

### Section III: Field Crop Pests

#### **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, Valent and Dow AgroSciences along with growers and processors of organic sweet corn, we initiated a trial to answer the efficacy and use pattern questions. This effort continued for two additional years. After three years effort, we have collected a body of work that fairly well delineates how to control corn earworm in organic sweet corn.

## 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)	1 OZ/A		30 GAL/AC	20.3cd	0.20bcd	1.6a	2.4a
3	ENTRUST (3 day interval)	1 OZ/A		30 GAL/AC	8.4cd	0.13cd	0.6a	2.8a
4	ENTRUST (5 day interval)	2 OZ/A		30 GAL/AC	14.5cd	0.18bcd	0.6a	3.3a
5	ENTRUST (7 day interval)	2 OZ/A		30 GAL/AC	5.0cd	0.08cd	0.3a	3.0a
6	DIPEL (5 day interval)	2 LB/A		30 GAL/AC	12.8cd	0.28bcd	1.1a	1.8a
7	ENTRUST (5 day interval)	2 OZ/A		4073 GAL/AC	16.3cd	0.23bcd	1.1a	2.5a
8	DIPEL (5 day interval)	2 LB/A		2715 GAL/AC	44.5b	0.64bc	1.8a	2.5a
9	GEMSTAR (3 day interval)	4 OZ		4073 GAL/AC	24.3c	0.67bc	1.4a	2.7a
10	GEMSTAR (3 day interval)	4 OZ/A		2715 GAL/AC	5.0cd	0.10cd	0.7a	2.3a
11	GEMSTAR (5 day interval)	4 OZ/A		2715 GAL/AC	15.3cd	0.26bcd	1.4a	2.4a
12	GEMSTAR (7 day interval)	6 OZ/A		2715 GAL/AC	51.3b	0.75b	1.3a	2.5a
13	GEMSTAR (3 day interval)	4 OZ/A		2715 GAL/AC	1.3d	0.01d	0.3a	3.0a
	ENTRUST (3 day interval)	1 OZ/A		2715 GAL/AC				
14	GEMSTAR (3 day interval)	4 OZ/A		8146 GAL/AC	7.5cd	0.09cd	0.3a	2.8a
15	GEMSTAR (5 day interval)	4 OZ/A		30 GAL/AC	13.5cd	0.17cd	1.3a	2.7a
	UV BLOCKER (5 day int)	8 FL OZ/A		30 GAL/AC				
16	NEEMIX (3 day interval)	1 PT/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)	1 OZ/A		2715 GAL/AC	15.0bc	1.9a	1.77a	2.8a
3	ENTRUST (5 day interval)	2 OZ/A		2715 GAL/AC	27.5bc	1.3ab	1.04a	2.4a
4	GEMSTAR (3 day)	4 OZ		2715 GAL/AC	17.5bc	1.8a	1.72a	2.7a
5	GEMSTAR (5 day)	4 OZ/A		2715 GAL/AC	26.3bc	1.2ab	1.25a	2.6a
	ENTRUST (5 day)	1 OZ/A		2715 GAL/AC				
6	GEMSTAR (3 day)	4 OZ/A		2715 GAL/AC	3.8c	0.6b	1.08a	1.0a
	ENTRUST (3 day)	1 OZ/A		2715 GAL/AC				
7	GEMSTAR (3 day sim air)	4 OZ/A		5 GAL/AC	13.8bc	1.0ab	0.73a	1.2a
	ENTRUST (3 day sim air)	1 OZ/A		5 GAL/AC				
8	GEMSTAR (6 day)	8 OZ		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

## 2010 Organic Corn Earworm Trial Data

Trt No.	Treatment Name	Rate	of Application	Spray Volume	Volume Unit	% Of Ears Infested
1	UTC					91 a
2	GEMSTAR (5day)	6	FL OZ/A	2715	GAL/AC	37 bc
3	GEMSTAR (3day)	4	FL OZ/A	2715	GAL/AC	23 c
4	DIPEL (3day)	2	LB/A	2715	GAL/AC	52 b
4	GEMSTAR(3day)	4	FL OZ/A	2715	GAL/AC	
5	PYGANIC (4 day)	64	FL OZ/A	30	GAL/AC	33 bc
6	NEEMIX (5 day)	1	PT/A	30	GAL/AC	41 bc
7	ENTRUST (5 day)	1	OZ WT/A	2715	GAL/AC	38 bc
8	ENTRUST (5 day)	2	OZ WT/A	2715	GAL/AC	27 c

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)