(E21)

CABBAGE: *Brassica oleracea* (L.), 'Solid Blue'

CONTROL OF LEPIDOPTERAN PESTS ON CABBAGE WITH TWO NEW INSECTICIDES, 2001

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Diamondback moth (DBM): *Plutella xylostella* (L.)
Cabbage looper (CL): *Trichoplusia ni* (Hübner)

The DBM has been a persistent pest in cole crops and has shown resistance to heavily used pesticides. Two new pesticides were examined in potential roles against this pest and compared with a grower standard. For this trial, two sets of three beds 240 ft long on 6-ft centers and separated by a 15-ft drive were prepared by fumigating with 300 lb/acre of 67/33% methyl bromide/chloropicrin, 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 26 Feb in a single row at 18-inch spacing and fertigated with an 8-0-8 mixture to provide a total of 150 lb N and K per acre for the growing season. The middle bed in each set was left untreated to serve as inoculum source of the target pests. The remaining four rows were considered as a replicate and divided into five plots 48 ft long to which treatments were assigned in an RCB. Plants were sprayed with Bravo 720 at 1.5 pt/acre after transplanting for disease control. Plants (N = 15 per plot) were checked for the presence of target pests on 2 Apr and treatments initiated after an average of 20% of the plants had DBM larva present. There were no significant differences in plots or replications (LSD, $P < 0.0\ 5$) from the precount. All treatments were sprayed on 3, 10, 17, and 24 Apr, and 8 May at a rate of 33 gpa using a high-clearance sprayer equipped with three yellow hollow-cone Albuz ceramic nozzles/row, one overhead and one on each side, operating at 200 psi of pressure. Evaluations were made on 9, 16, 23, and 30 Apr and 8 May on 15 randomly selected plants per plot, counting DBM and CL larvae in three size categories: £ 0.25 inch long = small, > 0.25 £ 0.5 inch long = medium, and ³ 0.5 inch long = large. A quantitative damage rating was also made based on foliar damage: 0 = no damage; 1 = 0-1% minor feeding on outer leaves; 2 = 2-5% leaf damage, no head damage; 3 = 6-10% leaf area eaten, minor feeding on head; 4 = 11-30% leaf damage with moderate feeding on head; and 5 = > 30% leaf damage and numerous feeding scars on head. On 18 May, 20 plants per treatment were harvested and graded for marketability based on the amount of insect damage. 'Fancy' had no more than 1% insect damage to wrapper leaves and no damage to the head. 'Standard' had between 2% and 10% damage to wrapper leaves and no damage to head. Damaged heads were counted as unmarketable. Means were separated by Fisher's LSD contingent on a significant F value obtained by analysis of variance.

The primary pest was the DBM accounting for > 90% of larvae observed; CL was only observed in the control plots during the last three evaluations (Table 1). Three of the treatments indicated excellent potential for controlling DCM and CL. The larvae were effectively controlled by SpinTor, V-1812 alone and V-1812 at a reduced rate with DiPel as reflected in the harvest data where all harvested heads fell into a marketable category (Table 2). V-10101 did show some larval control compared with the untreated plants, but not enough to make the marketable heads harvested significantly better than the untreated.

TABLE 1.

Treatment/ formulation	Rate amt/acre	No. DBM and CL larvae/head (over all dates) Small	Medium	Large	Total	Damage rating
V-1812 35 WP	0.2 lb (AI)	0.0 b	0.0 c	0.0 c	0.0 c	0.7 c
V-1812 35 WP plus DiPel DF	0.1 lb (AI) 0.5 lb prod	0.0 b	0.0 c	0.0 c	0.0 c	0.6 c
V10101 2.5 EC	0.18 lb (AI)	0.1 a	0.1 b	0.3 b	0.4 b	2.0 b
SpinTor 2 SC	6 oz prod	0.0 b	0.0 c	0.1 c	0.0 c	0.6 c
Untreated check		0.1 a	0.2 a	0.6 a	0.8 a	2.4 a

Means in a column followed by the same letter are not significantly different (LSD, $P < 0.05$).

TABLE 2.

Treatment/ Formulation	Rate amt/acre	Grade and total weight (lb) of 20 harvested heads/plot Marketable Fancy No.	Fancy Wt	Standard No.	Standard Wt	Total No.	Total Wt	Unmarketable No.	Unmarketable Wt
V-1812 35 WP	0.2 lb (AI)	18.5 a	39.4 a	1.5 b	3.4 b	20.0 a	42.3 a	0.0 b	0.0 b
V-1812 35 WP + DiPel DF	0.1 lb (AI) 0.5 lb prod	20.0 a	44.0 a	0.0 b	0.0 c	20.0 a	44.0 a	0.0 b	0.0 b
V-10101 2.5 EC	0.18 lb (AI)	6.0 b	13.9 b	6.0 a	12.4 a	12.0 b	26.3 b	8.0 a	19.2 a
SpinTor 2 SC	6 oz prod	19.8 a	47.9 a	0.3 b	0.5 bc	20.0 a	48.4 a	0.0 b	0.0 b
Untreated check		3.3 b	7.0 b	5.7 a	12.4 a	9.0 b	19.3 b	11.0 a	25.5 a

Means in a column followed by the same letter are not significantly different (LSD, $P < 0.05$).