

Balsam Woolly Adelgid [*Adelges piceae* (Ratzeburg)]
and
Balsam Twig Aphid (*Mindarus abietinus* Koch)
on True Fir (*Abies* sp.) Christmas Trees

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Aphids and Adelgids

Aphids are small, soft-bodied insects that feed on and often injure plants. Sometimes called “plant lice”, aphids probe their host plant with stylet-like mouthparts and remove plant sap when a suitable feeding site is found. Aphids may be found on leaves, needles, trunk, stem or roots. Individual species, however, often have preferred feeding sites. During feeding aphids may inject toxins and disease-causing organisms into the plant through the feeding puncture. Aphids have extremely complex life cycles that in many cases are not yet completely understood. The term adelgid refers to a particular group of aphids in the genus *Adelges*, all of which feed on conifers. Many aphids secrete a white, waxy covering that protects the tiny insect.

Biology

Balsam woolly adelgids are major pests of forest and plantation-grown fir in North America. Feeding sites are trunk, stems, branches, and twigs but not needles. A toxin, injected at the feeding puncture causes swelling, or “gouting”, at branch points. Heavy infestations on the trunk may kill infested trees. However, light infestations can be tolerated especially on noble fir. Balsam woolly adelgid is parthenogenetic¹ in North America with 2-4 generations each year so numbers may build rapidly.

Balsam twig aphids occurs on fir as well as certain species of spruce and juniper. The aphid is small (1-2 mm long), green, yellow or powdery grey in color and winged or wingless. It feeds on new needles or twigs causing the affected needles to twist. Severe infestations can result in needle loss. Needles may appear matted with a white, waxy covering especially in the fall of the

year. Balsam twig aphid is less likely to severely injure its host tree but the extensive matting of foliage can complicate harvest and sale.

Telling the Two Species Apart

Feeding location and injury are the best clues to the identity of these pests. Remember, balsam twig aphids often are found on needles or very small twigs and tend to cause a twisting of new growth. Balsam woolly adelgids, on the other hand, occur on larger twigs, branches and the trunk and cause a swelling of the joints between branches.

Control Strategies

Early season is the best time to control aphids and adelgids, before populations build to high levels. Be careful, however, to apply your controls to minimize the impact on “non-target”² organisms. Good aphid and adelgid control can be achieved using relatively low-impact insecticidal soap and horticultural oil if timed to coincide with the crawler, or mobile, stage of the insect. Bud break is often a good time for these applications if scouting indicates the need. Of the conventional insecticides, Thiodan (endosulfan) is an excellent aphidcide while being relatively soft on predator mites. Thiodan is, however, detrimental to other insect natural enemies. Imidacloprid (Provado) is a new chemistry targeted at aphids that may prove to be relatively soft on natural enemies and other non-targets as well. The bottom line is to scout early, apply selective controls sparingly and only when scouting has shown that they are needed.

Glossary

¹ Parthenogenetic literally means “virgin birth”, or reproduction by unmated females. In some insect populations males are unknown and mating is not needed to produce the next generation.

² Non-targets are beneficial organisms such as predators and parasites that provide natural biological control of pest species. Pollinators such as honey bees often are included with the non-targets. Selective pesticides target (or select) pests while being relatively soft on non-targets.

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