



**COOLEY SPRUCE GALL ADELGID**  
*Adelges cooleyi* (Gill.)

**Insect and Disease Laboratory • 168 State House Station • 50 Hospital Street • Augusta, Maine • 04333-0168**

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### Symptoms and Damage

The Cooley gall adelgid is a problem in Douglas fir Christmas tree plantations especially when the two host species, spruce (primary host) and Douglas fir (alternate host) are planted close to one another. The galls, which are caused by feeding of the nymphs (immature adelgids) on needles, occur only on spruce. Winged adult females emerge from galls and migrate to Douglas fir if it is present. The next generation nymphs feed on Douglas fir causing yellowing and kinking of the needles; and in cases of heavy infestation, partial or nearly complete needle fall.

Damage is most severe in Christmas tree plantations where aesthetic value is reduced by the presence of the unsightly galls on spruces and by the twisting and yellowing of the Douglas fir needles. Heavy infestations on Douglas fir can cause post-harvest needle fall.

### Hosts

The spruce species most commonly involved as primary hosts in Maine are Colorado blue and white, although Englmann and Sitka are also affected. The alternate host is Douglas fir.

### Life Cycle

The Cooley gall adelgid overwinters as a nymph. In the spring female adults deposit eggs under white, cottony wax near the terminal buds on spruce branches. The eggs hatch and the nymphs move to the expanding new growth. Their feeding activity at the base of new spruce shoots causes an elongate, cone-like gall in a matter of a few days. Fully-developed galls are 1 1/2 to 3 inches long, 1/2 to 3/4 inches in diameter, and are light green to deep purple in color when first developed. In July or August the galls open and winged adults emerge and fly to the Douglas fir host where they deposit eggs.

The nymphs appear as tiny, black, flat, oval objects with white, waxy, cotton-like threads along the body margin. Their fall feeding activity causes a light colored blotch to appear at the feeding site on the needle. Around May of the following year, the nymphs develop into "stem mothers" that are densely covered with a white, cotton wax and they lay eggs under this covering. The eggs hatch, nymphs feed and become adults to start the cycle over again. If the two host species are not close together then the adelgid can reproduce independently on either species.

### Control

**Non-chemical:** Do not plant the two hosts (Douglas fir and Colorado blue or white spruce) close to one another. If the two species are already established, remove the spruce host as soon as is economically feasible to protect the higher valued Douglas fir.

If removal of the spruce host is not feasible, pick off newly-developed galls on the spruce host and destroy them. Galls which are brown in color and with the chambers open and exposed have already released the aphids. Removal of these galls will only serve to improve the appearance of the spruce tree.

**Chemical\*:** The damage may be prevented by spraying infested trees in the spring before the buds open with dormant oil, carbaryl, or chlorpyrifos. Accurate timing of the insecticide application just prior to budbreak is required for best protection of the tender elongating shoots from attack and subsequent distortion. Be sure to refer to the insecticide label for specific use instructions, dosages, and precautions.

Pesticidal soaps (such as Safer's Insecticidal Soap), an alternative to petrochemical pesticides, are also registered for control of spruce gall aphids.

**\*NOTE:** These recommendations are not a substitute for pesticide labeling. Read the label before applying any pesticide. Pesticide recommendations are contingent on continued EPA and Maine Board of Pesticides Control registration and are subject to change.

### **Caution**

For your own protection and that of the environment, apply the pesticide only in strict accordance with label directions and precautions.