

# BALSAM TWIG APHID

Latin: *Mindarus abietinus* Koch

Order: Homoptera

Family Aphididae

There have been increased reports of Balsam Twig Aphid (BTA) in the spring of 2022 from Christmas Tree Growers across the province of Nova Scotia. BTA causes curling and distortion of new growth on fir trees. Light damage in the early season can dissipate as the new growth elongates. However, extreme cases of infestation can lead to 10-30% reduced growth and vigor.

## History

Balsam twig aphid has an extensive distribution, stretching across Europe and North America. This pest habitat follows the natural range of fir trees across the country. It was first reported in the eastern provinces in the 1930's. Populations tend to fluctuate dramatically. Numerous severe infestations were reported in natural stands of balsam fir in New Brunswick and Nova Scotia in 1966 and 1967. Outbreaks tend to be short-lived and affect primarily ornamental trees, edge trees, nurseries, and plantations.

## Identification

Balsam Twig Aphids are soft bodied insects that can reach up to 1-2mm in length at their largest stage. Most stages of this insect are pale blue or green and may have woolly or powdery strands adhering to their bodies. See images below for identification of various instar stages.



A

B



C

D

A – Egg  
B – Newly hatched nymphs  
C – Stem-mother  
D – Winged Adult

Images obtained from: [https://influentialpoints.com/Gallery/Mindarus\\_abietinus\\_Balsam\\_twig\\_aphid.htm](https://influentialpoints.com/Gallery/Mindarus_abietinus_Balsam_twig_aphid.htm)



## Life Cycle

There can be up to three to four generations per year. Balsam twig aphid overwinters as eggs, that begin to hatch mid-April until mid-May. After eggs hatch, they become nymphs known as the stem-mothers and the largest instar stage. The stem-mothers are solely female and wingless. Stem-mothers then produce another generation of nymphs, which mostly develop into winged adults. This generation is also female, and viviparous, meaning they produce live young that have developed inside the body of the parent insect. This generation also produces nymphs, which develop into sexual reproducing adults. The adults of this generation are wingless and can be either male or female. After this last generation mates, the females deposit one or two eggs on current-years shoots near the base of the needles or on the buds, where they will overwinter until the following spring. The second generation of BTA typically causes the most damage.

*Eggs:* midsummer to late spring (overwinters)

*Nymphs:* mid spring to mid-summer

*Adults:* mid-to late summer

Stage/Month	J	F	M	A	M	J	J	A	S	O	N	D
Egg												
Nymph												
Adult												

## Signs & Symptoms

This small pest targets the new growth of balsam fir during shoot elongation in the spring. See images below for examples of BTA damage.

- Distorted or curled needles on current year's growth
- Stunted growth
- Honeydew secretion from insects that appear woolly
- Black sooty mold (develops from honeydew secretion)
- Increased occurrence of stinging insects such as bees and wasps



Images obtained from Lienna Hoeg (Acting Christmas Tree Specialist, CTCNS)



## Control

Month	J	F	M	A	M	J	J	A	S	O	N	D
Symptoms												
Monitor												
Mechanical Control												
Chemical Control												

### Monitoring

Monitor for stem-mother nymphs in May through to July. To monitor for BTA, walk diagonal transects that zigzag throughout the lot. Check trees for damage. Use an embroidery hoop covered with black cloth beneath emerging shoots. Rap the shoots at least three times with a wooden spoon or dowel. If green-blue stem-mothers are present, they will fall onto the black cloth. Eggs will typically hatch on the south-facing side of the tree first but be sure to inspect all sides of tree for presence of insects and damage.

### Mechanical Control

Pick and destroy emerging shoots that are affected by BTA in the spring. This is a laborious control technique but will help reduce populations.

### Cultural Control

Plant balsam twig aphid resistant species. Late flushing trees generally sustain less aphid damage. Planting and maintaining late-flushing varieties within lots will help decrease feeding areas for newly hatched aphids and are less likely to sustain injury. Maintain growth and vigor of trees by maintaining soil fertility.

### Biological Control

If BTA outbreaks are light to moderate, the use of biological controls (beneficial insects) may be beneficial. The following insects can be used for the biological control of balsam twig aphids; brown lacewings, green lacewings, and ladybugs/ladybirds. These insects can be purchased online and released within Christmas tree lots to provide natural control for balsam twig aphid. Maintaining habitat for beneficial insects can help increase and maintain populations, therefore helping keep insect pest populations in check. Keep in-mind if applying chemical controls, that they will also reduce the beneficial insect population as well as the population of balsam twig aphid.

### Chemical

Insecticidal soap can be used on small infestations. Apply as per label recommendations. A pesticide applicators license is not required for purchase or application of insecticidal soap. If BTA infestations are severe, chemical intervention may be necessary. There is only one registered insecticide for control of BTA. Product information and instructed for use is listed below. A pesticide applicators license is required for purchase and application of any pesticide product. Before purchasing or using any pesticide product, read the pesticide label. The link to the product label is linked on the following page.



Product Name: Endeavor 50WG Insecticide

Registration Number: 27273

Active Ingredient: Pymetrozine

For control of Balsam Twig Aphid: Mix 193 g in 275 L of water per hectare

Re-entry period: 12 Hours

Comments: Apply first application in spring when approximately 20% of the buds have begun to flush, a second application may be required to manage balsam twig aphid populations. Do not apply this product through any type of irrigation system. Do not exceed 2 applications or 386 g of product per hectare. Do not apply by air. Allow at least 7 days between applications.

Product Label: [https://pr-rp.hc-sc.gc.ca/1\\_1/view\\_label?p\\_ukid=238175557](https://pr-rp.hc-sc.gc.ca/1_1/view_label?p_ukid=238175557)

### *Contact*

For any inquiries requiring this document or pest management concerns, please contact:

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### *Additional Resources:*

<https://tidcf.nrcan.gc.ca/en/insects/factsheet/5549>

<https://extension.psu.edu/balsam-twig-aphid>

[https://influentialpoints.com/Gallery/Mindarus\\_abietinus\\_Balsam\\_twig\\_aphid.htm](https://influentialpoints.com/Gallery/Mindarus_abietinus_Balsam_twig_aphid.htm)

<https://novascotia.ca/natr/forestprotection/foresthealth/sheets/Bta.asp>

<http://cues.cfans.umn.edu/old/Web/073BalsamTwigAphid.pdf>

