

## Balsam Twig Aphid

*Mindarus abietinus* Koch

Hemiptera: Aphididae

Fondren, K. M.; McCullough, D. G. 2003. Phenology and density of balsam twig aphid, *Mindarus abietinus* Koch (Homoptera: Aphididae) in relation to bud break, shoot damage, and value of fir Christmas trees. *Journal of Economic Entomology* 96: 1760-1769.

**Objective:** To determine an appropriate spray period for *M. abietinus* based on pest phenology.

**Abstract:** Balsam twig aphid, *Mindarus abietinus* Koch, causes distortion, needle loss, and reduced growth on balsam fir, *Abies balsamea* (L.) Mill., and Fraser fir, *Abies fraseri* (Pursh) Poir. Both tree hosts are grown as Christmas trees with high economic value. The aesthetic or economic damage produced by *M. abietinus* has not been studied and the true impact of this pest may be over-estimated, leading to the unnecessary applications of insecticides for control.

The authors investigated the phenology of *M. abietinus* and resulting plant injury on balsam fir grown in commercial Christmas tree fields. Development of fundatrices and sexuparae was correlated with accumulated degree-days (DD) above a base temperature of 10°C. Fundatrices began reproducing by ≈83DD and sexuparae appeared ≈83-111DD, suggesting that chemical controls should be applied for *M. abietinus* between 56-83DD. Fundatrice density was not a good predictor of sexuparae density or subsequent shoot damage. In addition, the authors attempted to establish an aesthetic injury level for *M. abietinus* on balsam fir grown as Christmas trees, but most polled consumers appeared to accept light to moderate injury on the trees. In such cases, slight economic loss may not warrant the cost of chemical control for *M. abietinus*. This differs from the results of Kleintjes et al. (1999), who reported that chemical control was warranted on trees with densities of two or more *M. abietinus* fundatrices.

**Sampling Procedure:** Beginning in March, monitor degree-day accumulation above the base threshold of 10°C. Consider spraying for *M. abietinus* between 56-83DD, when eggs have completed hatching but before fundatrices begin reproducing. Management decisions should take into consideration such factors as expected economic value of trees at harvest, expense of treatments, and consumer acceptance of damaged trees.

### Reference:

\* Kleintjes, P. K.; Lemoine, E. E.; Schroeder, J.; Solensky, M. J. 1999. Comparison of methods for monitoring *Mindarus abietinus* (Homoptera: Aphididae) and their potential damage in Christmas tree plantations. *Journal of Economic Entomology* 92: 638-643.