

## BT Transgenic CRW Corn Hybrids and Soil Insecticides at Planting for Larval CRW Control

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**Background information pertaining to corn rootworm experiments conducted at Clay Center, NE during 2008.**

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### Agronomic

Hybrids (Traits):	Dekalb® DKC63-42 (YieldGard® VT3) and Mycogen® 2T789 (Herculex® XTRA/RR/LL)
Row Spacing:	30 inches
Row Orientation:	North-South
Planting Date:	30 April 2008
Planter:	2-row 7100 JD Maximerge with finger pickup units.
Planting Depth:	2 inches
Application Equipment:	<u>Granular Insecticides:</u> SmartBox® application system.
	<u>Seed Treatments:</u> Poncho® 250 insecticide seed treatment was applied commercially to both corn hybrids.
Previous Crop:	Late planted corn
Soil Information:	Crete silt loam
Herbicides Applied:	Broadcasted: Keystone® @ 2.65 Qt/acre, Roundup WeatherMax® @ 26 fl oz/acre and AMS @ 17 lbs/100 gal solution on 06 May 2008. Broadcasted: Roundup WeatherMax® @ 26 fl oz/acre and AMS @ 17 lbs/100 gal solution on 30 May 2008
Fertilizer Applied:	170 lbs of N knifed in as NH <sub>3</sub> on 16 April 2008. 5 GPA of 10-34-0 starter fertilizer was applied in furrow at planting.

### **Data Collection:**

Plant Population:	The total number of plants per plot were recorded on 21 May 2008.
Extended Leaf Height:	Extended leaf heights were recorded in inches from 20 randomly selected plants per plot on 16 June 2008.
Root Lodged Plants:	The total number of lodged plants per plot were recorded on 09 July and 24 September 2008 and converted to percentage of plants lodged.
Broken Plants:	The total number of plants per plot broken above and below the ear were recorded on 24 September 2008.
Harvest Evaluations:	Plots were machine harvested on 04 November 2008. Percent moisture and lbs of grain were recorded and converted to 56 lbs/bu @ 15% moisture to evaluate yield. Some harvest loss did occur due to the inability of the combine to separate the grain from the cob (esp. from the white cob of the Mycogen® 2T789 hybrid).

### **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 02 June 2008
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:	15 July 2008

### **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:	SE @ 10-20 mph
Soil surface condition:	Excellent
Subsoil moisture:	Moist-Excellent

**Record of Rainfall:** (April 1 - October 29)

<u>Date</u>	<u>Amount (Inches)</u>	<u>Date</u>	<u>Amount (Inches)</u>
April 3	0.41	July 10	1.85
April 8	0.18	July 12	0.25
April 10	1.21	July 15	0.20
April 17	0.80	July 16	2.14
April 18	1.15	July 18	1.15
April 24	0.30	August 6	0.30
April 26	0.30	August 9	1.45
May 6	1.31	August 12	0.45
May 8	0.26	August 14	0.15
May 10	1.13	August 23	0.23
May 21	0.25	September 1	1.02
May 22	1.45	September 8	0.65
May 23	1.01	September 11	0.25
May 26	0.10	September 12	0.25
May 27	0.26	October 6	1.60
May 29	0.10	October 13	1.40
June 4	1.10	October 14	0.95
June 5	0.15	October 21-23	2.80
June 7	0.26		
June 11	0.35		
June 24	1.29		
June 27	0.45		

<u>Month</u>	<u>Total (Inches)</u>
April	4.35
May	5.87
June	3.60
July	5.59
August	2.58
September	1.92
October	<u>6.75</u>
<b>Total</b>	<b>30.66</b>

**Seasonal Record of Irrigation:**

<u>Date</u>	<u>Amount (Inches)</u>	<u>Month</u>	<u>Total (Inches)</u>
July 31	1.70	July	1.70
August 6	1.71	August	<u>3.29</u>
August 26	<u>1.58</u>	<b>Total</b>	<b>4.99</b>
<b>Total</b>	<b>4.99</b>		

### BT Transgenic CRW Corn Hybrids and Soil Insecticides at Planting for Larval CRW Control

Hybrid	Insecticide Product	Rate of Insecticide	Yield <sup>1</sup> (bu/acre) (04 Nov.)	Avg. Root Ratings <sup>1</sup> (0-3 Scale) (15 July)	% Root Lodging <sup>1</sup> (24 Sept.)	% Root Lodging <sup>1</sup> (09 July)	Avg. Extended Leaf Height <sup>1</sup> (Inches) (16 June)	Avg. No. Of Plants Per Acre <sup>1</sup> (21 May)
Dekalb <sup>®</sup> DKC63-42	Counter <sup>®</sup> 15G	6 oz/1000 row ft	230.7	0.09	0	0	33.3	30,082
Dekalb <sup>®</sup> DKC63-42	Aztec <sup>®</sup> 4.67G	2.3 oz/1000 row ft	233.6	0.09	0	0	34.4	29,526
Mycogen <sup>®</sup> 2T789	Counter <sup>®</sup> 15G	6 oz/1000 row ft	227.6	0.08	0	0	33.3	27,687
Mycogen <sup>®</sup> 2T789	Aztec <sup>®</sup> 4.67G	2.3 oz/1000 row ft	226.6	0.09	0	0	32.3	28,916
Dekalb <sup>®</sup> DKC63-42	-----	-----	236.7	0.09	0	0	33.9	29,670
Mycogen <sup>®</sup> 2T789	-----	-----	221.3	0.13	0	0	32.0	28,439
Treatment Probability			0.1553	0.1022	1	1	0.1071	0.1156

<sup>1</sup>Means in column are not statistically different using the differences of least square means (MIXED; p|t|>0.05).

Hybrid	Insecticide Product	Rate of Insecticide	Total No. Of Plants Broken Above the Ear <sup>1</sup> (24 Sept.)	Total No. Of Plants Broken Below the Ear <sup>1</sup> (24 Sept.)
Dekalb <sup>®</sup> DKC63-42	Counter <sup>®</sup> 15G	6 oz/1000 row ft	0.3	0.0
Dekalb <sup>®</sup> DKC63-42	Aztec <sup>®</sup> 4.67G	2.3 oz/1000 row ft	0.0	0.0
Mycogen <sup>®</sup> 2T789	Counter <sup>®</sup> 15G	6 oz/1000 row ft	0.0	0.0
Mycogen <sup>®</sup> 2T789	Aztec <sup>®</sup> 4.67G	2.3 oz/1000 row ft	0.0	0.0
Dekalb <sup>®</sup> DKC63-42	-----	-----	0.0	0.0
Mycogen <sup>®</sup> 2T789	-----	-----	0.0	0.3
Treatment Probability			0.4457	0.4457

<sup>1</sup>Means in column are not statistically different using the differences of least square means (MIXED; p|t|>0.05).