

## *Spruce Gall Aphids*

The Eastern spruce gall aphid and the Cooley spruce gall aphid inflict considerable injury to ornamental **spruce** trees throughout the Northeast and Midwest. Both insects cause the formation of cone-like galls on developing twigs, which deform, stunt and usually girdle them. Heavy and repeated infestations will seriously disfigure and weaken trees, and render them more susceptible to invasion by disease causing organisms and other insects.

### **Eastern Spruce Gall Aphid (Adelges abietis L)**



**Egg Mass on Norway Spruce**

The Eastern spruce gall aphid was introduced into the United States from Europe in the early 19th century. The insect primarily attacks **Norway and white spruce**, causing the formation of pineapple-shaped galls approximately one inch long at the base of developing twigs. The Eastern spruce gall aphid overwinters as immatures



**New galls on Norway Spruce Twig**

or nymphs in bark crevices on twigs of its host. In early spring, nymphs mature and the winged adults lay eggs under a waxy cover on twigs. Eggs hatch about the same time new

growth begins, and the young nymphs begin feeding near the base of

expanding buds. Feeding induces the formation of the galls, inside which the nymphs continue to feed and develop. In late summer (August through September), galls open and fully-grown nymphs emerge. These become winged adults, which can fly to nearby susceptible spruce trees. The adults deposit eggs, which soon hatch and give rise to the overwintering nymphs.



**Open new gall**

### The Cooley Spruce Gall Aphid (Adelges cooleyei Gill)



#### Cooley Spruce Gall on Colorado Blue Spruce

The Cooley spruce gall aphid is a native pest, which primarily infests **blue, Englemann and Sitka spruce and Douglas fir**. Galls caused by this insect are elongated, one to three inches long, and occur at the tips of twigs. The life cycle of this insect on spruce is similar to the Eastern spruce gall aphid. However, if Douglas fir is planted near spruce, some winged adults emerging from galls may migrate to Douglas fir and deposit eggs. Nymphs emerging from eggs in late summer overwinter in bark crevices on twigs. In spring, the nymphs mature and another generation is produced on Douglas fir. Nymphs of this generation feed on the succulent new growth, causing needle distortion and browning; however, galls do not form. In mid- to late summer (mid-July through August), nymphs mature to form winged adults, which either migrate back to spruce or remain on Douglas fir. Adults deposit eggs on twigs of either tree species. The eggs soon hatch and give rise to the overwintering nymphs.

#### NON-CHEMICAL CONTROL

Removing and destroying green galls from spruce will reduce gall aphid populations. Removing brown, dried galls will have no effect on the pest population since the insect has already emerged from these galls.

#### CHEMICAL CONTROL

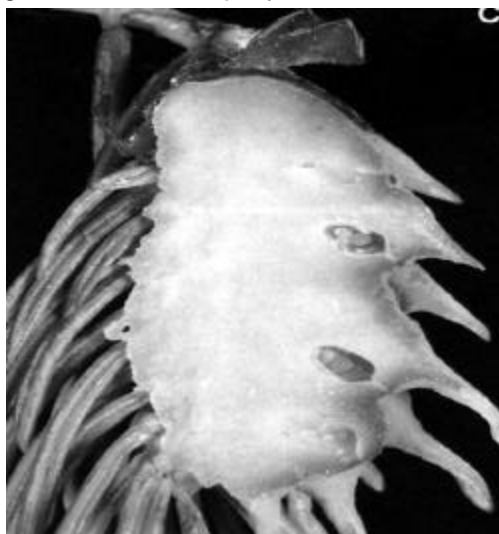
*Spring application* An application of dormant oil in early spring will effectively control overwintering nymphs and prevent gall formation. Oil should not be applied to blue spruce, since loss of blue color may occur.

A contact insecticide applied at budbreak will also control immatures and prevent gall formation. Proper timing is essential, since contact insecticides are ineffective once galls form.

*Fall application* An application of a contact insecticide in late September or early October will eliminate overwintering nymphs and prevent gall formation the following spring. Fall treatment is preferred since timing is less critical, and weather conditions are more conducive for spraying in fall than in early spring.

Consult the Bartlett Tree Research Laboratories Insect Control Recommendations or local state recommendations for a list of labeled insecticides and rates for control of these insects.

\*For control of Cooley spruce gall aphid at either time of the year, both spruce and Douglas fir must be sprayed.



#### Opened Cooley Spruce Gall