# REEMS CREEK NURSERY Hemiock Woolly Adelgid

#### A Garden Guide

# What are Hemlock Woolly Adelgids?

Hemlock Woolly Adelgids (*Adelges tsugae*) are an invasive insect from East Asia. They are a **serious** pest for our native Eastern Hemlock (*Tsuga canadensis*), where they feed on sap, leading to desiccation and poor growth. They may also inject a toxin into the trees. Hemlock Woolly Adelgids, or



HWA, can eventually kill trees, either directly or by weakening the trees so much that they are vulnerable to other health issues. An individual HWA can lay 100-300 eggs per year; trees can die within 3-5 years of an infestation. Here in the Eastern US, it has no established predators. Winters where the temperatures drop to 0F or cooler temporarily knocks back HWA populations. Untreated infested trees will die.



## **Detection - Scouting Your Trees**

It is very hard to detect the HWA in all cycles of life, but from **late fall to early summer**, tiny white "wool" balls are visible on the undersides of twigs, a sure sign of their presence. Once the infestation is established, the tree will stop producing new growth on certain limbs or throughout the tree. The color of the needles may start to turn gray or brown, instead of a healthy dark green.

# **Treatment #1 - Soap or Horticultural Oil Sprays**

This is the least ecologically damaging approach, but may require multiple carefully timed applications. The best times to apply are in late March to April, when they have freshly hatched from their eggs; and in late August to October, before the nymphs have formed a protective coating. All pests on the tree will need to be coated in oil for this approach to be effective. We carry multiple options to choose from. Be sure to read the fine print on the container and dilute as indicated. A sprayer will be necessary, and if you have very tall trees, you may need to contact an arborist.

#### **Treatment #2 - Systemics**

Imidacloprid, a neonicotinoid, is the other major form of treatment available to homeowners. **We do not carry this product**, but for informational purposes will mention how it is used. It may appear under a variety of brand names.

Imidacloprid is applied either to the soil and tree's root zone by drenching or injection, or to the tree itself through a trunk injection system. It kills aquatic species and beneficial insects, including honeybees; however, hemlocks are wind pollinated and thus are not visited by honeybees or other pollinating insects. Soil drenching damages microbial life in the soil that may be aiding the tree, and tends to run off into the ecosystem, however it may be an effective treatment for up to 24 months. Tree injection wounds the tree, and must be done by a trained arborist, but is least likely to run off into streams and kill aquatic life. Tree injection must be timed very carefully (when the tree is leafing out in spring, in September when the tree is preparing for winter dormancy, before 3 pm) to be effective.

Dinotefuran, another neonicotinoid, is sometimes used. It is banned in Oregon.

# Summary of factors to consider when selecting a method to treat adelgid-infested hemlock trees

| TREATMEN<br>T OPTION | COST         | EASE OF<br>APPLICATIO<br>N | APPLICABILITY<br>TO LARGE OR<br>MULTIPLE TREES | ACCEPTABLE<br>NEAR OPEN<br>WATER** |
|----------------------|--------------|----------------------------|--|------------------------------------|
| Soap and Oil         | Less-More    | Easy to                    | No   | No                                 |
| Spray                |              | moderate*                  |  |                                    |
| Soil                 | Less         | Easy                       | Yes  | No                                 |
| drenching            |              |                            |  |                                    |
| with                 |              |                            |  |                                    |
| imidacloprid         |              |                            |  |                                    |
| Soil injection       | More         | Moderate                   | Yes  | No                                 |
| with                 | (requires    |                            |  |                                    |
| imidacloprid         | an injector) |                            |  |                                    |
| Trunk                | Highest      | Professional               | Yes  | Yes                                |
| injection with       | (injection   | arborists only             |  |                                    |
| imidacloprid         |              |                            |  |                                    |

| equipment |  |  |
|-----------|--|--|
| required) |  |  |

\*Depending on the size of the tree and the type of sprayer needed to drench the given number and size of your trees.

\*\*Areas of rocky soil that drains to an open body of water should receive the same consideration as areas adjacent to water.

### **Potential Treatment #3 - Beneficial Insects**

Beneficial insects may turn out to be the long term best approach for dealing with HWA. Recent introductions of Laricobius nigrinus (a beetle) and Sasajiscymnus tsugae (Japanese Lady Beetle) have yielded some encouraging results, but these species have had limited success. More species will likely need to be researched and/or introduced to sufficiently reduce HWA numbers.

### Hemlock Health

Maintaining the general health of your hemlocks will help their survival. If necessary, irrigate your trees to insure they get one inch of water per week and prune dead and dying limbs. Although fertilizing may benefit a healthy hemlock, avoid fertilizing those infested with HWA. In this case, fertilizer will improve adelgid survival and reproduction.

Sources: Cornell University, Mark McClure of the Connecticut Agricultural Research Station, North Carolina State Cooperative Extension Service, Reems Creek Nursery staff experts, Save the Hemlocks. Version 2.1 Jan 21

