growth.
4. Severely damaged trees appear drab in colour, bedraggled and sparsely foliated. If trees suffer repeated severe attacks many shoots can be killed and the trees may lose their weeping habit. In years unfavourable for the disease, most trees recover and appear more or less normal. Trees are very unlikely to be killed as a result of this disease unless they are also growing under extremely adverse conditions and suffer repeated, severe attacks.

¹. A word of caution - there is a cultivar of *Salix babylonica*, *S. b.* 'Crispa', which has twisted or spirally curved leaves; always check for the presence of the characteristic leaf spots.

The fungus and its spread

5. The disease is known by the name of the asexual or imperfect state, *Marssonina salicicola*. The sexual or perfect state of the fungus *Drepanopeziza sphaeroides* does not appear to have been recorded in Britain. The microscopic spores of *M. salicicola*, which give rise to most new infections, are produced in the spring in the twig cankers and, later in the season, from the leaf and shoot lesions.
6. The principal means of spore dispersal is via the drip and splash of rainwater from infected to healthy tissue. New infections are limited to the leaves and current year's shoots.

Conditions favouring the disease

7. As with many other leaf and shoot diseases, persistent wet weather during the period when new leaves and shoots are emerging will result in severe infections. With the onset of warm, dry weather the number of new infections declines rapidly, although disease symptoms will continue to develop in shoots and leaves that are already infected.

Susceptibility and resistance of willows

8. The taxonomy of the genus *Salix* has been in a confused state so species have numerous synonyms, many of which are still in regular usage. The names given here are from Meikle (1984).
9. The disease is very common on the widely planted Golden weeping willow, *S. x sepulcralis* Simonk *nv chrysocoma* (= *S. alba* 'Tristis'), which has long, thin yellow shoots. It is also frequently found on the less commonly planted *S. x pendulina* var. *elegantissima* C. Koch which has brown or reddish shoots. The susceptibility of other weeping willows such as *S. x pendulina* var. *blanda* Anderss and *S. x pendulina* Wenderoth var. *pendulina* is not clear because of uncertainties of identification and also their limited planting.
10. There are only two weeping willows currently known to be resistant to this disease. They are the Weeping Pekin willow, *S. matsudana* 'Pendula' (also moderately resistant to willow scab - see Rose, 1989), and the hybrid *S. x sepulcralis* Simonk var. *sepulcralis*.
11. Apart from weeping willows, the following willows are sometimes infected, though not seriously, - Eared willow, (*S. aurita*); Goat willow, (*S. caprea*); Golden willow, (*S. alba* var. *vitellina*); Purple willow, (*S. purpurea*).

Control – general

12. Experiments to control a closely related disease on walnut (*Juglans* sp) suggest that spraying with benomyl at fortnightly intervals from bud-break to mid-summer (or the onset of hot, dry weather, whichever is first) may give good control. However, to be effective, such a treatment must cover with fungicide all leaf surfaces and young shoots at each application.

13. It is usually impracticable to spray the whole crown of large trees. In these cases spraying all the accessible parts should maintain the pendulous habit of the tree. To be certain of obtaining satisfactory control it is necessary to spray each year as outbreaks of the disease cannot be predicted.

14. Control measures for the amateur

Benomyl is available for amateur use as ICI Benlate + 'Activex'2. It should be used only as indicated on the manufacturers label.

15. Control measures for the professional

Currently there is not a product containing benomyl with approval under the Pesticide Regulations 1986 issued under the Food and Environment Protection Act 1985 for commercial treatment of this disease.

Before using a fungicide always read carefully the manufacturers instructions on the label (including any accompanying leaflet) and apply the chemical for the use at the rate and by the method recommended paying particular attention to aspects of safety.

References and Further Reading

Meikle, R D (1984) *Willows and Poplars of Great Britain and Ireland*. BSBI Handbook No.4.

Phillips, D H & Burdekin, D A (1982) *Diseases of Forest and Ornamental Trees* pp 313-315.

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