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(E21)

CAULIFLOWER: *Brassica oleracea* L. botrytis cultivar group, 'Majestic'

CONTROL OF DIAMONDBACK MOTH ON CAULIFLOWER, 2010

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Diamondback moth: *Plutella xylostella* (Linnaeus)

Diamondback moth is the key pest of cruciferous crops in southern Florida and has developed resistance to many insecticides. Yield reductions occur when larvae feed directly on plant tissues and grade reductions can occur even when feeding is confined to wrapper leaves. The trial was initiated 1 Mar at the Southwest Florida Research and Education Center in Immokalee FL by setting greenhouse raised seedlings at 24-inch plant spacing into 2 beds 440 ft long on 6 ft centers. Granular fertilizer (10-2-10 N-P-K) at 50 lbs N/ acre incorporated at bedding was later supplemented by daily injection of 7-0-7 liquid fertilizer through the drip tape. A RCB design was used with 4 replications and 5 treatments plus an untreated check (Table 1). Each plot contained 20 plants with a 4-plant buffer between plots. Foliar treatments were applied with a high clearance sprayer operating at 180 psi and 2.3 mph with delivery through two vertical booms and one centrally located overhead, each equipped with a yellow Albuz® hollow cone nozzles delivering 10 gpa each. Nozzles were added to the vertical booms as plants grew in size (Table 1). Leaf damage and DBM populations were monitored weekly from 6 Apr to 10 May by visually estimating the amount of leaf surface area removed by DBM feeding and counting the number of larvae and pupae found on each of three fully developed but recently emerged leaves from the upper one third of 8 plants per plot.

All treatments significantly reduced the number of DBM larvae observed per leaf compared to the check from 6 to 20 Apr, with no differences among sprayed treatments (Table 2). Damage observed on 6-Apr in treated plots likely occurred before treatments were initiated. On 27 Apr and 4 May, the MBI-206 treatment still resulted in significantly fewer DBM than the untreated control but also more than the remaining treatments. On 10 May, all treatments but MBI-206 + LI-700 resulted in significantly lower numbers of DMB than the untreated check, with fewest on plant treated with the Synapse/Xentari rotation, although not significantly less than the 13.5 oz rate of HGW 86. Damage assessments followed similar trends to DBM population counts with all treatments showing less damage than the control on all sample dates (Table 3). No phytotoxicity was observed with any treatment. This research was supported in part by industry gift(s) of pesticide and/or research funding.

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Table 1.

Treatment/ formulation	Rate Product/acre or % vol/vol	Application Date/GPA 4 Apr 30 GPA	8 Apr 30 GPA	15Apr 30 GPA	22Apr 50 GPA	27Apr 50 GPA	4May 50 GPA
Untreated check							
Synapse 24 WG	3.0 oz/acre	x	x				
Induce	0.25% v/v	x	x				
Xentari 1 DF	1.0 lb					x	x
HGW 86 10 SE	6.75 oz	x	x				
Induce	0.25% v/v						
HGW 86 10 SE	10.1 oz	x	x				
Induce	0.25% v/v						
HGW 86 10 SE	13.5 oz	x	x				
Induce	0.25% v/v						
MBI206	6 qts/100 gal	x	x	x	x	x	x
LI-700	1 pt/100gal						

Table 2.

Treatment/ formulation	Rate Product/acre or % vol/vol	Larvae + Pupae/leaf 6 Apr	13 Apr	20 Apr	27 Apr	4 May	10 May
Untreated check		0.24a	0.39a	0.59a	0.69a	0.92a	1.65a
Synapse 24 WG	3.0 oz/acre	0.01b	0.00b	0.01b	0.05c	0.00c	0.43e
Induce	0.25% v/v						
Xentari 1 DF	1.0 lb						
HGW 86 10 SE	6.75 oz	0.01b	0.00b	0.01b	0.04c	0.10c	1.21bc
Induce	0.25% v/v						
HGW 86 10 SE	10.1 oz	0.00b	0.00b	0.00b	0.05c	0.03c	0.89cd
Induce	0.25% v/v						
HGW 86 10 SE	13.5 oz	0.00b	0.00b	0.00b	0.00c	0.00c	0.53de
Induce	0.25% v/v						
MBI206	6 qts/100 gal	0.02b	0.00b	0.00b	0.27b	0.39b	1.39ab
LI-700	1 pt/100gal						

Means followed by the same letter are not statistically different (LSD, P>0.05)

Table 3.

Treatment/ formulation	Rate Product/acre or % vol/vol	Defoliation (%) 6 Apr	13 Apr	20 Apr	27 Apr	4 May	10 May
Untreated		2.92a	0.57a	10.47a	10.01a	16.46a	24.05a
Synapse 24 WG	3.0 oz/acre	0.55bc	0.00c	0.02b	0.60c	0.78c	2.84d
Induce	0.25% v/v						
Xentari 1 DF	1.0 lb						
HGW 86 10 SE	6.75 oz	0.38c	0.04b	0.04b	0.44c	0.83c	8.15c
Induce	0.25% v/v						
HGW 86 10 SE	10.1 oz	0.30c	0.04b	0.00b	0.35c	0.65c	7.28c
Induce	0.25% v/v						
HGW 86 10 SE	13.5 oz	0.40c	0.09b	0.00b	0.00c	0.02c	2.97d
Induce	0.25% v/v						
MBI206	6 qts/100 gal	1.13b	0.30b	0.18c	2.79c	9.88b	19.83b
LI-700	1 pt/100gal						

Means followed by the same letter are not statistically different (LSD, P>0.05)