

BLACK VINE WEEVIL CONTROL ON STRAWBERRY, 2009

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Rough strawberry root weevil lab bioassay. Rough strawberry root weevils were collected from ‘Totem’ strawberry located in Woodland, WA, 25 June 2009. Treatments consisted of Actara™ (thiamethoxam at 4 oz/acre), Avaunt™ (indoxacarb at 6 oz/acre), Discipline™ (bifenthrin at 6.4 fl oz/acre), Leverage 2.7™ (imidacloprid/cyfluthrin at 3.75 fl oz/acre), Voliam flexi™ (thiamethoxam/chlorantraniliprole at 7 oz/acre) and an untreated check. Individual trifoliolate strawberry leaves were inserted into water-filled vials, plugged with a cotton dental roll, dipped in respective deionized water-insecticide solutions for approximately 5 seconds, placed into 5-inch diameter Petri dishes and allowed to air-dry before five weevils were placed in each arena. Each treatment tested a total of thirty weevils, divided equally among six Petri dish leaf arenas held at room temperature. After 1 day posttreatment, percent mortality for experimental Voliam flexi, Leverage and Actara was significantly different from the untreated check (Table 1). At 4 DAT, 83 and 100 percent mortality was measured for Leverage and Voliam flexi, respectively. Between 4 and 7 DAT, 90-100 percent mortality was observed for Actara, Avaunt, Discipline and Leverage compared with 7 percent mortality for the untreated check.

Table 1. Rough strawberry root weevil bioassay 1, 2009

Treatment	Rate/acre	<u>Percent Mortality</u>		
		1 DAT	4 DAT	7 DAT
Actara 25WG	4 oz	53ab	60b	90a
Avaunt WG	6 oz	27bc	53b	100a
Discipline 2EC	6.4 fl oz	23c	63b	100a
Leverage 2.7	3.75 fl oz	53ab	83a	100a
Voliam flexi	7 oz	73a	100a	
Untreated check		3c	7c	7b

Mean within columns followed by the same letter are not significantly different (Tukey HSD test, P<0.05).

A second bioassay was conducted with the rough strawberry root weevils collected from the Woodland location on 15 July 2009 after the same method described above. These data showed faster activity to the same population of root weevils when exposed to the same treatments (Table 2). By 2 DAT all of the insecticide treated weevils were dead with 3% mortality for the untreated check individuals. Despite these differences in percent mortality between treatment times or presence or absence of adult weevils on or under foliage/crowns in strawberry fields, the results of drench, sprench and foliar treatments with the registered neonicotinoids or their

combinations with pyrethroids support empirical results obtained by progressive IPM fieldmen and growers who believe in the long term, selective residual of these compounds.

Foliar and soil efficacy of registered and several new mode of action (MOA) insecticides have and will continue to provide more sustained tactics to disrupt the larval and adult life stages of the root weevil complex common to strawberry (*Otiorhynchus* spp.) through IRM programs. Avaunt (indoxacarb), a new MOA chemistry is being considered along with a similar compound Alverde™ (metaflumizone) for an IR-4 strawberry and caneberry projects for 2010. Avaunt is registered on cranberry for root weevils and worms.

Table 2. Rough Strawberry root weevil bioassay 2, 2009

Treatment	Rate/acre	Percent Mortality	
		1DAT	2DAT
Actara 25WG	4 oz	87b	100a
Avaunt WG	6 oz	100a	
Discipline 2EC	6.4 fl oz	100a	
Leverage 2.7	3.75 fl oz	100a	
Voliam flexi	7 oz	97ab	100a
Untreated check		0c	3b

Mean within columns followed by the same letter are not significantly different (Tukey HSD test, P<0.05).