RESEARCH LABORATORY TECHNICAL REPORT

BARTLETT TREE EXPERTS
SCIENTIFIC TREE CARE SINCE 1907

Fireblight

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Identification, Biology & Management

Fireblight is a destructive bacterial disease of many UK tree and shrub species. Depending on tree species, cultural practices and spring weather conditions, damage can range from death of one or more branches to total tree death. The disease is most severe during warm, moist springs and on poorly drained sites. Young, vigorous plants, or those heavily fertilised with nitrogen, are most severely affected.

Symptoms

The most characteristic and easily observed symptoms are wilting and blackening or browning of the blossoms and leaves on the terminal shoots (Figure 1). The affected tree parts remain attached to the shoot terminal and appear as if they have been scorched by fire. As the infection progresses the bark blackens and cankers develop on the older, larger branches (Figure 2) particularly at the margins of living and dead tissue. A brown "ooze" develops at the site of these cankers during moist, warm weather. The cambial region of infected branches initially appears water-soaked and reddish to reddish-brown in colour.

Figure 1: Fireblight infection of leaves and flowers

Causal Agents

Fireblight is caused by the bacterium *Erwinia amylovora*. The organism over winters in branch cankers at the margins of living and dead tissue. Wind, rain-splash and insects are responsible for the initial transport of the bacteria from the cankers to open blossoms, the primary infection site. Blossom-visiting insects are primarily responsible for secondary infections whereby the organism is transported from infected to healthy blossoms. Infection may also result from direct inoculation of terminal shoots. Sucking insects, including leafhoppers and aphids, and pruning tools are efficient wounding agents and transport mechanisms for the bacteria.

Figure 2: Canker on infected branch

Control

Control of fireblight is difficult and requires a comprehensive program of sanitation, cultural practices and plant protection products in order that satisfactory results are attained. Tree resistant varieties do exist.

Figure 3: Fireblight damage on a pear

Remove infected branches from the tree. Terminal infections are best pruned out when first noticed. Make cuts in the healthy wood well below the last observable symptom (approximately 25-35 cm) and disinfect pruning tools often in alcohol or bleach (1% solution). Branch infections should be removed during dry weather in late summer or in the dormant season. Fertilisation, when necessary, is done in late autumn or early spring using a balanced fertiliser. Apply copper oxychloride as a foliar spray in August, September and October.

Established in 1994, The Bartlett Tree Research Laboratories at the University of Reading is the research wing of Bartlett Tree Experts in the UK. Scientists here develop guidelines for all of the Company's services. The Lab also houses a state-of-the-art plant diagnostic clinic and provides vital technical support to Bartlett arborists and field staff for the benefit of our clients.