

ORGANIC CONTROL OF CORN EARWORM

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Large scale production of organic sweet corn for processing is a relatively recent venture in eastern Washington, having first started in 1998. Currently, Washington is the leading producer of processed organic sweet corn. According to the majority of sweet corn processors, management of corn earworm (CEW) is the single biggest pest management challenge to production of organic sweet corn. One sweet corn processor indicated that conventionally produced sweet corn will commonly have a 2 to 4% loss due to CEW, while organic sweet corn will have losses of 10% to 14% due to the pest. We estimate that CEW could cost organic growers up to \$110 per acre in losses. Prior to this research effort there were no data available demonstrating efficacy of organic CEW materials by chemigation or a economical viable us pattern.

In 2008 with the help of the Washington State Commission on Pesticide Registration, Certis USA and Dow AgroSciences along with growers and processors of organic sweet corn, we initiated a trial to answer the efficacy and use pattern questions. We started with 16 treatments, 4 products, 2 application types, 4 different water volumes, 2 tank mixes and 3 application timings (Table 1). From the 2008 data we identified the promising products and use patterns and looked at them more intently in 2009 (Table 2). We are in the process of designing a 2010 protocol for large scale trial work.

In 2008 we identified a tank mix of Gemstar at 4 oz/A and Entrust at 1 oz/A with a 3 day application interval as being the best treatment. Followed closely by Entrust at 2 oz/A at a 7 day interval and Gemstar at 4 oz/A and a 3 day interval. All treatments in the 2008 trial showed a significant level of control compared to the untreated check. In 2009 a rotation of Entrust at 1oz/A and Gemstar at 4 oz/A again proved to be the best treatment with no significant difference between the rest of the treatments. Again all treatments were significantly different from the untreated check

2008 Organic Corn Earworm Trial Data

Trt No.	Treatment Name	Other Rate	Other Rate Unit	Spray Volume Unit	1	2	3	4
1	UNTREATED CHECK				93.8a	1.54a	1.8a	2.5a
2	ENTRUST (5 day interval)	1OZ/A		30 GAL/AC	20.3cd	0.20bcd	1.6a	2.4a
3	ENTRUST (3 day interval)	1OZ/A		30 GAL/AC	8.4cd	0.13cd	0.6a	2.8a
4	ENTRUST (5 day interval)	2OZ/A		30 GAL/AC	14.5cd	0.18bcd	0.6a	3.3a
5	ENTRUST (7 day interval)	2OZ/A		30 GAL/AC	5.0cd	0.08cd	0.3a	3.0a
6	DIPEL (5 day interval)	2LB/A		30 GAL/AC	12.8cd	0.28bcd	1.1a	1.8a
7	ENTRUST (5 day interval)	2OZ/A		4073 GAL/AC	16.3cd	0.23bcd	1.1a	2.5a
8	DIPEL (5 day interval)	2LB/A		2715 GAL/AC	44.5b	0.64bc	1.8a	2.5a
9	GEMSTAR (3 day interval)	4OZ		4073 GAL/AC	24.3c	0.67bc	1.4a	2.7a
10	GEMSTAR (3 day interval)	4OZ/A		2715 GAL/AC	5.0cd	0.10cd	0.7a	2.3a
11	GEMSTAR (5 day interval)	4OZ/A		2715 GAL/AC	15.3cd	0.26bcd	1.4a	2.4a
12	GEMSTAR (7 day interval)	6OZ/A		2715 GAL/AC	51.3b	0.75b	1.3a	2.5a
13	GEMSTAR (3 day interval)	4OZ/A		2715 GAL/AC	1.3d	0.01d	0.3a	3.0a
	ENTRUST (3 day interval)	1OZ/A		2715 GAL/AC				
14	GEMSTAR (3 day interval)	4OZ/A		8146 GAL/AC	7.5cd	0.09cd	0.3a	2.8a
15	GEMSTAR (5 day interval)	4OZ/A		30 GAL/AC	13.5cd	0.17cd	1.3a	2.7a
	UV BLOCKER (5 day int)	8FL OZ/A		30 GAL/AC				
16	NEEMIX (3 day interval)	1PT/A		30 GAL/AC	21.8cd	0.32bcd	1.1a	2.5a

Column 1 is the percent of infested ears

Column 2 average number of worms per ear

Column 3 damage per ear measured in inches of damage per ear per tunnel

Column 4 instar

2009 Organic Corn Earworm Trial Data

Trt No.	Treatment Name	Other Rate	Other Rate Unit	Spray Volume Unit	1	2	3	4
1	UNTREATED CHECK				67.5a	1.4ab	1.44a	2.8a
2	ENTRUST (3 day interval)	1OZ/A		2715 GAL/AC	15.0bc	1.9a	1.77a	2.8a
3	ENTRUST (5 day interval)	2OZ/A		2715 GAL/AC	27.5bc	1.3ab	1.04a	2.4a
4	GEMSTAR (3 day)	4OZ		2715 GAL/AC	17.5bc	1.8a	1.72a	2.7a
5	GEMSTAR (5 day)	4OZ/A		2715 GAL/AC	26.3bc	1.2ab	1.25a	2.6a
	ENTRUST (5 day)	1OZ/A		2715 GAL/AC				
6	GEMSTAR (3 day)	4OZ/A		2715 GAL/AC	3.8c	0.6b	1.08a	1.0a
	ENTRUST (3 day)	1OZ/A		2715 GAL/AC				
7	GEMSTAR (3 day sim air)	4OZ/A		5 GAL/AC	13.8bc	1.0ab	0.73a	1.2a
	ENTRUST (3 day sim air)	1OZ/A		5 GAL/AC				
8	GEMSTAR (6 day)	8OZ		2715 GAL/AC	36.3b	1.7ab	1.74a	2.4a

Column 1 is the percent of ears infested

Column 2 average number of worms per ear

Column 3 damage per ear based on inches of tunnel per ear per worm

Column 4 instar