

**EVALUATION OF TRAITED CORN ROOTWORM AND REFUGE CORN HYBRIDS  
IN COMBINATION WITH SOIL INSECTICIDES AT PLANTING  
FOR LARVAL CORN ROOTWORM CONTROL, 2017**

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**Background information pertaining to above experiments conducted near Harvard, NE, 2017**

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**AGRONOMIC:**

Row Spacing:	30 inches
Row Orientation:	North-South
Planting Date:	May 12, 2017
Planter:	4-row Kinze plot planter with finger pickup units
Hybrid (Traits):	DKC60-69RIB (VT2PRIB, refuge), DKC60-67RIB (GENSSRIB), Pioneer P0987 (AcreMax Xtra), and Pioneer P0801 (AcreMax Xtreme)
Planting Depth:	2½ inches
Target Seeding Rate:	35,700 seeds per acre
Previous Crop:	Late planted corn and pumpkins
Soil Information:	<i>Soil type:</i> Crete silt loam <i>Soil Drainage:</i> Good <i>Soil Texture:</i> % Sand: 15, % Silt: 56, % Clay: 29 <i>Soil pH:</i> 6.5 <i>% Organic Matter:</i> 3.0 <i>Sum of Cations:</i> 18.5 me/100g <i>Tillage type:</i> Reduced, planted into established ridge/row.
Insecticide Applications:	<u>Liquid Products-</u> Liquid formulations were directed into the open seed furrow in front of the press wheels via a 5 GPA rate of water solution at planting.  <u>Granular Products-</u> Insecticide granules were applied via the SmartBox application system and directed into the open seed furrow in front of the press wheels.
Herbicides Applied:	<i>Broadcasted:</i> Acuron @ 2.0 Qt/A and RoundUp PowerMax @ 40 fl oz/A on May 12, 2017. RoundUp PowerMax @ 26 fl oz/A and Atrazine 4L @ 1.5 Qt/A on June 5, 2017. RoundUp PowerMax @ 26 fl oz/A on June 12, 2017 to control volunteer corn.
Fertilizer Applied:	100 lbs 11-52-0 fertilizer broadcast on February 9, 2017. 200 lbs nitrogen/A applied in the form of anhydrous ammonia April 8, 2017.

## **EXPERIMENTAL DESIGN:**

Design: Randomized complete block; replicated four times  
Plot Size: 4 rows x 68-72 ft length

## **ENVIRONMENTAL:**

Conditions at planting:  
Wind direction and speed: NE @ 6-7 mph  
Soil surface condition: Excellent  
Subsoil moisture: Excellent

## **DATA COLLECTION:**

Plant Populations: The total number of corn plants in the center two rows of each plot was recorded on June 1, 2017 and converted to plants per acre (PPA).  
Extended Leaf Heights: The extended leaf height (inches) of twenty random plants from the center two rows in each plot was recorded on June 22, 2017.  
Harvest Evaluations: Plots were machine harvested on October 20, 2017. Pounds of grain and % moisture levels were recorded and converted to bushels per acre at 56 lbs/bu and 15.5% moisture.

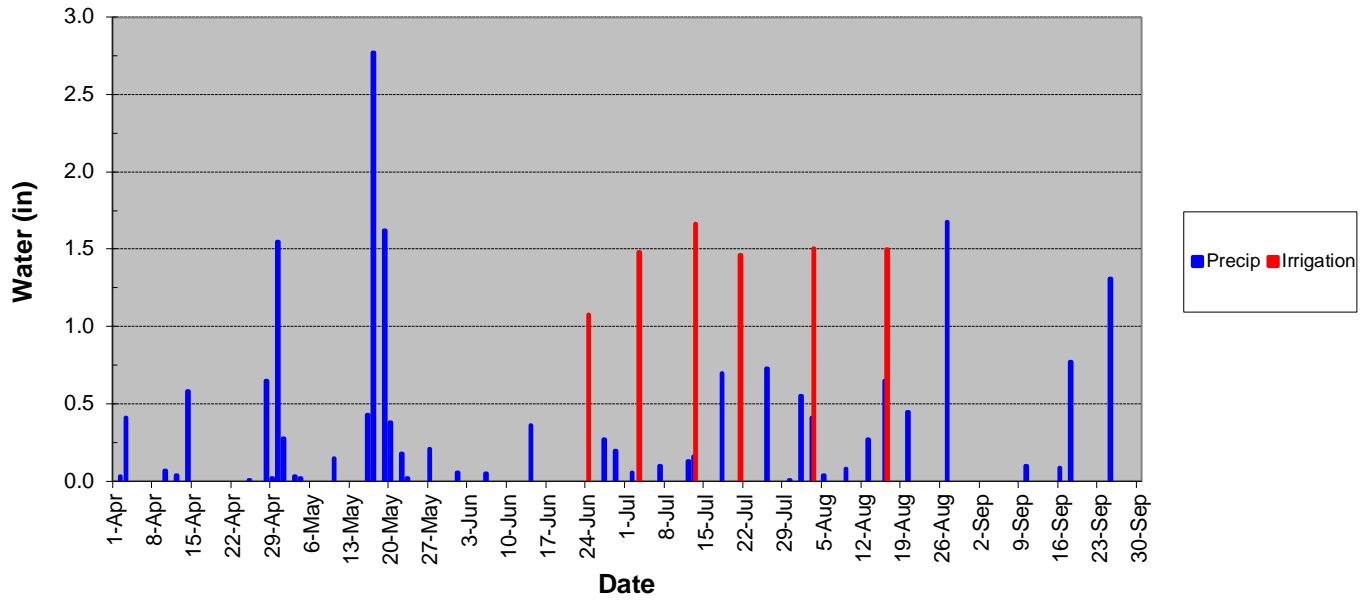
## **ENTOMOLOGICAL DATA:**

Species present: Natural infestation of western corn rootworm, *Diabrotica virgifera virgifera* LeConte.  
Egg Hatch: Initial egg hatch confirmed on May 31, 2017.  
Days From Planting To: 19 days  
Initial Rootworm Egg Hatch  
Adult Emergence: Initial adult emergence witnessed on June 28, 2017.  
Root Lodging & Dead Plant Evaluations: The total number of root lodged and dead plants due to larval corn rootworm feeding in the center two rows of each plot was recorded on July 5, 2017. No dead plants were recorded at time of evaluation.  
Root Injury Ratings: Five plants per plot (3 from row 1 and 2 from row 4) were dug and rated using the Iowa 0-3 root injury rating scale on July 13, 2017.

# Apr. 1 - Sept. 30 Growing Season Rainfall & Irrigation

SCAL HOBO Weather Station

(18.71 in. rain - 94% of normal and 8.69 in. irrigation)



HOBO Weather Station			
Month	2017 Rainfall	30-yr Norm	%Norm
April	3.39	2.53	134
May	6.09	4.41	138
June	0.94	3.90	24
July	1.89	3.60	53
Aug	4.13	3.20	129
Sept	2.27	2.36	96
<b>Total&gt;&gt;</b>	<b>18.71</b>	<b>20.00</b>	<b>93.6</b>

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<b>Corn Hybrid / Trait Package</b>	<b>Insecticide Product</b>	<b>Rate of Product (/1000 row ft)</b>	<b>Yield<sup>1</sup> (bu/acre)</b>	<b>Iowa 0-3 Root Ratings<sup>1</sup></b>	<b>% Consistency Iowa 0-3 Scale ≤ 0.25<sup>1,3</sup></b>	<b>% Root Lodging<sup>1</sup></b>	<b>Extended Leaf Height<sup>2</sup> (inches)</b>	<b>PPA<sup>2</sup></b>
DKC60-67RIB / GENSSRIB	Index 2.8CS	0.72 fl oz	263.9 a	0.08 a	100 a	0.3 a	37.7 a	34,704
Pioneer P0801 / AMXT	-----	-----	263.4 ab	0.10 a	100 a	0.0 a	38.1 a	35,170
DKC60-67RIB / GENSSRIB	-----	-----	261.9 ab	0.08 a	100 a	0.0 a	38.2 a	34,633
DKC60-67RIB / GENSSRIB	Aztec HC	1.5 oz	257.0 abc	0.08 a	100 a	0.2 a	38.3 a	34,055
Pioneer P0801 / AMXT	Aztec HC	1.5 oz	255.4 abc	0.17 a	95 a	0.0 a	38.4 a	33,784
Pioneer P0801 / AMXT	Index 2.8CS	0.72 fl oz	252.2 abc	0.10 a	100 a	0.1 a	38.1 a	34,683
DKC60-69RIB / VT2PRIB	Aztec HC	1.5 oz	252.2 abc	0.13 a	95 a	0.0 a	35.2 b	35,032
DKC60-69RIB / VT2PRIB	Index 2.8CS	0.72 fl oz	250.7 abc	0.89 b	25 b	0.6 a	34.4 b	34,939
Pioneer P0897 / AMX	Index 2.8CS	0.72 fl oz	244.8 abc	0.11 a	95 a	0.0 a	35.3 b	33,811
Pioneer P0897 / AMX	Aztec HC	1.5 oz	243.1 bc	0.25 a	90 a	0.0 a	35.7 b	34,297
Pioneer P0897 / AMX	-----	-----	240.2 cd	0.16 a	95 a	0.0 a	35.5 b	35,058
DKC60-69RIB / VT2PRIB (refuge)	-----	-----	221.1 d	1.07 b	35 b	3.1 b	32.3 c	34,820
<b>Treatment Probability</b>			<b>0.0104</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>0.3497</b>

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

<sup>3</sup>Averages were converted by the angular transformation of percentages to degrees, before MIXED, original percentages are reported.