



Balsam Twig Aphid

Authored by Eric Day, Insect ID Lab Manager, and Scott Salom, Department of Entomology, Virginia Tech

Plants Attacked

Balsam fir, Fraser fir, Siberian fir, and other firs.

Description of Damage

Twisted and curled needles are the most apparent damage from feeding by the balsam twig aphid (Fig. 1). Needles are susceptible to distortion while the buds are opening and expanding. Curling no longer occurs after the needles are fully arranged around the shoot. Damage by balsam twig aphid is worse when buds open slowly during long, cool springs. Needle distortion is permanent damage that the tree does not outgrow.

Extensive feeding can cause a general decline and reduced vigor of the tree, yet in many cases is cosmetic and not particularly damaging. The major concern with balsam twig aphid is that the curled needles reduce the marketability and value of Christmas trees.

Balsam twig aphids also produce honeydew, a sticky material that covers needles and twigs below the feeding aphids. Honeydew supports the growth of sooty mold, which may cover the needles and twigs with a black coating. Sooty mold is very persistent and may negatively affect the tree's marketability due to its appearance.

Identification

The small, dark eggs are laid in bark crevices and covered with short pieces of white waxy strands. The eggs hatch into small, soft-bodied, pale yellowish-green aphids (Fig. 2). Adults can be winged or wingless and are bluish-gray in color with white powdery coating or wax strands (Fig. 3). The winged reproductives have five dark spots on the thorax. Balsam twig aphids extrude honeydew through the tubes called cornicles located on the tip

of the abdomen, which are small and indistinct in all stages.

Homoptera: Aphididae, *Mindarus abietinus*



Figure 1. Twisted needle growth due to feeding by balsam twig aphid (Steven Katovich, Bugwood.org).



Figure 2. Wingless balsam twig aphid on bud (Rayanne Lehman, Pennsylvania Department of Agriculture, Bugwood.org).



Figure 3. Adult winged balsam twig aphid (Rayanne Lehman, Pennsylvania Department of Agriculture, Bugwood.org).

Life History

The balsam twig aphid has a complex life cycle with multiple generations, each with a different form of adult aphid. First-generation females develop from overwintering eggs throughout April and until mid-May. These adult females are parthenogenetic, producing more wingless aphids from May to mid-June. The wingless parthenogenetic females will begin producing winged aphids from mid-May to mid-June. Winged adults fly to other trees and produce winged reproductive aphids, including male aphids. After mating, female reproductives lay fertilized eggs near developing buds from early to mid-June. After June, only the eggs are present and they remain dormant until the following spring. Overwintering eggs are primarily found at the base of the needles and on the stems of the most recent growth.

Control

Proper cultural techniques along with maintenance of vigorous tree growth should minimize the impact of balsam twig aphid. Since much of the distorted growth can be sheared off or will be hidden by growth during subsequent growing seasons, chemical control need not be considered in most well-managed Christmas tree plantations until the last two or three years of the harvest cycle. Insecticides should be applied between mid-April and early May, after egg hatch but before bud break. This is when the aphids are most susceptible. After bud break, aphids feed in the expanding new growth that protects them from insecticide contact.

Christmas tree growers and nurseries should check the Virginia Pest Management Guide for Horticulture and Forest Crops (VCE 456-017), for insecticides currently registered for balsam twig aphid. Homeowners with infested trees should see the Virginia Pest Management Guide for Home Grounds and Animals (VCE 456-018) for a list of approved insecticides recommended for aphids.

Revision

Theresa A. Dellinger, March 19, 2020.

Visit Virginia Cooperative Extension: ext.vt.edu

Virginia Cooperative Extension programs and employment are open to all, regardless of age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, veteran status, or any other basis protected by law. An equal opportunity/affirmative action employer. Issued in furtherance of Cooperative Extension work, Virginia Polytechnic Institute and State University, Virginia State University, and the U.S. Department of Agriculture cooperating. Edwin J. Jones, Director, Virginia Cooperative Extension, Virginia Tech, Blacksburg; M. Ray McKinnie, Administrator, 1890 Extension Program, Virginia State University, Petersburg.

2020

2907-1401 (ENTO-367NP)