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WASHINGTON STATE UNIVERSITY

Insect answers



COOLEY SPRUCE GALL APHID

The Cooley spruce gall aphid, *Adelges cooleyi*, is a common pest on several kinds of spruce including native Sitka and Englemann as well as the introduced Colorado blue spruce. Douglas-fir is also attacked by this insect. None of the true firs are fed upon by Cooley spruce gall aphid.

Although it is called an aphid, it is an adelgid, a close relative but a different family of "plant lice." There are several plant-galling adelgids in the state of Washington; however, Cooley spruce gall aphid is probably the most commonly encountered.

Life History and Description

The Cooley spruce gall aphid has a complicated life cycle which is not completely known. There are five biological forms of the insect, three of which occur on spruce and two on Douglas-fir. It takes at least two years to go through these five forms. It appears that those forms cannot continue indefinitely on spruce but need to find Douglas-fir to complete the cycle. This is not true of the forms on Douglas-fir. These can multiply indefinitely by asexual reproduction on fir and do not require an alternate host (spruce) to continue reproduction. Sexual reproduction takes place only on spruce. This aphid can spend the winter on either tree type.

On spruce they appear at the base of buds as woolly masses in the fall, winter, and into the spring. These are overwintering females that

produce eggs in the spring. They hatch and the young adelgids feed at the base of growing needles. Their feeding causes a gall which soon surrounds them. These galls are green and cone-shaped. They later become brown and dry. At maturity, the gall-producing form will migrate to Douglas-fir.

Galls are not produced on Douglas-fir. The presence of the adelgid is noticeable only by the white tufts on the needles. However, during the development of new growth after bud break, the newly hatched adelgids appear as black spots if observed closely.

Damage

The galls on spruce ultimately result in the death of the bud. This reduces the desired symmetry of the tree. On Douglas-fir, the adelgids' feeding results in spotting of the leaves, needle distortion, and premature needle drop. Rarely are the trees defoliated.

Control

Simply remove the galls on spruce to rid the tree of the unsightliness; however, this does not remedy ultimate destruction of tree symmetry nor does it eliminate chances of reinfestation the following year. Another suggestion is to avoid planting spruce and Douglas-fir near each other to help control this pest. This is only partially successful as separation of these hosts usually only prevents large population buildups but will not prevent reinfestation.

COOPERATIVE EXTENSION



Washington State University

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Chemical control is the only practical method of control. The following materials are suggested:

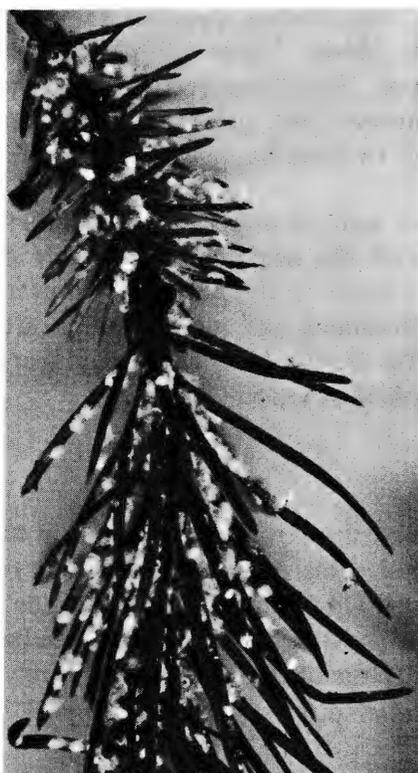
- Carbaryl (Sevimol-4)* 1 qt. 40.38% spray per 100 gallons of water. This material may cause mite problems, however, and should not be used when honey or other bees are in the area as it is highly toxic to all types of bees.
- Endosulfan (Thiodan) 2 tablespoons 9.15% spray per gallon water.

Remarks

Apply sprays to Douglas-fir in *early spring* just prior

to bud break. Spray spruce trees in the *fall* any time after galls open and before fall frosts. This gives ample time to obtain good control of fir emigrants. It is possible to spray spruces in the spring if good weather exists. In the spring the period between egg hatch and gall formation is only a few days. Between these two events the adelgid is in a "crawler" or unprotected stage and very susceptible to the insecticides.

*Sevimol-4 is not available in small packages so is recommended for large plantings or for use by pest control applicators.



Cooley spruce gall aphid on Douglas-fir.



Gall caused by Cooley spruce gall aphid.

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Warning. Use pesticides with care. Apply them only to plants, animals, or sites listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and others around you. It is a violation of the law to disregard label directions. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

The law requires that pesticides be used as the label directs. Uses against pests not named on the label and low application rates are permissible exceptions. If there is any apparent conflict between label directions and the pesticide uses suggested in this publication, consult your county Extension agent.

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