

Aphids

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Identification, Biology & Management

Small sap feeding insects, generally 1-5mm long with soft bodies. More than 500 species occur in Britain and northern Europe. Those that attack trees include, green apple aphid, large willow aphid, pear-bedstraw aphid, damson hop aphid, cherry blackfly, elder aphid, lime leaf aphid, sycamore aphid, and beech aphid. Aphid body colour varies between species i.e. green apple aphid, which infests ornamental apples, pears, rowan and hawthorn is a bright to yellow green colour, while large willow aphid, is dark brown covered with fine grey hairs. Young, vigorous trees, or those heavily fertilised with nitrogen, are most severely affected.

Symptoms

Primary damage to trees results from the effects of feeding upon young tissue, which weakens and distorts new growth (Figure 1). Secondary effects result from fouling of the leaves and stems with honeydew which encourages the growth of a fungus known as sooty mold (Figure 2). Transmission of viruses carried from diseased to healthy plants on the aphid stylet and in the saliva is also a problem.

Figure 1: Aphids on apple



Causal Agents

More than 500 species of aphids occur in Britain. Some aphids feed on more than one plant i.e. Apple grass aphid feeds on young new leaves and blossom of apples until summer before migrating to oats, grasses and reeds for the rest of the summer. Lime leaf aphids on the other hand are restricted to limes. Reproduction is mainly asexual and most aphids seen on plants are parthenogenetic females capable of giving birth to live young. At summer temperatures increase young aphids mature in about one week allowing for a rapid rise in the population when conditions are favourable. Their reproductive potential is so great that it has been calculated a single aphid could give rise to about ten million tons of aphids after 10 days of summer breeding.

Control

The main danger period for trees is from March-October and non-chemical control is seldom effective in these conditions. Of the many insecticides available for use, to be effective they have to be applied before aphid populations are too high. This calls for careful examination of trees for the first signs of damage. If applied at the wrong time then either; i) the damage has

been done or ii) the predators of these insects are also destroyed by the insecticide. Because the aphid life-cycle is quick and predator life-cycle slower there is a rapid re-build up of the aphid population without any predators, ultimately leading to an subsequent increase in aphid damage.

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Figure 2: Sooty mold caused by aphid attack



Chemical controls include: Winter washes based on spray oil plus an insecticide on dormant trees during Dec-Jan. Contact insecticides such as soap or spray oil are used on growing trees and kill aphids 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. 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 excellent control of aphids feeding in protected situations such as rolled or curled leaves, in galls or on the higher branches as these are absorbed by leaves and poison the sap aphids feed upon. Harvest fruit at least 3-4 weeks after application.

Bio-control: Adult convergent ladybird beetles are effective: Release at 500 (3 tablespoons) per small tree.

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