

TACF Fact Sheet

Asian Ambrosia Beetles: *Identifying and Managing these Orchard Pests*

Background

Asian ambrosia beetles are one of many serious problems for young chestnut trees. Many chestnut orchards (especially in the south) brace for ambrosia beetle outbreaks every spring. These beetles normally start wood boring activity as soon as we get **three consecutive 70°F days in the two-month period leading up to bud break**. Damaging levels of boring activity generally last until the trees fully leaf out. The invasive beetles introduce ambrosia fungus into the tree, which spreads throughout the tree eventually killing it.

What are Asian Ambrosia Beetles?

Asian ambrosia beetles are tiny brownish beetles somewhat resembling the southern pine beetle. Infestations can be identified by toothpick-like strands protruding ~1-2 inches from the host plant. The strands of boring dust and frass are produced by the female beetle as she excavates the brood gallery. The strands are fragile and easily broken by wind or rain leaving only tiny holes.

Asian ambrosia beetles, such as the granulate ambrosia beetle (right) have been introduced to the United States from Asia and can be found throughout the southeastern and mid-Atlantic states, and may be seen as far north as Connecticut. These tiny beetles attack a wide range of thin-barked woody plants, including woody ornamental, fruit, and nut trees. Of course, this includes all species of chestnut. The beetle can cause significant damage in orchards and nurseries. In our experience, trees with a small diameter ranging from approximately ½ inch to 4 inches at the base are in the susceptible size range for attack.



Granulate ambrosia beetle (*Xylosandrus crassiusculus*; scale, 0.5 mm). Photo courtesy of Pest and Diseases Image Library, Bugwood.org.

Identifying the Problem

- Infestations can best be identified by the toothpick-like frass strands protruding ~1-2 inches from the host plant (right), although some species may only produce small (~1 mm diameter) holes that weep sap.
- Infested trees will often fail to break bud in the spring or begin to wilt and die quickly after leaf out.
- Blue stained wood and brood chambers can often be seen when cutting into stems.

Some orchard managers utilize ethanol traps (not covered here) for early detection of ambrosia beetles prior to boring activity. Identification of trapped ambrosia beetles may take some training, whereas identification of infested trees is relatively easy.



Tale-tale signs of ambrosia beetle infestation – toothpick strands cover the host plant.

Ambrosia Beetles:

Identifying and Managing these Orchard Pests

It is recommended that you monitor your orchards regularly for signs of infestation on your trees. If and when attacks occur, immediately begin treatment and continue treatments annually until all trees in your orchard have reached a safe size (> 4 inches diameter at base).

Management

Although we don't recommend specific products, a preventative commonly used in chestnut orchards is a bark spray which includes the active ingredient, bifenthrin. Bifenthrin is a pyrethroid insecticide sold under a variety of names and can be found at most garden stores. The application rate is 0.7 ounces of a product containing 8% of the active ingredient per gallon of water.

You may also use a bark penetrant (e.g., Penra Bark) mixed at the recommended rate into the sprayer for greater residual activity. Although this treatment may last for up to 100 days, we recommend treating trees every 2-3 weeks beginning late February/early March until trees have fully leafed out (3-4 sprays per season).

If one or more trees become infested, treat all non-infested trees according to protocol but leave the infested tree untreated for approximately thirty days (they will become a trap for other beetles), then cut the infested trees to the base (these are the trees that generally fail to leaf out). Remove those trees from the site and burn or chip them for compost to help prevent subsequent reinfestations. Normally, healthy chestnut trees will resprout from the base and can grow to heights of 5-10 feet by year's end.

Note: Bifenthrin is highly toxic to other insects, including beneficials, and to aquatic organisms. Use carefully and only apply to susceptible chestnut shoots. (We apply with sponges to avoid excessive spray, which does not take much longer than spraying.)