



Eastern Spruce Gall Adelgid



The eastern spruce adelgid, is commonly referred to as an aphid. However, aphids have long antennae and characteristic cornicles, or pipe-like tubes arising from the tip of the abdomen. Adelgids have short antennae and no cornicles. This pest is found throughout all of North America, wherever its host spruces are grown. It has also been exported to Europe.

Plants Attacked

This pest prefers Norway and white spruces, but occasionally attacks red, black, Englemann and Colorado spruces.

Damage

The pineapple-shaped galls greatly stunt the growth of new spruce shoots. Trees demonstrate a wide range of susceptibility; some have many galls which kill the branch and others having few galls which allow for continued branch growth.

Description and Life Cycle

This relative of aphids causes small pineapple-shaped galls at the bases of branches. The eastern spruce gall adelgid over winters as immature females (fundatrices) attached to the current year's twigs, usually at the bases of buds. In mid-April these dark greenish-gray females continue to grow, producing a white, waxy, cotton-like covering. Within two to three weeks, the females mature and lay 150 to 200 olive green eggs in the wax. By this time, the spruce buds have begun to drop their bud-sheaths and expand: The bases of the lower needles in the bud are slightly swollen and discolored because of the feeding by the fundatrix. The eggs hatch into yellow nymphs (*gallicolae migrans*) which move to the swollen needle bases to feed and continue gall formation. Within a couple of weeks, the needle bases have swollen into tightly closed 1/4-inch chambers. Unlike the Cooley spruce gall adelgid, the eastern spruce gall adelgid only affects the lower half of a bud, the tip grows outward in a normal manner. The *gallicolae migrans* molt three times in the gall and are ready to emerge by August and September. By this time, the gall turns brown and the chamber walls dry, opening the escape slits. The mature nymphs crawl to needles and molt into winged females (*alate non-migrans*). These winged females are feeble fliers and usually do not leave the tree. Within two to five days, the *alate non-migrans* lay up to 60 eggs under their wings and then die. These eggs hatch into the over wintering fundatrices which move to new buds.



Control Hints

Unlike the Cooley spruce gall adelgid, this pest has no alternate host. The life cycle is completed on a single suitable host plant. Well timed sprays are generally the most effective controls.

Strategy 1: Cultural Control- Use of Resistant Varieties - Black, red and Englemann spruces are generally less susceptible to this pest. However, certain cultivars of Norway and white spruces have demonstrated some resistance. Try to select uninfested nursery stock which has not been sprayed regularly for control of this pest. Trees lacking galls are more likely to be resistant.

Strategy 2: Chemical Control - Dormant Oil Sprays - Dormant oil, applied in April, is very effective against this pest. Be sure to use good quality oil and spray before buds have doubled their winter size.

Strategy 3: Chemical Control- Fall Insecticide Sprays - Insecticides can be applied in September and October to kill the alate non-migrans and over wintering fundatrices.

Strategy 4: Chemical Control - Spring Insecticide Sprays - Insecticides can be applied in mid-April before the fundatrices mature and lay eggs. This is usually before the bud sheaths become loose.

Information obtained through the Ohio State Extension Factsheet HYG-2050-95



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