

(E30)

COLLARD: *Brassica oleracea* L. var. *acephala* DC ‘Georgia’

CONTROL OF SILVERLEAF WHITEFLY ON COLLARDS, 2004

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Silverleaf whitefly: *Bemisia argentifolii* Bellows & Perring

Although the tendency in pesticide usage is toward greater selectivity, activity against a secondary pest could provide additional benefits from a single product. Here we evaluated whitefly suppression from a chitinase inhibitor, Novaluron, normally directed against Lepidoptera in cole crops. Four beds 240 ft long on 27-ft centers and separated by a 15-ft drive and a double row of staked tomato were prepared by fumigating with 30 gal/acre of Telon C-35, laying a single drip-tape irrigation line with 12-inch emitter spacing and covering with a white-face polyethylene mulch. Greenhouse-grown collard seedlings were transplanted on 25 Feb in a single row at 18-inch spacing and fertigated with an 8-0-8 NPK mixture to provide a total of 150 lbs N and K per acre for the growing season. The four rows were considered as four replicates and divided into five plots 48 ft long with 30 plants each to which treatments were assigned in a RCB design. Platinum was applied in 10 ml of water to each plant as a soil drench 17 Mar at a rate of 8 oz product per acre. Plants (N = 10 per replicate) were checked for pest presence on 8 Apr and treatments initiated after an average of 3.7 whitefly adults per leaf and 1.7 eggs per 2 cm² ring per leaf was observed. Three applications of Novaluron at two rates were made on 14, 27 Apr, and 11 May using a high-clearance sprayer operating at 200 psi with spray delivered through two vertical booms, each fitted with two ceramic yellow Albuz hollow cone nozzles and an over head boom with one ceramic yellow Albuz nozzle for a total of 55 gpa. The Novaluron treatments were tank mixed with the adjuvant Latron CS-7, a nonionic wetter/spreader, at 0.25 % v/v. Five evaluations of whitefly adults were made on 19, 26 Apr and 3, 10 and 17 May by beating one side of the sixth leaf from six plants per plot with a 9 × 13-inch pie pan painted black and coated with a 9:1 mixture of vegetable oil and liquid detergent. Immature stages were monitored on 19 Apr, 3 and 17 May on one leaf removed from the sixth node of six centrally located plants in each plot. All whitefly stages were counted that appeared in a 2-cm² ring placed 12 times on each leaf collected. Data were subjected to ANOVA and means were separated using LSD ($P \leq 0.05$).

Fewer adults were observed on plants treated with a soil drench of the grower standard (Platinum) compared to the control on all dates except 17 May (Table 1). No significant effect on adults was seen with Novaluron at either rate. However, fewer pupae were seen 3 May on plants treated with both rates of Novaluron, and over all three evaluation dates with the low rate (Table 2). The effect on pupae was consistent with the molt-disrupting mode of action characteristic of this product and could provide an added benefit to its anticipated role in cole crops of controlling Lepidopterous pests. Heavy damage from diamondback moths may have reduced whitefly numbers during this trial.

Table 1.

Treatment/ formulation	Rate amt product/acre	Mean number adult whiteflies per leaf				
		19 Apr	26 Apr	3 May	10 May	17 May
Platinum 2SC ^a	8 fl oz	5.1c	4.8b	12.1a	35.9b	54.2a
Novaluron 0.83EC ^b	12 fl oz	10.6b	16.6a	23.5a	99.4ab	113.3a
Novaluron 0.83EC ^b	14 fl oz	17.1a	19.5a	28.2a	85.4ab	130.8a
Untreated check	--	12.5ab	19.2a	31.5a	124.2a	192.1a

Means in columns followed by the same letter are not significantly different ($P > 0.05$, LSD).

^aPlatinum was applied in 10 ml of water to each plant as a soil drench 17 Mar at a rate of 8 oz product per acre.

^bNovaluron treatments were tank mixed with the adjuvant Latron CS-7, a nonionic wetter/spreader, at 0.25 % v/v and applied on 14, 27 Apr, and 11 May 2004.

Table 2.

Treatment/ formulation	Rate amt product/acre	Whitefly nymphs from 24-cm ² sample per leaf									Mean no. immature whiteflies over 3 evaluations		
		30 Apr		3 May			17 May						
		Small	Large + pupa	Small	Large	Pupa	Small	Large	Pupa	Small	Large	Pupa	
Platinum 2SC ^a	8 fl oz	0.5ab	0.0a	4.4b	1.3a	0.3ab	14.8b	3.3b	1.3b	6.5b	1.5b	0.5b	
Novaluron 0.83EC ^b	12 fl oz	1.7a	0.0a	13.5ab	1.0a	0.0b	34.4ab	14.3ab	4.6b	16.8a	5.1ab	1.6b	
Novaluron 0.83EC ^b	14 fl oz	1.3ab	0.0a	20.6a	2.2a	0.2b	34.0ab	21.2a	11.9a	18.6a	7.8a	4.1a	
Untreated check	--	1.1ab	0.0a	11.4ab	2.3a	1.0a	39.9a	23.4a	11.8a	17.5a	8.6a	4.3a	

Means in columns followed by the same letter are not significantly different ($P > 0.05$, LSD).

^aPlatinum was applied in 10 ml of water to each plant as a soil drench 17 Mar at a rate of 8 oz product per acre.

^bNovaluron treatments were tank mixed with the adjuvant Latron CS-7, a nonionic wetter/spreader, at 0.25 % v/v and applied on 14, 27 Apr, and 11 May 2004.