

CONTROL OF EUROPEAN CORN BORER,*Ostrinia nubilalis* Huber, WITH CORAGEN IN BELL PEPPERS USING A TRICKLE IRRIGATION SYSTEM, 2007

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The experiment was conducted in a Chillum silt loam field (pH = 6.8) at the Rutgers Agricultural Research and Extension Center in Upper Deerfield Township, NJ. Plots consisted of single rows of peppers on raised beds, 25-ft long and 5-ft wide, replicated 4 times in a randomized complete block design. Raised beds were formed with a Kennco Bedmaker (Kennco Equipment Co., Ruskin, FL). Following bedmaking, T-Tape 5/8" o.d. drip irrigation tubing (0.67 gpm/100 ft at 8 psi) and black polyethylene mulch were laid over the beds. 'Paladin' cv. peppers were transplanted on 25 May using a Kennco water wheel transplanter, followed by 0.5"/acre irrigation. All trickle treatments were applied through an in-line drip using a ½ hp electric pump attached to a 5-outlet header injecting directly into the trickle tube for each plot at a rate of 1.5 gal of solution injected over a period of approximately 10 min, followed by ½ gal clean water rinse, for all 4 reps of each treatment. Foliar treatments were applied with a self-propelled, tractor-mounted boom sprayer with a drop nozzle on either side of the row and one over the center of the row calibrated to deliver 75 gal/acre at 40 psi operated at 2 mph. Plots receiving two drip treatments were injected on 23 Jul and 16 Aug, and the plot receiving three drip treatments was injected on 23 Jul, 16 Aug and 6 Sep. The plot receiving foliar applications was treated on 19 and 27 Jul (Orthene 97S) and on 3, 10, 17, 24, 31 Aug, and 7, 14 Sep (Avaunt 30WDG). Fruit were harvested on 31 Jul, 14 and 24 Aug, 5 and 19 Sep, and 5 Oct and all fruit were counted, dissected, and the number fruit damaged by European corn borer, beet armyworm, corn earworm, and oblique-banded leafrollers was recorded. The percentage damaged fruit caused by stink bug feeding was also recorded on 31 Jul.

All treatments resulted in significantly less percentage damaged fruit caused by European corn borer, as compared with the untreated, on all dates recorded except for 31 Jul. All treatments also resulted in significantly less percentage damaged fruit caused by all worms (combined damage caused by European corn borer, beet armyworm, oblique-banded leafroller, and corn earworm), as compared with the untreated, on all dates recorded except for 31 Jul. No significant differences among treatments for damage caused by stink bugs were recorded on 31 Jul. No phytotoxicity was observed.

Table 1. Effect of Coragen on fruit infestation of European corn borer in bell peppers, 2007.

Treatment & rate lb AI/a ²	% ECB - infested fruit ¹					
	31 Jul	14 Aug	24 Aug	5 Sep	19 Sep	5 Oct
Coragen 1.67 SC 0.022	1.6 abc	0 a	0 a	0.3 a	0 a	0.7 a
Coragen 1.67 SC 0.044	0.4 ab	0 a	0 a	0 a	0 a	0.2 a
Coragen 1.67 SC 0.066	0.3 ab	0 a	0 a	0 a	0 a	0 a
Coragen 1.67 SC 0.10	0.9 abc	0 a	0 a	0 a	0 a	0 a
Coragen 1.67SC 0.066 (3 applications)	1.9 bc	0.3a	0 a	0 a	0 a	0 a
Orthene 97 1.0 (2X), then Avaunt 30 WDG (5X) .065	0.0 a	0 a	0 a	0 a	1.0 a	0.2 a
Untreated -----	2.5 c	4.2 b	4.3 b	2.6 b	6.5 b	10.8 b

Table 2. Effect of Coragen on fruit infestation by total worms in bell peppers, 2007.

Treatment & rate lb AI/a ²	% total worm - infested fruit ¹						% stink bug dam
	31 Jul	14 Aug	24 Aug	5 Sep	19 Sep	5 Oct	31 Jul
Coragen 1.67 SC 0.022	1.6 ab	0 a	0.8 a	0.7 b	0.6 a	1.7 b	1.0 ns
Coragen 1.67 SC 0.044	1.1 ab	0 a	0 a	0 a	1.0 a	1.2 ab	0.3
Coragen 1.67 SC 0.066	0.8 ab	0 a	0 a	0 a	0.3 a	1.1 ab	1.3
Coragen 1.67 SC 0.10	1.5 ab	0 a	0 a	0 a	0.2 a	0.0 a	0.6
Coragen 1.67SC 0.066 (3 applications)	2.1 b	0.3 a	0.5 a	0 a	0.4 a	1.7 b	0.8
Orthene 97 1.0 (2X), then Avaunt 30 WDG (5X) .065	0.0 a	0 a	0 a	0 a	1.0 a	0.4 a	0.9
Untreated -----	3.1 b	4.2 b	5.0 b	4.1 c	9.1 b	15.0 b	1.6

Numbers in a column with a letter in common are not significantly different (Tukey's HSD 0.05)

¹ total worms = European corn borer, fall armyworm, beet armyworm, oblique-banded leafroller

² Orthene 97S (1.0 lb/a) applied to all treated plots on 19, 27 Jul