

# Larval Corn Rootworm Management Trials in 2012

## Clay Center, NE

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Background information pertaining to corn rootworm experiments conducted at Clay Center, NE during 2012.

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### AGRONOMIC:

Row Spacing:	30 inches
Row Orientation:	North-South
Planting Date:	April 24, 2012
Planter:	2-row 7100 JD Maximerge planter with finger pickup units
Planting Depth:	2 inches
Application Equipment:	<u>Insecticides:</u> SmartBox application system; granules directed into the open seed furrow in front of the press wheels.
Previous Crop:	Late planted corn and pumpkins
Soil Information:	Crete silt loam
Herbicides Applied:	Broadcasted: Lexar @ 3 qt/acre, RoundUp WeatherMax @ 24 fl oz/acre and AMS @ 17 lbs/100 gal solution on April 27, 2012. Broadcasted: RoundUp PowerMax @ 26 fl oz/acre and AMS @ 17 lbs/100 gal solution on May 15, 2012 to remove volunteer corn.
Fertilizer Applied:	220 lbs nitrogen applied as liquid 32% N fertilizer on March 28, 2012. 5 GPA of 10-34-0 starter fertilizer applied in furrow prior to planting.

### **DATA COLLECTION:**

Plant Populations:	The total number of plants and late emerging plants per plot was recorded on May 11, 2012.
Pre-Harvest Root Lodging Evaluations:	The total number of root lodged plants per plot was recorded on September 19, 2012.
Harvest Evaluations:	Plots were machine harvested on September 24, 2012. Percent moisture and lbs of grain were recorded and converted to 56 lbs/bu @ 15.5% moisture to evaluate yield.

### **ENTOMOLOGICAL DATA:**

Species present:	Western corn rootworm, <i>Diabrotica virgifera virgifera</i> LeConte.
CRW egg hatch:	Initial hatch approximately on May 8, 2012.
Dead Plant Counts:	The total of dead plants due to larval corn rootworm feeding was recorded on June 28, 2012. Only a single dead plant was recorded and this data was not included in further analysis.
Root Injury Ratings:	Five plants per plot were dug and rated using the Iowa 0-3 root injury rating scale on July 2, 2012.

### **EXPERIMENTAL DESIGN:**

Design:	Randomized complete block; replicated six times.
Plot Size:	2 rows x 145 ft long
Statistical Analyses:	PROC MIXED, with mean separation using the differences of least square means (MIXED; $p t >0.05$ ).

### **ENVIRONMENTAL:**

Conditions at planting:	
Wind direction and speed:	NW @ < 10 mph
Soil surface condition:	Excellent
Subsoil moisture:	Excellent - Moist

**SEASONAL RECORD OF RAINFALL:** (April 1 – September 30)

<u>Daily</u>	<u>Amount (Inches)</u>	<u>Daily</u>	<u>Amount (Inches)</u>
April 3	0.35	June 16	0.35
April 12	0.20	June 20	0.65
April 15	1.35	June 23	0.85
April 28	0.30	July 9	1.00
May 1	0.25	July 18	0.10
May 3	2.75	July 30	0.95
May 20	0.25	August 2	0.45
May 26	1.10	August 4	0.45
May 30	0.55	August 25	1.10
June 1	0.10	Sept. 13	<u>0.55</u>
June 15	1.40	<b>Total</b>	<b>15.05</b>

<u>Monthly</u>	<u>Total (Inches)</u>	<u>Monthly</u>	<u>Total (Inches)</u>
April	2.20	July	2.05
May	4.90	August	2.00
June	3.35	September	<u>0.55</u>
		<b>Total</b>	<b>15.05</b>

**SEASONAL RECORD OF IRRIGATION:**

<u>Daily</u>	<u>Amount (Inches)</u>
May 24	0.33
June 14	1.24
July 2	1.55
July 6	1.56
July 20	1.52
July 25	1.53
August 8	1.53
August 17	<u>1.56</u>
<b>Total</b>	<b>10.82</b>

<u>Monthly</u>	<u>Total (Inches)</u>
May	0.33
June	1.24
July	6.16
August	<u>3.09</u>
<b>Total</b>	<b>10.82</b>

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Hybrid	Genetic Traits	Insecticide Product <sup>1</sup>	Yield <sup>2</sup> (bu/acre) (Sept. 24)	% Grain Moisture at Harvest <sup>2</sup> (Sept. 24)	Total No. of Root Lodged Plants <sup>2</sup> (Sept. 19)	0-3 Scale Root Injury Ratings <sup>2</sup> (July 2)	PPA <sup>2</sup> (May 11)	Total No. of Late Emerging Plants <sup>3</sup> (May 11)
DKC59-90	SmartStax	Counter 20G	243.8 b	14.58 ab	27.7 a	0.08 a	29,168 c	12.5
DKC59-90	SmartStax	-----	245.1 ab	14.51 a	42.5 ab	0.09 a	30,409 a	6.0
DKC59-88	VT3P	SmartChoice 5G	252.3 a	14.97 c	42.7 ab	0.11 a	29,810 b	7.2
DKC59-89	RR2	Aztec 2.1G	238.8 b	14.77 bc	7.5 a	0.26 ab	30,563 a	5.8
DKC59-88	VT3P	-----	246.4 ab	15.24 d	76.0 b	0.43 b	30,105 ab	6.3
DKC59-89	RR2	-----	217.8 c	14.54 a	241.5 c	1.79 c	30,440 a	8.5
<i>Treatment Probability</i>			<i>&lt;0.0001</i>	<i>&lt;0.0001</i>	<i>&lt;0.0001</i>	<i>&lt;0.0001</i>	<i>0.0002</i>	<i>0.1585</i>

<sup>1</sup>Insecticide products were applied via the SmartBox application system with granules directed in-furrow in front of the press wheels; Aztec 2.1G @ 6.7 oz product/1000 row ft; SmartChoice 5G @ 5 oz product/1000 row ft and Counter 20G @ 6 oz product/1000 row ft.

<sup>2</sup>Means in column followed by the same lowercase letter are not statistically different using the differences of least square means (MIXED; p|t|>0.05).

<sup>3</sup>Means in column are not statistically different using the differences of least square means (MIXED; p|t|>0.05).