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**Broccoli:** *Brassica oleracea* (L.) Var 'Green Comet'

## **CONTROL OF DIAMOND BACK MOTH ON BROCCOLI, 2008**

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**Barry Kostyk and Robert Riefer**

Diamond Back Moth , *Plutella xylostella* (L.),

Diamondback moth is the key pest of cruciferous crops in much of the world including southern Florida. It has developed resistance to more insecticides than any other agricultural pest and therefore new insecticides are constantly required to achieve satisfactory control. For this trial, greenhouse raised seedlings were transplanted 25 Feb 2008 into two 36-inch wide raised beds 230 ft long on 6 ft centers covered with black polyethylene mulch at 18 inch spacing within the row. A randomized complete block (RCB) design was used with 4 treatments and 4 replicates, each plot containing 17 plants with an additional three plants left as buffer between plots. Water and fertilizer were provided by a single drip tube with emitters spaced every 12 inches, each delivering 0.36

gal/hour. Durivo® was applied 26 Feb by drenching each plant with an 80 ml suspension delivered by an EZ-Dose® sprayer operating at a pressure of 45 PSI and a flow rate of 3.7 gallons per minute. Foliar treatments were applied (Table 1) with a high clearance sprayer operating at 180 psi and 2.3 mph delivering spray to each row separately through 5 yellow Albuz® hollow cone nozzles at 10 gal/ac each, one overhead and two on each of two side booms for a total of 50 gal/ac. Pest populations and plant damage was monitored weekly on 4 randomly selected fully expanded new leaves from the upper third of 10 plants per plot. DBM larvae and pupae were counted and percentage of leaf surface occupied with feeding holes was visually estimated. Broccoli heads were harvested from each of 8 plants per plot on 17-Apr, 24-Apr and 8-May

Significantly fewer larvae and less damage were observed on all treated plants on all sample dates when compared to untreated plants. No larvae or damage was observed on the Durivo treated plants until the 24-Apr. Fewest DBM and least damage was seen 8 May on plants treated with Synapse. On 15 May, there was still least damage on Synapse-treated plants although there were no differences in number of DBM observed on these compared to plants treated with the Radiant – Intrepid rotation. Larvae only appeared in the Radiant/Intrepid rotation after Intrepid was applied on 24 Apr. There were no significant differences among treatments in yield that averaged of  $9.35 \pm 0.30$  heads or  $6.58 \pm 0.40$  lbs per plot over all treatments and 3 harvest dates with no damaged heads observed.

Table 1:

Treatment	Rate (oz/acre)	Date				
		26-Feb	28-Mar	11-Apr	25-Apr	9-May
Radiant	7.5		X	X		X
Intrepid	12				X	
Synapse	3		X	X	X	X
Durivo	13	X				

Table 2:

Average Total No of Larvae and Pupa per leaf

Treatment	Rate/acre	27-Mar	3-Apr	10-Apr	17-Apr	24-Apr	1-May	8-May	15-May
Control	N/A	0.24 a	1.22 a	0.94 a	1.08 a	1.65 a	0.67 a	0.38 a	0.20 a
Radiant/Intrepid	7.5/12.0 oz	n/a	0.00 b	0.06 b	0.00 b	0.00 b	0.08 b	0.18 b	0.02 c
Synapse	3.0	n/a	0.00 b	0.07 b	0.00 b	0.00 b	0.00 b	0.03 c	0.00 c
Durivo	13.0	0.00 b	0.00 b	0.00 b	0.00 b	0.05 b	0.04 b	0.13 b	0.08 b

Means within the same column followed by the same letter are not significantly different (LSD P<0.05)

Table 3:

Average Percentage of Leaf Surface with Damage

Treatment	Rate/acre	27-Mar	3-Apr	10-Apr	17-Apr	24-Apr	1-May	8-May	15-May
Control	N/A	0.97 a	11.74 a	13.80 a	16.26 a	34.59 a	41.22 a	37.91 a	37.47 a
Radiant/Intrepid	7.5/12.0 oz	n/a	1.47 b	0.71 b	1.23 b	1.75 b	3.72 b	4.39 b	3.64 b
Synapse	3.0 oz	n/a	0.86 bc	0.99 b	0.98 b	1.34 b	1.73 b	1.08 c	0.75 c
Durivo	13.0 oz	0.00 b	0.00 c	0.00 b	0.00 b	0.61 b	2.08 b	4.49 b	5.78 b

Means within the same column followed by the same letter are not significantly different (LSD P<0.05)

**Part II: Materials Tested for Arthropod Management**

**BROCCOLI** : *Brassica oleracea* (L.) Var 'Green Comet'

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Common name	Trade name/ Cultivar	Concentration/ Formulation	Chemical name	Manufacture/source
Rynaxypyr  <u>Thiamethoxam</u>	Durivo	2.5 SC	3-bromo- <i>N</i> -[4-chloro-2-methyl-6-[(methylamino)carbonyl]phenyl]-1-(3-chloro-2-pyridinyl)-1 <i>H</i> -pyrazole-5-carboxamide  4 <i>H</i> -1,3,5-Oxadiazin-4-imine,3-((2-chloro-5-thiazolyl)methyl)tetrahydro-5-methyl- <i>N</i> -nitro-	Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419

Spinetoram	Radiant	1 SC	1-H-as-Indaceno[3,2-d]oxacyclododecin-7,15-dione, 2-[(6-deoxy-3-O-ethyl-2,4-di-O-methyl-a-Lmannopyranosyl)oxy]-13-[[2R,5S,6R)-5-(dimethylamino) tetrahydro-6-methyl-2H-pyran-2-yl]oxy]-9-ethyl-2,3,3a,4,5,5a,5b,6,9,10,11,12,13,14,16a,16b-hexadecahydro-14-methyl-, (2R,3aR,5aR,5bS,9S,13S,14R,16aS,16bR) and 1H-as-Indaceno[3,2-d]oxacyclododecin-7,15-dione, 2-[(6-deoxy-3-O-ethyl-2,4-di-O-methyl-a-Lmannopyranosyl)oxy]-13-[[2R,5S,6R)-5-(dimethylamino)tetrahydro-6-methyl-2H-pyran-2-yl]oxy]-9-ethyl-2,3,3a,5a,5b,6,9,10,11,12,13,14,16a,16btetradecahydro-4,14-dimethyl-, (2S,3aR,5aS,5bS,9S,13S,14R,16aS,16b	Dow Agrosciences LLC Indianapolis IN 46288
Methoxyfenozide	Intrepid	2 F	Benzoic acid, 3-methoxy-2-methyl-,2-(3,5-dimethylbenzoyl)-2-(1,1-dimethylethyl) hydrazide	Dow Agrosciences LLC Indianapolis IN 46288
Flubendiamide:	Synapse	24 WG	N2-[1,1-dimethyl-2-(methylsulfonyl)ethyl]-3-iodo-N1-[2-methyl-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]phenyl]-1,2-benzenedicarboxamide	Bayer CropScience LP P.O. Box 12014 1 T.W. Alexander Drive Research Triangle Park, North Carolina 27709