Section VI.
Soil Arthropods

EVALUATION OF THREE SOIL APPLIED INSECTICIDES FOR ROOT WEEVIL CONTROL

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In order to determine the efficacy of new insecticides for adult root weevil control in container grown plants, adult stages of black vine root weevil, *Otiorhynchis sulcatus*, were established in two container-grown plant species, arborvitae (*Thuja occidentalis* 'Emerald') and rhododendron (*Rhododendron* 'Vulcan') in May of 1997. Seven root weevil adults were placed onto the soil surface of each one gallon plant and covered with a damp paper towel. During daylight hours on May 20, 1997, treatments were applied to the two plant species. Foliar treatments were applied using a manually-pressurized backpack sprayer. Baits and granular treatments were applied by hand. On rhododendrons, treatments consisted of: (1) an untreated control; (2) Topcide (lamda-cyhalothrin, 1.2 oz/100 gal.); (3) Topcide (lamda-cyhalothrin, 4.8 oz/100 gal); (4) Pinpoint 15G (acephate, 16.5 lbs/a); (5) Pinpoint 15G (acephate, 33.0 lbs/a); (6) Cryolite (Sodium aluminofluoride-based bait, 30 lbs/a); and (7) Gowan 1885 (30 lbs/a). There were five reps*, each containing five plants. At 1-, and 7-days after treatment, root weevils were collected from each container and evaluated for morbidity and mortality. Treatments 1, 3, 5, and 6 were applied to arborvitae and evaluated 1-, 3-, and 8-days after treatment. Analysis was conducted using SAS ANOVA and Fisher's LSD multiple comparisons. The 70-79% mortality of root weevils in the Cryolite, Gowan 1885, and Pinpoint 15G (high rate) treatments (See figures 1 and 2) significantly differed from the 11-17% mortality of the untreated control and the 27-36% mortality found in the Topside treatment (P=.0001). High and low rates of Pinpoint 15G, and both sodium aluminofluoride bait treatments had the highest combined mortality and morbidity (P=.0001, see figures 3 and 4). These formulations may provide an effective, viable option for adult root weevil control particularly when pesticides cannot be applied in the evening or reduction of risks from foliar cover sprays to non-target organisms is desirable.

* Six reps for treatments 1,3,4,5, and 6.

Percent Dead Weevils in Arborvitae

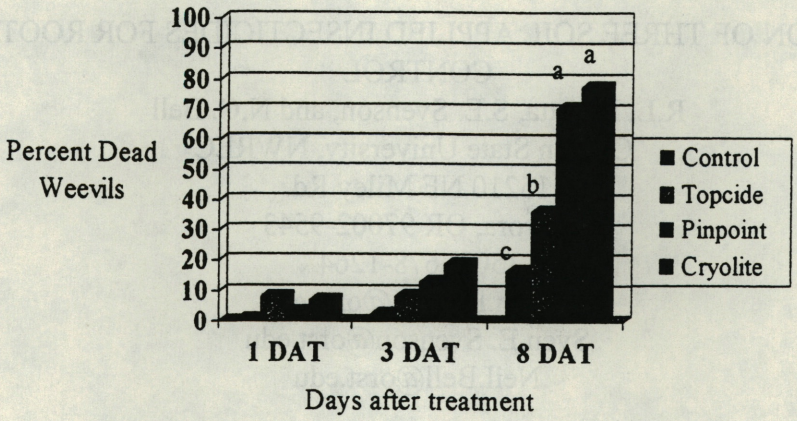

Figure 1

Percent Dead Weevils in Rhododendron

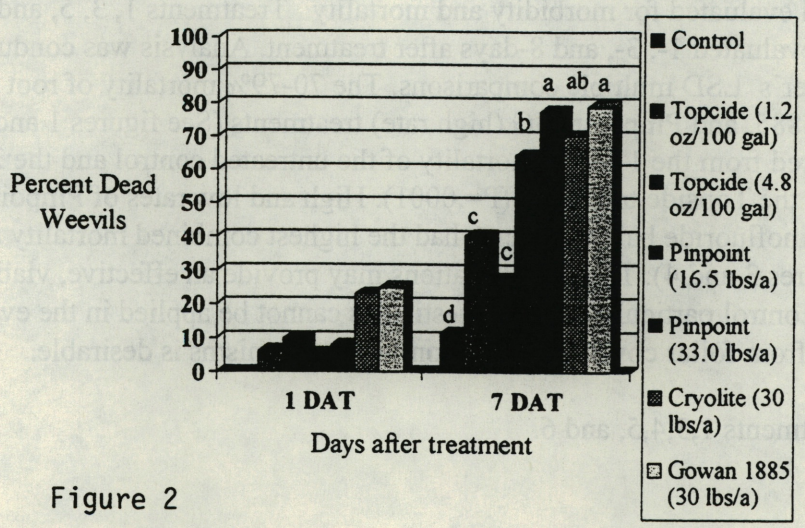

Figure 2

Dead and Morbid Weevils in Arborvitae

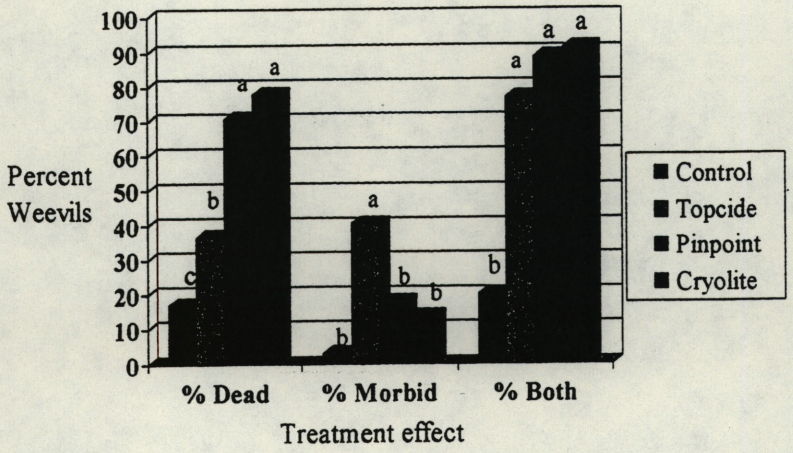

Figure 3

Dead and Morbid Weevils in Rhododendron

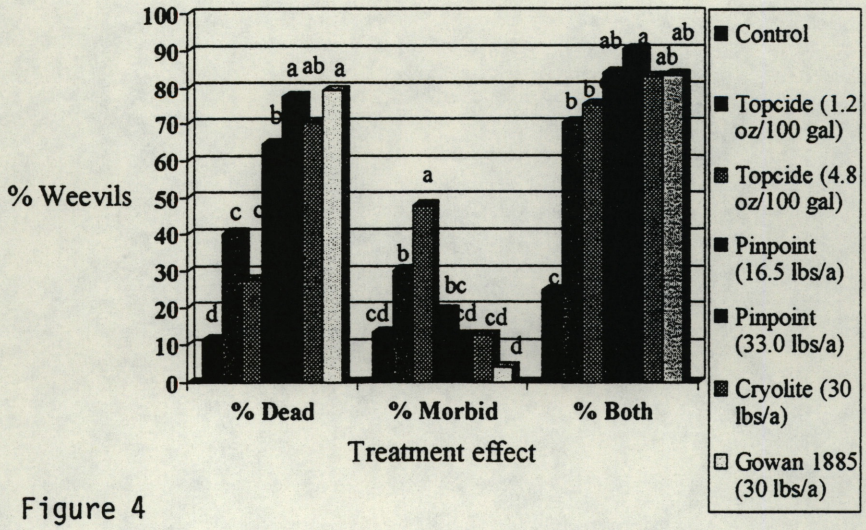

Figure 4