

# Precept Insecticide Efficacy on Corn Rootworm

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Background information pertaining to above experiments conducted near Harvard, NE, 2016

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## AGRONOMIC:

Row Spacing:	30 inches
Row Orientation:	North-South
Planting Date:	April 24, 2016
Planter:	2-row JD 7100 Maximerge planter with finger pickup units
Hybrids:	DeKalb DKC62-78RIB (VT2PRIB) and DKC62-77RIB (SSRIB)
Planting Depth:	2½ inches
Target Seeding Rate:	32,100 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: % Sand:</i> 15, <i>% Silt:</i> 56, <i>% Clay:</i> 29 <i>Soil pH:</i> 6.5 <i>% Organic Matter:</i> 3.0 <i>Sum of Cations:</i> 14.2 me/100g <i>Tillage type:</i> Reduced, planted into established ridge/row.
Insecticide Applications:	<u>Liquid Products-</u> Liquid formulations (Trt #2 and #3) were directed into the open seed furrow in front of the press wheels via a 5 GPA water solution at planting.  <u>Granular Products-</u> Insecticide granules (Trt #4, #5, #6, #7 and #9) 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> Harness Xtra 5.6L @ 2.5 qt/A and RoundUp PowerMax @ 32 fl oz/A on May 4, 2016. <i>Broadcasted:</i> RoundUp PowerMax @ 26 fl oz/A on May 26, 2016 and June 14, 2016 to control volunteer corn.
Fertilizer Applied:	220 lbs nitrogen/A applied in the form of anhydrous ammonia in April 2016.

## **EXPERIMENTAL DESIGN:**

Design: Randomized complete block; replicated four times  
Plot Size: 4 rows x 70-71 ft length

## **ENVIRONMENTAL:**

Conditions at planting:

Wind direction and speed: S @ 10-14 mph

Soil surface condition: Excellent

Subsoil moisture: Excellent-Moist

## **DATA COLLECTION:**

Plant Populations: The total number of corn plants in the center two rows of each plot was recorded on June 14, 2016 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 16, 2016.

Harvest Evaluations: Plots were machine harvested on October 12, 2016. 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.

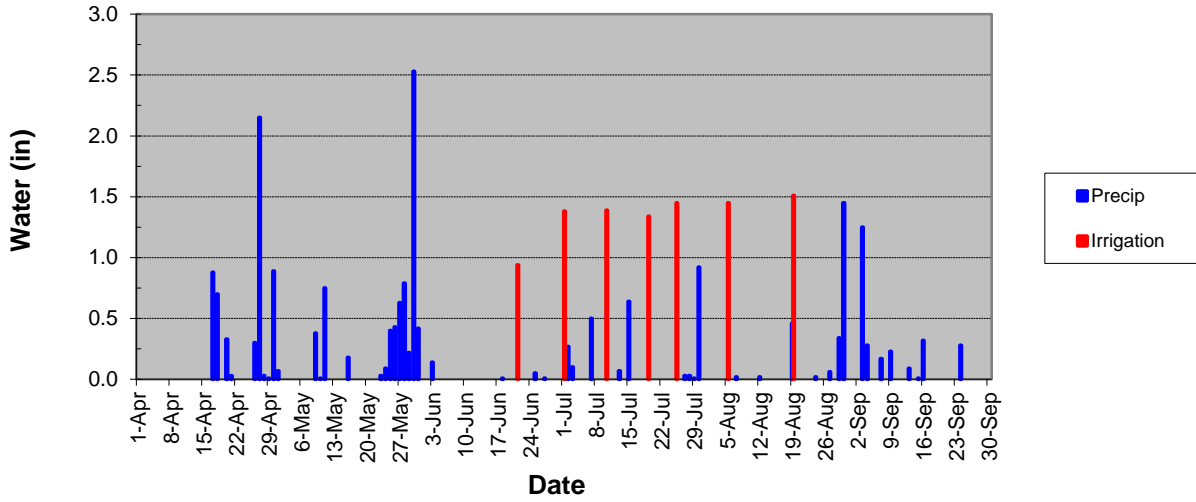
Egg Hatch: Initial egg hatch confirmed on June 2, 2016.

Adult Emergence: Initial adult emergence witnessed on June 27, 2016.

Root Lodging, Broken and 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 8, 2016 and converted to percentage root lodged and dead plants per plot. In addition, the total number of broken plants in the center two rows of each plot (due to a high wind event on July 7) was also recorded on July 8, 2016 and converted to percentage broken plants per plot.

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 14, 2016.

**Apr. 1 - Sept. 30 Growing Season Rainfall & Irrigation**  
**SCAL HOBO Weather Station**  
**(20.54 in. rain - 89% of normal and 9.46 in. irrigation)**



<u>Month</u>	<u>HOBO Weather Station</u> <u>2016 Precip</u>	<u>30-yr</u> <u>Average</u>	<u>% Avg.</u>
Jan	0.19	0.59	32
Feb	0.08	0.68	12
Mar	0.24	1.90	13
April	5.32	2.53	210
May	6.93	4.41	157
June	0.21	3.90	5
July	2.57	3.60	71
Aug	2.37	3.20	74
Sept	<u>2.63</u>	<u>2.36</u>	<u>111</u>
<b>Total&gt;&gt;</b>	<b>20.54</b>	<b>23.17</b>	<b>88.6</b>

## Precept Insecticide Efficacy on Corn Rootworm

Insect Trait(s)	Product	Rate of Product (/1000 row-ft)	Yield <sup>2</sup> (bu/acre)	Iowa 0-3 Root Ratings <sup>1</sup>	% Root Lodging <sup>1</sup>	% Dead Plants <sup>2</sup>	% Broken Plants <sup>1</sup>	Extended Leaf Height <sup>2</sup> (inches)	PPA <sup>2</sup>
VT2PRIB	Capture LFR	0.49 fl oz	233.2	0.41 a	6.6 a	0	0.8 a	35.5	31,080
VT2PRIB	Force CS	0.46 fl oz	236.6	0.46 a	0.4 a	0	1.0 a	35.3	31,219
VT2PRIB	Precept	4 oz	243.2	0.35 a	0.1 a	0	0.5 a	37.5	31,763
VT2PRIB	Aztec 4.67G	3 oz	239.1	0.41 a	1.6 a	0	0.6 a	35.6	31,070
VT2PRIB	Lorsban 15G	8 oz	235.0	0.59 a	1.7 a	0	0.7 a	35.4	32,357
VT2PRIB	Counter 20G	6 oz	241.2	0.23 a	0.1 a	0	0.8 a	37.1	32,245
SSRIB	-----	----	235.4	0.21 a	1.3 a	0	6.2 b	37.3	31,186
SSRIB	Precept	4 oz	237.2	0.11 a	0.2 a	0	5.5 b	36.5	31,050
VT2PRIB	-----	----	235.4	1.13 b	22.6 b	0	0.8 a	36.0	31,611
<b>Treatment Probability</b>			<b>0.7522</b>	<b>0.0183</b>	<b>0.0007</b>	<b>1</b>	<b>&lt;0.0001</b>	<b>0.1828</b>	<b>0.2218</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).