



Entomological Notes

Department of Entomology

HEMLOCK WOOLLY ADELGID

Adelges tsugae Annand

The hemlock woolly adelgid has been recorded as a pest in Oregon, California, Virginia, Delaware, Maryland, New York, and Pennsylvania. Generally, this pest has not caused severe damage in the western United States. However, in eastern Pennsylvania it has caused significant damage to ornamental plantings of Canada hemlock, *Tsuga canadensis*.

DESCRIPTION

The most obvious sign of a hemlock woolly adelgid infestation is the copious masses of white filaments of wax produced by females (Fig. 1). These "cottony" masses normally persist throughout the season and into the following year, even after the insects are dead.

The overwintering females are black, oval, soft-bodied, and about 2 mm long. They are concealed under their characteristic white waxy mass.

LIFE HISTORY

The overwintering adult females begin laying eggs in large clusters in the cottony masses during warm weather in late winter and early spring. They continue to lay eggs into June. The eggs are oblong, 0.25 mm long by 0.15 mm wide, and brownish-orange. Eggs start to hatch in early April, and depending on spring temperatures, hatching is completed by late June.

The newly hatched nymphs or "crawlers" are reddish-brown with a small white fringe near the front. The settled crawler is about 0.3 mm long, black with a white fringe around the body and down the back. The developing nymphs are dark reddish-brown. They continue to increase in size with active feeding. They become mature by late September and spend the winter on trees as mature females.

DAMAGE

Hemlock woolly adelgid populations usually are located near the bark at the base of the needles. Host plants are injured by the adelgids inserting their piercing-sucking mouthparts into the base of the needles and removing plant fluids. Moderate hemlock woolly adelgid

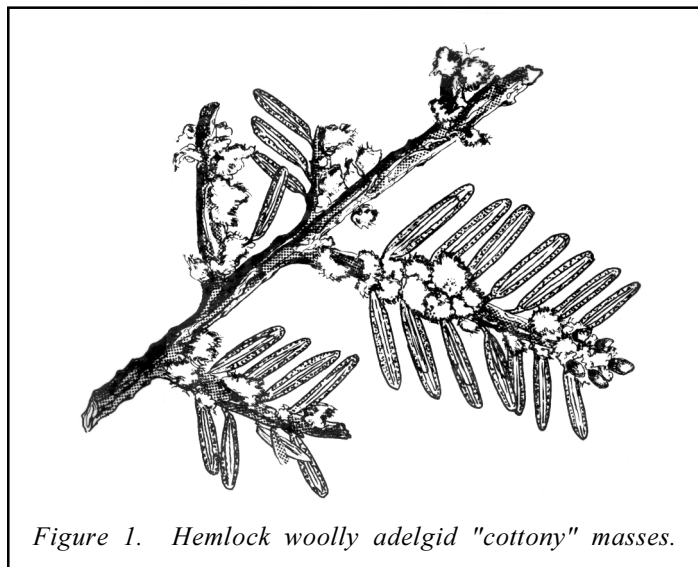


Figure 1. Hemlock woolly adelgid "cottony" masses.

populations may cause a reduction in tree health. Severe infestations may result in premature needle drop, reduced twig growth, dieback, or death of trees.

MANAGEMENT

The best time to effectively manage this pest is late September through October. Registered insecticides applied according to label directions during this period target overwintering females. A mid- to late June spray may help reduce the number of developing nymphs.

Soil injection of systemic insecticides labeled for management of this pest may be applied by commercial applicators around large trees. This management strategy is appropriate when thorough coverage is difficult to achieve using ground application equipment. Early spring soil injections usually work best against this pest when sufficient soil moisture exists. Prior to soil injecting a registered material, applicators may need to irrigate around an infested tree to provide adequate soil moisture.

WARNING

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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