RESEARCH LABORATORY TECHNICAL REPORT

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Whitefly

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Identification, Biology & Management

A common insect pest of UK trees. Whitefly species within the UK are commonly found on hornbeam, azalea, privet and rhododendron. These whitefly are also associated with, and attack, other hosts such as hazel, beech, birch, false acacia, lime and maples Young, vigorous plants, or those heavily fertilised with nitrogen, are most severely affected.

Symptoms

Common noticeable symptoms are an abundance of white, waxy material covering leaves and fronds and a sugary substance called "honeydew" produced by the leaf-sucking insects (Figure 1). Excessive dark sooty mold on leaves or fronds typically grows on the honeydew. An infestation rarely kills healthy plants, but can be disfiguring and cause some damage and/or plant decline. The presence of the white waxy substance, excessive sooty mold and honeydew often appears to be more of a concern or nuisance to property owners. Damage to plants also results from the effects of feeding upon young tissue, which weakens and distorts new growth

Causal Agents

Most whitefly have a life span of 1 to 2 months and can produce 30-500 eggs. Eggs are deposited on the undersides of leaves and are often found in a circular or crescent-shaped pattern. The "crawler" hatches from the egg, moves a short distance and then settles and begins feeding. The remainder of the nymphal development is spent in this sedentary condition. The adult whitefly emerges from the pupal case and has the capability of flying to other host plants to lay eggs and begin the cycle again.

In addition whiteflies excrete large amounts of sugar-rich exudates that land on leaves below the whitefly. These leaves then become covered in the sooty mold fungus. Although sooty mould does no direct damage, it does reduce the amount of sunlight reaching the leaf surface, in turn reducing rates of photosynthesis.

Figure 1: Adult whitefly on leaf surface

Control

Whiteflies are difficult to control. The immature stages are small and difficult to detect. Whiteflies develop quickly and when adults emerge, they rapidly become distributed over an entire tree or move to other available host plants. In addition, chemical control programs directed at the pest

often have limited success as two life stages; the egg and pupa, are tolerant of most insecticides.

Winter washes based on spray oil plus a residual insecticide are used on fully dormant trees applied as a spray or brush to kill overwintering eggs.

Insecticides such as soap (Savona) or spray oil are used on growing plants and kill whiteflies mainly by direct contact. Due to the non-persistent nature of these chemicals re-infestation may soon occur and repeat sprays at 14-21 days may be necessary. Apply soap or spray oil at the first signs of damage. When using these chemicals care should be taken to avoid phytotoxic effects and in the case of fruit bearing trees ensure that two weeks elapses before harvest after spraying.

Synthetic insecticides provide reasonable control of whiteflies feeding in protected situations such as rolled or curled leaves, in galls or on the higher branches as these are absorbed by the plant tissues and poison the sap whiteflies feed upon.

Eliminating all possible sources of residual whitefly infestations such as weeds and plant debris around the tree that can harbour immature or adult whiteflies may prove helpful.

Yellow sticky traps throughout the tree can provide a useful tool to detect whitefly populations early. For best results hang 1-4 yellow sticky cards per tree canopy. The adults are attracted to the yellow and will stick to the adhesive surface of the card. Once the number of whiteflies rises above 50 control measures should be instigated.