

CRW Traited and Refuge Corn Hybrids in Combination with Soil Insecticides At Planting for Larval CRW Control, 2011

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Background information pertaining to corn rootworm experiments conducted at Clay Center, NE during 2011.

AGRONOMIC:

Row Spacing:	30 inches
Row Orientation:	North-South
Planting Date:	03 May 2011
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
Soil Information:	Crete silt loam
Herbicides Applied:	Broadcasted: Lexar @ 3 qt/acre, RoundUp PowerMax @ 24 fl oz/acre and AMS @ 17 lbs/100 gal solution on 09 May 2011. Broadcasted: RoundUp PowerMax @ 24 fl oz/acre and AMS @ 17 lbs/100 gal solution on 10 June 2011 to remove volunteer corn.
Fertilizer Applied:	210 lbs N as NH ₃ on 04 April 2011. 5 GPA of 10-34-0 starter fertilizer in furrow prior to planting.

DATA COLLECTION:

Plant Populations: The total number of plants per plot was recorded on 09 June 2011 and converted to plants per acre.

Harvest Evaluations: Plots were machine harvested on 14 October 2011. Percent moisture and lbs of grain were recorded and converted to 56 lbs/bu @ 15.5% moisture to evaluate yield. Test weight (lbs/bu) was also recorded at harvest. A few dropped corn ears were observed on the south ends of the plots at harvest.

ENTOMOLOGICAL DATA:

Species present: Western corn rootworm, *Diabrotica virgifera virgifera* LeConte.

CRW egg hatch: Initial hatch approximately on 02 June 2011.

Root Injury Ratings: Five plants per plot were dug and rated using the Iowa 0-3 root injury rating scale on 21 July 2011.

Root Lodging: Root lodging due to larval corn rootworm feeding was recorded on September 8, 2011.

EXPERIMENTAL DESIGN:

Design: Randomized complete block; replicated six times.

Plot Size: Reps 1-3: 2 rows x 143 ft long
Reps 4-6: 2 rows x 149 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: N @ < 7 mph

Soil surface condition: Excellent

Subsoil moisture: Excellent - Moist

RECORD OF RAINFALL: (April 1 – October 14)

<u>Date</u>	<u>Amount (Inches)</u>	<u>Date</u>	<u>Amount (Inches)</u>
April 7	0.40	June 26	1.15
April 15	1.40	July 2	1.25
April 19	1.20	July 6	0.80
April 25	0.55	July 7	0.30
May 11	0.30	July 21	0.25
May 13	0.50	July 24	1.10
May 18	0.25	July 28	0.10
May 19	0.25	August 4	0.10
May 20	1.00	August 5	0.40
May 21	0.25	August 8	0.55
May 24	0.45	August 10	0.10
May 25	0.45	August 15	0.75
May 26	0.70	August 30	1.60
May 31	0.95	September 2	0.45
June 2	0.20	September 15	0.15
June 15	0.05	October 6	0.55
June 16	0.50	October 9	0.20
June 18	0.55	October 11	<u>0.40</u>
June 20	0.30	Total	20.45

<u>Month</u>	<u>Total (Inches)</u>	<u>Month</u>	<u>Total (Inches)</u>
April	3.55	August	3.50
May	5.10	September	0.60
June	2.75	*October	<u>1.15</u>
July	3.80	Total	20.45

SEASONAL RECORD OF IRRIGATION:

<u>Date</u>	<u>Amount (Inches)</u>
July 19	1.39
August 1	1.44
August 22	<u>1.53</u>
Total	4.36

<u>Month</u>	<u>Total (Inches)</u>
July	1.39
August	<u>2.97</u>
Total	4.36

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Hybrid	Genetic Traits	Insecticide Product ¹	Yield ³ (14 October)	% Grain Moisture ³ (14 October)	Test Weight ³ (lbs/bu) (14 October)	Total No. of Root Lodged Plants ² (08 September)	0-3 Scale Root Injury Ratings ² (21 July)	PPA ³ (09 June)
DKC63-84	VT3	SmartChoice 5G	223.5	16.0	60.4	0.0 a	0.12 a	29,628
DKC63-84	VT3	Counter 20G	217.0	15.8	60.6	0.2 a	0.12 a	29,717
DKC63-84	VT3		225.7	16.1	60.4	0.7 a	0.22 a	29,854
DKC63-87	GENVT2P	Aztec 2.1G	227.9	16.0	60.4	7.0 ab	0.68 b	29,805
DKC63-87	GENVT2P		218.5	16.3	60.2	10.3 b	1.07 c	30,023
<i>Treatment Probability</i>			<i>0.3720</i>	<i>0.2315</i>	<i>0.2666</i>	<i>0.0245</i>	<i><0.0001</i>	<i>0.7794</i>

¹Aztec 2.1G applied at a rate of 6.7 oz product/1000 row ft; SmartChoice 5G applied at a rate of 3.5 oz product/1000 row ft and Counter 20G applied at a rate of 4.5 oz product/1000 row ft.

²Means 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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