(E27)

COLLARD: *Brassica oleracea* (L.), 'Georgia'

CONTROL OF LEPIDOPTERAN PESTS ON COLLARDS, 2003

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Diamondback moth (DBM): *Plutella xylostella* (L.)
White butterfly (GSW): *Ascia monuste* (L.)

The DBM has been a persistent pest in cole crops and has shown resistance to many insecticides. This trial compares two widely used chemistries against two rates of a new product as a potential rotation option for better resistance management. Two sets of three beds, 240 ft long on 6 ft centers and separated by a 15-ft drive were prepared by fumigating with 30 gal/acre of Telone C-35, laying a single drip-tape irrigation line with 12-inch emitter spacing and covering with a white-face polyethylene mulch. Greenhouse-grown cabbage seedlings were transplanted on 18 Mar in a single row at 18-inch spacing. The middle bed in each set was left untreated to serve as a source of target pests. The remaining 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. Plants ($N = 11$ per plot) were checked for pest presence on 7 Apr and treatments initiated after an average of 13 percent of the plants had DBM larvae present. Five weekly applications were made on 8, 10, 17, 24 Apr and 8 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 for a total of 44 gpa. All treatments were tank mixed with the adjuvant Induce, a nonionic wetter/spreader, at 0.3% v/v. Evaluations were made on 14, 23 Apr and 2, 8 and 16 May on 20 randomly selected plants/plot, counting DBM larvae in three size categories: ≤0.33 inch long = small, > 0.33 inch long = large, and pupa. Larvae of GSW were present and counted on 8 and 19 May. A quantitative damage rating was also made based on foliar damage where 0 = no damage, 1 = 0-1% minor feeding on outer leaves, 2 = 2-5% leaf surface damaged, 3 = 6-10% damage 4 = 11-30% damage and 5 = > 30% leaf damage. On 24 Apr, 25 plants/treatment were graded for marketability based on the amount of insect damage. Plants were placed in three categories, Fancy = < 10% of leaves with insect damage, Standard = 10-30% leaves damaged and Unmarketable > 30% leaves damaged.

The primary pest was DBM accounting for 85% of larvae observed (Table 1). Adults and larvae of GSW appeared in early May. All treated plants had fewer DBM larvae and lowest damage ratings than untreated plants with either rate of S-1812 and SpinTor performing better than Proclaim. Significant differences in numbers of GWS larvae were seen between the control and all treatments except the high rate of S-1812. Only 18% of untreated plants were marketable and there were no significant differences among treatments in total marketable plants, although fewer "Fancy" plants were harvested from plots treated with Proclaim than the remaining treatments (Table 2).

Table 1.

Treatment/ formulation	Rate lb (AI)/acre	DMB larvae per plant over all dates				Mean GWS larvae[a]	Mean damage rating
		small	large	pupa	total		
S-1812 35 WP	0.15	0.1c	0.2c	0.1b	0.2c	0.3b	0.4c
S-1812 35 WP	0.20	0.0c	0.2c	0.0b	0.1c	1.8ab	0.3c
Proclaim 5 SG	0.0075	0.4b	0.9b	0.4b	1.5b	0.1b	1.2b
SpinTor 2 SC	0.094	0.1c	0.3c	0.1b	0.3c	0.0b	0.4c
Untreated check	–	2.2a	4.8a	4.8a	11.8a	4.9a	3.7a

Means in columns followed by the same letter are not significantly different (LSD, $P > 0.05$).
[a]Mean of 8 May and 19 May.

Table 2.

Treatment/ formulation	Rate lb (AI)/acre	Mean percentage of plants per plot			
		Fancy	Standard	Total marketable	Unmarketable
S-1812 35 WP	0.15	98a	2c	100a	0a
S-1812 35 WP	0.20	100a	0c	100a	0a
Proclaim 5 SG	0.0075	74b	24a	95a	5a
SpinTor 2 SC	0.094	98a	2c	100a	0a
Untreated check		1c	17b	18b	82b

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