SECTION 8

Demonstration of YieldGard VT3 sweet corn to control corn rootworm larvae (*Diabrotica spp.*) in Illinois, 2011

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Location

We established two trials at University of Illinois research and education centers near DeKalb (DeKalb County) and Urbana (Champaign County).

Experimental Design and Methods

This was a demonstration trial because the treatments were not replicated. The plot size for each treatment was 30 ft (twelve rows) x 50 ft. Twenty randomly selected root systems were extracted from rows one and twelve of each plot on 13 and 18 July at Urbana and DeKalb, respectively. Root systems were washed and rated for corn rootworm larval injury using the 0 to 3 node-injury scale developed by Oleson et al. (2005) (Appendix I).

Planting and Insecticide Application

Trials were planted on 10 and 11 May at DeKalb and Urbana, respectively. All trials were planted using a four-row, vacuum style planter constructed by Seed Research Equipment Solutions (SRES). Seeds were planted in 30-inch rows at an approximate depth of 1.75 inches. Warrior II was applied at three- to five-day intervals with a CO_2 backpack sprayer and a four-row boom. TeeJet TTJ60-1102VP spray tips were calibrated to deliver a volume of 20 gallons per acre (gal/A). Active ingredients for all insecticides are listed in Appendix II.

Agronomic Information

Agronomic information for both locations is listed in Table 8.1.

Climatic Conditions

Temperature and precipitation data for both locations are presented in Appendix III.

Results and Discussion

Beginning at VT, foliar applications of Warrior II were made at 3- to 5-day intervals in designated plots to control ear feeding lepidopteron pests. Although these foliar applications were made, the focus of this discussion will be on the damage caused by corn rootworm larvae, and the protection provided by the use of YieldGard VT3.

Mean node-injury ratings for DeKalb and Urbana are reported in Table 8.2. Because this was a non-replicated trial, statistical comparisons cannot be made. Node-injury ratings ranged from 0.09–1.48 in DeKalb and 0.03–1.35 in Urbana. Mean node-injury ratings in the non-rootworm Bt hybrids ranged from 1.12–1.48 indicating that corn rootworm larval feeding was moderate to severe at both locations. Obsession VT3 provided excellent protection from injury caused by corn rootworm

TABLE 8.1 • Agronomic information for demonstration trials of YieldGard VT3 sweet corn to control corn rootworm larvae, University of Illinois, 2011

	DeKalb	Urbana
Planting date	11 May	10 May
Root evaluation date	18 July	13 July
Hybrids	Attribute Obsession Obsession YieldGard VT3	Attribute Obsession Obsession YieldGard VT3
Row spacing	30 inches	30 inches
Seeding rate	23,000/acre	23,000/acre
Previous crop	Trap crop[1]	Trap crop[1]
Tillage	Fall—moldboard plow Spring—mulch finisher	Fall—chisel plow Spring—field cultivator

[1] Late-planted corn and pumpkins.

TABLE 8.2 • Demonstration of YieldGard VT3 sweet corn to control corn rootworm larvae, DeKalb and Urbana, University of Illinois, 2011

Hybrid	Rootworm Bt present	Mean node-injury rating	
		DeKalb 18 July	Urbana 13 July
Attribute[1]	No	1.48	1.35
Obsession[2]	No	1.37	1.12
Obsession VT3[2]	Yes	0.09	0.03

[1] Seed treated with Cruiser (thiamethoxam), 0.30 milligrams (mg) of active ingredient (a.i.) per seed.
[2] Seed treated with Poncho (clothianidin), 0.25 milligrams (mg) of active ingredient (a.i.) per seed.

larvae, keeping mean node injury ratings at 0.09 or below. Because treatments were not replicated, caution is urged in the interpretation of these observations.