Section IX
New Product Development

SWEET CORN EARWORM CONTROL TRIAL IN EASTERN OREGON IN 2008

George H. Clough and Silvia I. Rondon
Oregon State University, Hermiston Agricultural Research and Extension Center,
PO Box 105, Hermiston OR
(541) 567-8321 ext 108
Email: silvia.rondon@oregonstate.edu

The objective of this study was to determine efficacy of chemigated insecticides for earworm control in sweet corn produced in the Columbia basin under center-pivot irrigation.

Materials and methods

Treatments: (1) Coragen SC (rynaxypyr) 5.1 fl oz/a, (2) Gemstar 10 fl oz/a, (3) Belt 3.0 oz/a + MSO 0.25% v/v, (4) Belt 3.0 oz/a + NIS 0.25% v/v, (5) Grower Standard Lannate, Warrior, Sevin, Asana, (6) Control (untreated)

Chemical were applied in 0.05" at 3-day intervals thru center-pivot irrigation, starting at silk emergence (Jul 28). Field plots - Adkins fine sandy loam, pH 7.0, OM 0.7%. Plot size: 8-30' rows/plot, 30" apart, 9" between plants, with overhead center pivot irrigation, plots separated by 45', w/20' guards on ends.

Schedule:

Disced (2X): May 20
Fertilizer broadcast: May 20 75 N, 20 P_2O_5, 25 K_2O, 20 S, 4 Cu, 3 Zn, 1 B
Roller-harrow: May 20
Plant ('SummerSweet 610'): May 21
Pre-emergence herbicide: May 23
Outlook @ 12 oz/a + Basagran @ 1.5 pt/a + Atrazine @ 1 lb-ai/a
Side-dress (UAN-32):

30 lb/a N	Jun 25
30 lb/a N	Jul 9
30 lb/a N	Jul 16

Grower Standard treatment applications (chemigated in 0.05"):

Jul 28 - Lannate @ 1.5 pt/a
Jul 31 - Warrior @ 3.85 oz/a
Aug 3 - Sevin @ 1.5 qt/a
Aug 6 - Asana @ 8.0 fl oz
Aug 9 - Warrior @ 3.85 oz/a
Aug 12 - Lannate @ 1.5 pt/a
Aug 15 - Sevin @ 1.5 qt/a
Aug 18 - Asana @ 8.0 fl oz

Harvest/evaluation: Aug 21

Results and discussion

The corn earworm population was monitored on-site weekly, with 2 Delta and 2 cone (Hartstack) traps with pheromone lures, and 1 backlight trap. Between 7/15 and 8/19 (6 weeks), a total of four adults were caught with the Delta traps, none with the cone traps, and five with the backlight trap. These numbers are well below published control thresholds (5-10/night for pheromone, 5/night for backlight). Conversations with commercial producers confirmed that regionally, earworm pressure was extremely low, and they had not yet taken any control measures.

One hundred ears were harvested from each of the untreated control plots (400 total), husked, and examined for the presence of earworms or earworm damage. No larvae or damage were found. Another 40-50 ears were randomly examined from treatment plots, and again, no worms or damage. In 2008, with no earworms or damage found, the trial was terminated.

On the other hand, in 2007, the percent ears with earworms were exceptionally high. This may be attributed to the presence of approximately 250 acres of untreated field corn in commercial fields adjacent to the experimental plots, which undoubtedly served as an overwhelming source of moths throughout the season (Table 1).

Table 1. Efficacy of chemigated insecticides for earworm control in sweet corn, Hermiston, OR, 2007.

	Number earworms/ear[1]			
Treatment	0	1	2	3
	Percent (%)			
Lannate LV	46.75	48.50	4.75	0
Lannate LV + Asana	15.50	76.75	4.75	1.00
Standard	25.25	69.50	4.50	0.75
Gemstar	15.00	74.75	10.25	0
Control	27.25	58.00	12.50	2.25
	NS	*NS*	*NS*	*NS*
P-value	*0.31*	*0.18*	*0.15*	*0.33*

[1] Mean of 400 ears/treatment.
[NS] Treatment effect not significant.