

Herculex XTRA and Standard Soil Insecticide Evaluations, Clay Center, NE, 2007

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Background information pertaining to corn rootworm experiments conducted at Clay Center, NE during 2007.

Agronomic

Hybrids:	Pioneer 34A17 and 34A20
Row Spacing:	30 inches
Row Orientation:	North-South
Planting Date:	02 May 2007
Planter:	2-row 7100 JD Maximerge with finger pickup units.
Planting Depth:	2 inches
Application Equipment:	<u>Granular Insecticides:</u> Standard insecticide boxes and Smart Box [®] application system.
Previous Crop:	Late planted corn
Soil Information:	Crete silt loam
Herbicides Applied:	Broadcasted: Radius @ 18 fl oz/acre, Atrazine 90DF @ 1.25 lbs/acre, Roundup Original Max @ 22 fl oz/acre and AMS @ 17 lbs/100 gal solution after planting on 02 May 2007. Broadcasted: Atrazine 90DF @ 1.25 lbs/acre on 08 June 2007.
Fertilizer Applied:	150 lbs N/acre knifed in as NH ₃ on 16 April 2007.

Data Collection:

- Plant Population: The total number of plants per plot were recorded on 29 May 2007.
- Extended Leaf Height: Extended leaf heights were recorded in inches from 20 randomly selected plants per plot on 20 June 2007.
- Lodged Plants: The total number of lodged plants per plot were recorded on 10 July 2007. The total number of broken and lodged/leaning plants were also recorded on 05-06 September 2007.
- Harvest Evaluations: Plots were machine harvested on 12 October 2007. Percent moisture and lbs of grain were recorded and converted to 56 lbs/bu @ 15.5% moisture to evaluate yield.

Entomological Data:

- Species present: Predominantly western corn rootworm, *Diabrotica virgifera virgifera* LeConte, and a few northern corn rootworm, *D. barberi* Smith and Lawrence.
- CRW egg hatch: First observed on 25 May 2007.
- Root Evaluation: Iowa 0-3 root damage scale was used to evaluate larval corn rootworm injury in each treatment per replication. Five randomly selected plants were dug from each plot.
- Root Evaluation Date: 13 July 2007

Experimental Design

- Design: Randomized complete block
Replicated six times
- Plot Size: 1 row x 145 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: E @ 10-20 mph
- Soil surface condition: Excellent
- Subsoil moisture: Excellent

Record of Rainfall: (April 1 - October 15*)

<u>Date</u>	<u>Amount (Inches)</u>	<u>Month</u>	<u>Total (Inches)</u>
April 1	0.80	April	3.85
April 10	0.55	May	4.17
April 24	2.50	June	1.85
May 6	1.75	July	3.80
May 15	1.40	August	3.70
May 23	0.60	September	2.50
May 28	0.25	October*	<u>4.45</u>
May 30	0.17	Total	24.32
June 13	0.55		
June 14	0.70		
June 18	0.60		
July 9	2.25		
July 16	0.75		
July 19	0.10		
July 30	0.70		
August 23	2.45		
August 29	1.25		
September 7	1.00		
September 10	0.25		
September 17	0.90		
September 24	0.35		
October 1	0.25		
October 4	1.60		
October 7	1.30		
October 15	<u>1.30</u>		
Total	24.32		

Seasonal Record of Irrigation:

<u>Date</u>	<u>Amount (Inches)</u>	<u>Month</u>	<u>Total (Inches)</u>
June 30	1.45	June	1.45
July 17	0.66	July	2.03
July 27	1.37	August	<u>4.10</u>
August 7	1.36	Totals	7.58
August 16	1.36		
August 21	<u>1.38</u>		
Total	7.58		

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Hybrid	Trait ¹	Insecticide Product ²	Rate of Insecticide	Insecticide Placement	Yield ³ (bu/acre) (12 October)	Avg.			
						Root Ratings ³ (0-3 Scale) (13 July)	Avg. No. of Lodged Plants ³ (10 July)	Avg. Extended Leaf Height ³ (Inches) (20 June)	Avg. No. Of Plants Per Acre ⁴ (29 May)
Pioneer 34A20	HXX	Aztec 4.67G	2.3 oz/1000 row ft	In furrow	189.0 a	0.16 a	9.0 a	49.8 a	30,332
Pioneer 34A20	HXX	Counter 15G	6.0 oz/1000 row ft	T-band	184.8 a	0.21 a	9.5 a	50.3 a	29,901
Pioneer 34A17	HX1	Counter 15G	8.0 oz/1000 row ft	T-band	184.2 a	0.50 ab	50.0 bc	47.7 b	29,814
Pioneer 34A20	HXX	-----	-----	-----	179.9 a	0.28 a	17.7 ab	50.1 a	29,485
Pioneer 34A17	HX1	Lorsban 15G	8.0 oz/1000 row ft	T-band	178.8 a	0.63 b	78.2 cd	51.0 a	29,997
Pioneer 34A17	HX1	-----	-----	-----	159.9 b	0.98 c	101.3 d	50.7 a	29,652
Treatment Probability					0.0054	0.0002	<.0001	0.0250	0.6626

¹HXX; contains both Herculex[®] I and Herculex[®] Rootworm genes and HX1; contains Herculex[®] I insect protection.

²Aztec 4.67G and Counter 15G granular insecticides were applied via the Smart Box[®] application system and Lorsban 15G was applied via standard insecticide boxes.

³Means 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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Hybrid	Trait ¹	Insecticide Product ²	Rate of Insecticide	Insecticide Placement	Avg. No. Of	Avg. No. Of	Avg. No. Of
					Plants Broken Below the Ear ⁴ (05-06 September)	Plants Broken At or Above the Ear ⁴ (05-06 September)	Lodged and/or Leaning Plants ³ (05-06 September)
Pioneer 34A20	HXX	Aztec 4.67G	2.3 oz/1000 row ft	In furrow	1.2	0.7	10.0 a
Pioneer 34A20	HXX	Counter 15G	6.0 oz/1000 row ft	T-band	2.0	0.0	13.3 a
Pioneer 34A17	HX1	Counter 15G	8.0 oz/1000 row ft	T-band	1.5	0.8	55.0 bc
Pioneer 34A20	HXX	-----	-----	-----	1.2	0.0	21.8 ab
Pioneer 34A17	HX1	Lorsban 15G	8.0 oz/1000 row ft	T-band	2.5	0.7	84.5 cd
Pioneer 34A17	HX1	-----	-----	-----	1.8	0.3	114.7 d
Treatment Probability					0.5447	0.3465	<.0001

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