RESEARCH LABORATORY TECHNICAL REPORT

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Apple scab

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Identification, Biology & Management

Apple scab is one of the most devastating diseases of ornamental crabapples and apples. If early spring weather conditions are optimum (warm and moist), hawthorn and mountain ash may also be seriously affected.

Symptoms

While the scab fungus *Venturia inaequalis*, infects the leaves (Figure 1), petioles, and fruit (Figure 2), the leaf and petiole infections are the most important to landscape trees. The initial symptoms appear as olive-green to sooty or smudgy spots on the leaf or leaf petiole.

On older leaves the infected areas form definite spots, which are slightly raised, black, and velvety in appearance. The lower sides of leaves become depressed which may cause leaf cupping. As the infection develops, the leaves turn yellow and drop prematurely. Premature defoliation makes the tree aesthetically undesirable and greatly weakens it. Infected fruit becomes deformed, scabby and usually drops before maturity.

Causal Agents

Venturia inaequalis overwinters in infected fallen leaves. During late winter the fungus enters the sexual or perithecial stage. Each dead leaf will have many perithecia and each perithecium will be filled with ascospores. Warm spring rains cause the perithecia to forcefully discharge the spores into the air where they are carried by wind currents to young leaves. If weather conditions remain favourable, the ascospore will germinate and infect the leaf or fruit. Since all perithecia do not mature at the same time, ascospores are produced over a period of several months. With each spring rain, ascospores capable of causing infection are discharged.

Figure 1: Scab symptoms on leaves of apple

Control

Some varieties of crabapple have demonstrated resistance to apple scab. Resistant varieties, which have the desired aesthetic foliage, fruit, and flower characteristics, should be used when possible (contact the UK and Ireland Bartlett Tree Research Laboratory for details).

Figure 2: Scab symptoms on fruit

Fungicide sprays will effectively control apple scab if applied at the proper intervals with good coverage. Sprays should be applied at seven to ten day intervals from bud-break until two weeks after petal fall.

Remove fallen leaves and any mummified fruit during autumn to reduce inoculum potential.

During winter clean and/or light thin the crown to improve circulation of air through the crown.

Fertilisation has been shown to reduce the disease severity of apple scab and is recommended.

Figure 3: Severe apple scab attack on ornamental apple cultivars

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