Brachyrhinus Weevils

spring spray treatment for pest control on nursery grown azaleas, rhododendrons, camellias, heather, other plants

A. Earl Pritchard

Spray applications in early April and early May of some of the newer insecticides may control the damaging *Brachyrhinus* weevils attacking certain nursery plants in the San Francisco Bay area.

The grubs of the weevils often kill azaleas, rhododendrons, camellias, and heather. Other favorite hosts such as peonies, tuberous begonias, privet, and saxifraga, may be seriously weakened.

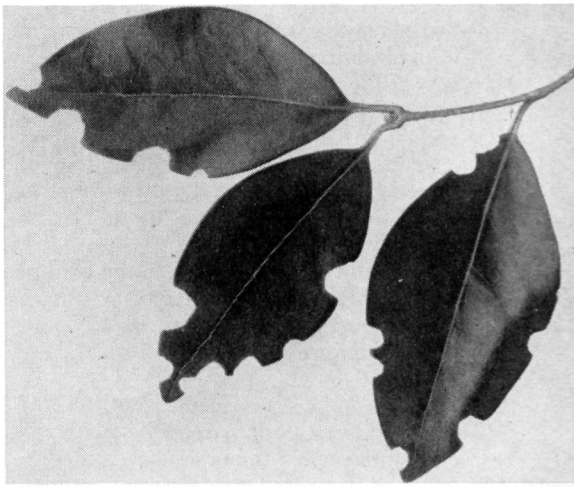
Five species of *Brachyrhinus* have been introduced into California of which three—*B. sulcatus* (Fab.), *B. meridionalis* (Gyll.), and *B. cribricollis* (Gyll.)—appear to be found most commonly in nurseries. Detailed life-history studies have been made only for *B. sulcatus*, but field observations indicate that the general development of all three species is similar.

Adult weevils emerge in the spring. They are unable to fly, and hide in debris on the ground during the daytime. At night they crawl up the plants and feed on the margins of the leaves, producing characteristic scallops.

Egg laying starts about two weeks after emergence, and each female may lay several hundred eggs the first season and a similar number if they survive until the following year. The eggs are laid on the soil, and they hatch in about two weeks.

The tiny grubs feed at first on small rootlets, but by late winter or early spring —when they are nearly grown—they feed on larger roots and may girdle the stem just below the surface of the soil.

The application of organic insecticides to the top of the soil is ordinarily ineffective for grub control as the chemicals are strained out near the surface. Application of excessive amounts of benzene hexachloride to the soil surface of four-inch pots of camellias failed to kill grubs near the bottom of the pots, even with very heavy watering. However, when the grower is suffering heavy losses in the early spring, he may obtain considerable control of grubs girdling near the surface.



Foliage of Japanese privet showing characteristic scallops caused by feeding of adult *Brachyrhinus* weevils.

Girdling of a rhododendron by *Brachyrhinus* grubs. The calloused areas around the feeding injury indicate that the plant was not killed immediately.

Control

The most effective method of *Brachyrhinus* control is to kill the adult weevils as they emerge in the spring. In the San Francisco Bay region during 1951, the earliest emergence observed for *B. sulcatus* under lathhouse conditions was on March 15. The peak of emergence was in early May. A similar pattern of adult appearance was observed in connection with potted plants being forced under greenhouse conditions.

Experimental work was conducted during the spring of 1951 in a 3-acre lathhouse of azaleas where 75% of the plants were being killed by *B. sulcatus*. The plots were replicated, each 6′ by 25′ in beds containing the variety Niobi. The soil was largely composed of peat moss.

Chlordane, dieldrin, and toxaphene were the experimental materials used. Benzene hexachloride, heptachlor, and aldrin are also known to be effective, both for adult control and—when mixed in the soil—for grub control. Apple baits containing calcium arsenate or sodium fluosilicate have been used for adults, but their degree of effectiveness appears to depend on the species of *Brachyrhinus*.

The chlordane liquid concentrate was diluted to 1.5 pounds actual chlordane per 100 gallons of water and applied at a rate of 8.5 pounds chlordane per acre.

The dieldrin liquid concentrate was diluted to 0.4 pound actual dieldrin per 100 gallons of water and applied at a rate of 1.5 pounds dieldrin per acre.

The toxaphene liquid concentrate was diluted to three pounds actual toxaphene per 100 gallons of water and applied at a rate of 17 pounds toxaphene per acre in the original application, but subsequent treatments were at a rate of 12 pounds toxaphene per acre.

The azalea foliage was treated for tolerance and the plots were weedy, so that the rates of application to the soil were actually less than indicated.

The first application was made on April 5, and the treatment was repeated on May 6. A third application was made to one-half of the plots on June 6. No insecticidal damage to the azaleas was observed.

Both sick and active weevils were found in all plots on April 23, and in May at the time of the second application. No live beetles were found in June—apparently there was sufficient residual insecticide on the soil to kill emerging weevils. However, some plots received a third application. No adult feeding injury nor live weevils was observed in any of the plots during the following summer, and no grubs were found when surviving plants were examined the following February.

Although the plots were small and

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DECLINE

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ant. Those on *Citrus macroptera* and on the Bigaraldin are susceptible.

Observations are being continued and plantings of trees on additional roots added. The grower is advised not to plant trees unless their susceptibility to quick decline has been determined; and to buy trees from a reliable nurseryman who can provide a past history of the top-root combination.

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The above progress report is based on Research Project No. 1382.

WEEVIL

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represented only one season's work, it would appear advisable for the nurseryman in the San Francisco Bay area to treat for *Brachyrhinus* early in April and early in May. More extensive tests are being made on a commercial basis this spring.

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The above progress report is based on Research Project No. 1318.

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