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Mulberries—two common diseases

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There are no commercial plantings of mulberries in New South Wales. Mulberry trees are grown mostly in home gardens.

There are two diseases that commonly occur on mulberry trees and spoil their appearance and usefulness as shade trees—**fungal leaf spot** and **bacterial leaf spot**. The diseases cause premature defoliation, which weakens the tree. The tree becomes liable to sunscald and dieback, and progressively less productive. Both diseases may occur simultaneously on the one tree, but in tableland and inland districts bacterial leaf spot generally appears to be less common.

FUNGAL LEAF SPOT

Cause

Fungal leaf spot is caused bv the fungus *Phloeospora maculans.*

Symptoms

Only the leaves are attacked. Symptoms of the disease appear on leaves early in the spring. Small dark brown dead spots about the size of a pin head develop, and are usually surrounded by a halo of light green to yellow tissue. This yellowing tissue soon dies and the size of the

Fungal leaf spot. Note the large spots with dark margins and light-coloured centres.

Bacterial leaf spot. Note the black, rather angular spots which clearly distinguish this disease from fungal leaf spot.

dead spot increases. As the spots increase in size the central area becomes whitish. The margins remain dark brown. Veins in and near the dead spots become dark brown. Small pin point black dots then develop on the surface of the dead tissue and can be seen in the whitish central portion of the dead spot.

Source of infection

In the spring, new infections start from spores on infected leaves that have remained in the tree or on the ground over the winter.

Spread by

Fungal leaf spot is spread by wind and rain splash.

Favoured by

Wet humid conditions favour spread of the disease.

Control

Good control can be achieved by raking up and burning all fallen mulberry leaves in the autumn of each year to destroy the overwintering fungus.

BACTERIAL LEAF SPOT

Bacterial leaf spot is more serious than fungal leaf spot and is more difficult to control.

Cause

Bacterial leaf spot is caused by the bacterium *Pseudomonas syringae* pv. *mori*.

Source of infection

New infections start each spring from bacteria that have lived through the winter in infected shoots from the previous season.

Symptoms

Leaves and young shoots may be infected. The most conspicuous symptom of a diseased tree is a general dieback of twigs and, particularly with young trees, a stunting of growth.

In the spring the first sign of infection is seen as the young leaves are emerging from the buds. The expanding buds develop large blackened areas. On the blade, midrib and veins of the young leaves, small irregularly shaped brown to black spots develop. These spots are surrounded by a yellow halo. The rapidly expanding leaves may become curled or distorted. Long ragged cankers develop on the infected young shoots, which often die. When mature leaves are attacked symptoms are similar but leaves are not distorted.

Spread by

Bacterial leaf spot is spread by bacteria oozing from cankers during wet weather, and distributed by rain and wind.

Favoured by

Wet weather favours spread of the disease.

Control

This disease is difficult to control once it has become well established in a tree. Control efforts should be based on hygiene.

Hygiene

In autumn, prune out and burn all dead shoots to eliminate as much as possible of the bacterial carry over from season to season.

In spring, prune out and burn blighted shoots as soon as they are detected.

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