

# Evaluation of Herculex RW and other corn rootworm controls, Clay Center, NE, 2006

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## Background information pertaining to corn rootworm experiments conducted at Clay Center, NE during 2006.

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### Agronomic

Row Spacing:	30 inches
Row Orientation:	North-South
Planting Date:	21 April 2006
Planter:	2-row 7100 JD Maximerge with finger pickup units
Planting Depth:	2 inches
Application Equipment:	<u>Granular Insecticides:</u> Standard insecticide boxes (Trt #3 and #6).  <u>Liquid Insecticides:</u> Treatments applied in a 5 GPA solution via: <ul style="list-style-type: none"><li>• Microtubes positioned between the tru-v disc openers (Trt #5) or</li><li>• 7 inch t-band over the open seed furrow and in front of the press wheels (Trt #4).</li></ul>
	<u>Seed Treatments:</u> Commercially applied (Trt #1 and #2).
Previous Crop:	Late planted corn
Soil Information:	Butler/Crete silt loam
Herbicides Applied:	Radius @ 18 fl oz/acre and Aatrex-Nine-O @ 1.25 lb/acre in 14 GPA water on 21 April 2006.
Fertilizer Applied:	150 lbs N/acre on 03 March 2006

## **Data Collection:**

Plant Population:	The total number of plants per plot were recorded on 25 May 2006.
Extended Leaf Height:	Extended leaf heights were recorded in inches from 20 randomly selected plants per plot on 19 June 2006.
Lodged and Dead Plants:	The total number of lodged and dead plants per plot were recorded on 31 July 2006.
Harvest Evaluations:	Plots were machine harvested on 26-27 September. Percent moisture and lbs of grain were recorded and converted to 56 lbs/bu @ 15.5% moisture to evaluate yield. Yields were also corrected for 0.17 % handling shrinkage for every moisture percentage point above 15.5% grain moisture.

## **Entomological Data:**

Species present:	Predominantly western corn rootworm, <i>Diabrotica virgifera virgifera</i> LeConte, and a few northern corn rootworm, <i>D. barberi</i> Smith and Lawrence.
CRW egg hatch:	First observed on 25 May 2006.
Root Evaluation:	Iowa 0-3 root damage scale was used to evaluate larval corn rootworm in each treatment per replication. Five randomly selected plants were dug from each plot.
Root Evaluation Date:	13 July 2006

## **Experimental Design**

Design:	Randomized Complete Block Replicated four times
Plot Size:	1 row x 142 feet
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 @ < 8 mph
Soil temperature @ 4":	50 °F @ 2 PM
Soil surface condition:	Excellent
Subsoil moisture:	Excellent

**Record of Rainfall:** (April 6 - September 22\*)

<b><u>Date</u></b>	<b><u>Amount (Inches)</u></b>	<b><u>Month</u></b>	<b><u>Total (Inches)</u></b>
April 6	0.30	April	2.00
April 24	0.30	May	2.50
April 25	0.20	June	2.25
April 28	1.20	July	3.35
May 2	0.55	August	5.15
May 6	0.20	September*	<u>3.00</u>
May 8	0.35	<b><i>Total</i></b>	<b>18.25</b>
May 24	0.45		
May 26	0.35		
May 28	0.60		
June 11	0.20		
June 16	0.20		
June 17	1.40		
June 21	0.20		
June 24	0.25		
July 8	0.50		
July 10	1.00		
July 14	0.45		
July 21	1.40		
August 1	0.75		
August 6	0.15		
August 8	1.25		
August 13	0.50		
August 17	2.25		
August 19	0.25		
September 9	1.25		
September 10	0.65		
September 16	0.25		
September 22	<u>0.85</u>		
<b><i>Total</i></b>	<b>18.25</b>		

**Seasonal Record of Irrigation:**

<b><u>Date</u></b>	<b><u>Amount (Inches)</u></b>
May 18	0.30
June 27	0.30
July 3	1.38
July 19	<u>1.40</u>
<b><i>Total</i></b>	<b>3.38</b>

## 2006 Herculex<sup>®</sup> XTRA and Insecticide Evaluations at Clay Center, NE

Trt#	Hybrid	Trait(s) <sup>2</sup>	Product	Rate of Product	Placement	Yield <sup>1</sup> (bu/acre) (26-27 September)	Avg. Root Injury Rating <sup>1</sup> (Iowa 0-3 Scale) (13 July)	Avg. Extended Leaf Height <sup>1</sup> (Inches) (19 June)
1	<b>Pioneer 33B53</b>	<b>HXX</b>	<b>Poncho 250</b>	<b>0.25 mg/K</b>	<b>ST</b>	<b>189.3 a</b>	<b>0.13 a</b>	<b>49.6 a</b>
4	Pioneer 33B55	HX1	Force CS	0.46 fl oz/1000 row ft	TB	181.9 ab	0.80 bc	47.9 bcd
5	<b>Pioneer 33B55</b>	<b>HX1</b>	<b>Force CS</b>	<b>0.46 fl oz/1000 row ft</b>	<b>IF</b>	<b>180.2 ab</b>	<b>1.07 c</b>	<b>48.8 ab</b>
3	Pioneer 33B55	HX1	Aztec 2.1G	6.7 oz/1000 row ft	TB	177.9 ab	0.40 ab	48.3 bc
2	<b>Pioneer 33B55</b>	<b>HX1</b>	<b>Poncho 1250</b>	<b>1.25 mg/K</b>	<b>ST</b>	<b>175.0 ab</b>	<b>1.91 d</b>	<b>47.3 cd</b>
6	Pioneer 33B55	HX1	Force 3G	4 oz/1000 row ft	TB	172.2 b	0.53 ab	47.6 cd
7	<b>Pioneer 33B55</b>	<b>HX1</b>	<b>Untreated</b>	<b>-----</b>	<b>---</b>	<b>155.0 c</b>	<b>2.03 d</b>	<b>46.9 d</b>

LSD(0.05)

16.7

0.44

1.2

Treatment Probability

0.0109

<0.0001

0.0021

<sup>1</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>2</sup>HXX; contains Herculex<sup>®</sup> I and the Herculex<sup>®</sup> Rootworm genes and HX1; contains Herculex<sup>®</sup> I insect protection.

## 2006 Herculex<sup>®</sup> XTRA and Insecticide Evaluations at Clay Center, NE

Trt#	Hybrid	Trait(s) <sup>3</sup>	Product	Rate of Product	Placement	Avg. Total No. Of Lodged Plants <sup>1</sup> (31 July)	Avg. Total No. Of Dead Plants <sup>2</sup> (31 July)	Avg. Plant Population Per Acre <sup>2</sup> (25 May)
1	Pioneer 33B53	HXX	Poncho 250	0.25 mg/K	ST	0.5 a	0.0	23,222
4	Pioneer 33B55	HX1	Force CS	0.46 fl oz/1000 row ft	TB	1.5 a	0.3	23,222
5	Pioneer 33B55	HX1	Force CS	0.46 fl oz/1000 row ft	IF	2.3 a	0.3	23,099
3	Pioneer 33B55	HX1	Aztec 2.1G	6.7 oz/1000 row ft	TB	0.0 a	0.0	23,345
2	Pioneer 33B55	HX1	Poncho 1250	1.25 mg/K	ST	54.3 b	0.0	24,050
6	Pioneer 33B55	HX1	Force 3G	4 oz/1000 row ft	TB	0.3 a	0.0	23,283
7	Pioneer 33B55	HX1	Untreated	-----	---	58.0 b	0.3	23,897
LSD(0.05)						27.1	NS	NS
Treatment Probability						0.0002	0.6774	0.7426

<sup>1</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).

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