



TACF Fact Sheet

How to deal with ambrosia beetles

Identify and Manage these Orchard Pests

Introduction

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 (see figure 2). The strands of boring dust & frass are produced by the female beetle as she excavates the brood gallery. The strands are fragile and are easily broken by wind or rain leaving only tiny holes.

Asian Ambrosia Beetles, such as the Granulated ambrosia beetle (figure 1) 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, and of course all species of chestnut, and can cause significant damage in orchards and nurseries. In our experience, small trees with diameter ranging from approximately ½ inch to 4 inches at the base are in the susceptible size range for attack.



Figure 1) Granulate ambrosia beetle
(*Xylosandrus crassiusculus*)
Photo courtesy of: Pest and Diseases
Image Library, Bugwood.org

Identify the Problem

- Infestations can best be identified by the toothpick-like frass strands protruding ~1-2 inches from the host plant (see figure 2), although some species may only produce small (~1 mm diameter) holes that weep sap.
- Infested trees will often fail to leaf-out or will 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 target beetles prior to boring activity. Identification of trapped ambrosia beetles may take some training, whereas identification of infested trees is relatively easy.

We recommend 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.



Figure 2) Tale-tale signs of ambrosia beetle infestation – toothpick strands cover the host plant. Photo by Erin Coughlin

Management

Although we don't recommend specific products, a preventative that is commonly used in chestnut orchards is a bark spray using 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 oz of a product containing 8% of the active ingredient per gallon of water.

You may also use a **bark penetrant** (e.g., **Pentra 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 treatment about every 2 weeks starting in late February/early March until trees are in full leaf (3-4 sprays per season). No need to continuing treating after full leaf-out.

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

If one or more trees become infested, continue to spray all trees in the orchard, but wait about 30 days after leaf out, 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 them or chip them well to compost them and help prevent subsequent re-infestations. Normally, healthy chestnut trees will re-sprout from the base and can grow to heights up to 5 – 10 feet by year's end.