Balsam Woolly Adelgid

Compliance Agreement Training

Michigan Department of Agriculture & Rural Development

Pesticide and Plant Pest Management Division
Introduction

- Balsam woolly adelgid (BWA)
- European forest pest accidently introduced into North America in the early 1900’s
- Attacks all true fir species
- BWA quarantine effective June 24, 2014
BWA Life Cycle

- Adults lay 100-250 eggs in spring
- Eggs hatch into crawlers (mobile form)
- Disperse by wind & branch to branch contact
- Insert mouthparts into tree & are permanently attached
- Typically 2 generations per year
Quarantine requirements

- Recipient cannot sell or distribute incoming fir commodities until released by MDARD – OR – Firm has compliance agreement
- All regulated fir must be accompanied by certificate
- Regulated articles are prohibited from BWA infested counties in regulated states
Prohibited Fir Articles

• The following are absolutely prohibited from infested areas of the US & Canada:
  – Boughs, branches, logs & lumber with bark
  – Firewood with bark
  – Uncomposted & unshredded bark
  – Nursery stock except seedlings & transplants grown under approved pest management program
Fir Seedling & Transplants from Regulated Areas

• Allowed when grown under active pest management program
• This means the grower must:
  – Perform bi-weekly monitoring April 1 – Nov. 1
  – Maintain pesticide treatment records
  – Have a documented training program
  – Treat seedlings & transplants within 7 days of shipment
• Age limit: no more than 3 years old
Exempt Fir Articles

- Christmas trees, wreaths & boughs during Oct 15-Dec 31 window
- Treated logs, bark, lumber & firewood
  - Heat treatments
  - Wood preservative treatments
- Logs, lumber & firewood with bark removed
- Seeds and cones
Balsam woolly adelgid symptoms at base of needles
BWA close up – white cottony masses at the base of needles
BWA feeding on twigs and branches causes a swelling or “gouting” reaction.
Balsam woolly adelgid crawler (magnified)
• When BWA feed, they inject toxic saliva into the wood which causes changes in plant cell structure
• Heavy feeding by BWA disrupts the conduction of water and nutrients
• Heavy infestations result in crown dieback, needle loss and eventual death of the tree
Widespread loss of balsam fir caused by BWA
Balsam Woolly Adelgid Host Range

- Attacks true firs
- North American species most susceptible
- European species tolerant - will harbor population
- Asian species intermediate
• Balsam fir *Abies balsameae*
• Fraser fir *Abies fraseri*
• subalpine fir *Abies lasiocarpa*
• Pacific silver fir *Abies amabilis*
• bracted balsam fir *Abies balsameae var. phanerolepis*
BWA Host Range, cont’d.

- grand fir *Abies grandis*
- Shasta fir *Abies magnifica*
- white fir *Abies concolor*
- noble fir *Abies procera*
BWA Distribution in the U.S.

- California
- Idaho
- Maine
- New York
- North Carolina
- Oregon
- Tennessee
- Vermont
- Virginia
- Washington
BWA Distribution in Canada

• British Columbia
• New Brunswick
• Newfoundland
• Nova Scotia
• Prince Edward Island
• Quebec
Locations where Adelges piceae has been found

Legend

- Find
- > 20% forest
- Non-forested area
Additional Information

• MDARD quarantine information
  – www.michigan.gov/pestquarantines

• Nursery Program Desk 517-284-5648