

Section VI
Soil Arthropods

ASSESSMENT OF INSECTICIDE EFFICACY FOR ROOT WEEVIL CONTROL

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A trial was conducted to evaluate and compare the efficacy of new formulations and application techniques to existing standard pesticides used for adult root weevil control. The trial was conducted on Rhododendrons in 1-gallon containers. The study used a RCBD with three plants/plot and six reps. In May of 1998, adult stages of the black vine root weevil, *Otiorhynchus sulcatus*, were established in rhododendrons (a known number applied to each pot). On May 20 treatments were applied to the rhododendrons. Foliar treatments were applied using an R and D Sprayers CO2 sprayer. All other treatments were applied by hand. Treatments were evaluated for percent adult mortality at 7 and 14 DAT (May 27 and June 3, respectively) for all treatments. Some treatments had an additional evaluation at 21 DAT (June 10).

RESULTS:

Analysis of this trial results show that several insecticides: Orthene; Pinpoint (2.0 g and 3.0 g prod/pot); Talstar (both day and night applied); and CGA 293 343 (thiamethoxam), can provide greater than 90% control of root weevil adults two weeks after treatment (Results are summarized in Chart 1). CGA 293 343-treated plots showed 100% control of adult weevils 14 DAT. Only Orthene-treated plots showed greater than 80% control of root weevil adults by one week after application. Although initially (7 DAT) providing less than 50% control, the low rate of Pinpoint (0.5 g prod/pot), Gowan's Cryolite bait, and Kryocide-treated plots showed greater than 60% mortality by two weeks after treatment. The differences in speed of control may reflect the different modes of action of these insecticides. One possible benefit in use of the slower acting stomach poisons and systemic insecticides is lessened risk to non target organisms such as predator mites. A non replicated evaluation of the systemic activity of Pinpoint showed 100% mortality of weevil adults fed leaves from Pinpoint-treated plants (21 DAT) compared to 0%

mortality of adults fed leaves from untreated plants. A unique means of application, bifenthrin-treated barriers placed on top of containers, shows some promise for suppressing root weevil populations.

Table 1. Influence of soil-applied insecticides on mortality and moribundity of the adult black vine root weevil in container-grown *Rhododendron* 'Vulcan'.

Cunningham's Blood

Insecticide	Application rate	Fraction Dead ²		
		7 DAT	14 DAT	21 DAT ³
Orthene	16 oz/100 gal	88 a ¹	94 a	
Talstar Flowable	20 oz/A (day)	72 b	99 a	93 a
CGA 293 343	8.5 oz/100 gal	67 b	100 a	
Talstar Flowable	20 oz/A (night)	65 b	99 a	94 a
Pinpoint 15 G	2.0 g/pot	44 c	95 a	
Cryolite	30 lbs/acre	42 c	76 b	75 a
Pinpoint 15 G	3.0 g/pot	40 c	98 a	
Kryocide	50 lbs/A	32 cd	70 bc	
Pinpoint 15 G	0.5 g/pot	21 de	61 cd	
Bifenthrin barrier	1.5% ai	13 ef	51 d	
Untreated barrier	0	12 ef	29 e	
Untreated Control	0	5 f	12 f	30 b

¹ Means in columns for the same days after treatment and followed by the same letter are not significantly different; mean separation using LSD (5%).

² Fraction of dead weevils from mean of all weevils found per treatment.

³ Numbers in this column may be lower than previous dates due to sampling error. Additional root weevils missing in previous evaluations were found on later sampling date.