

EVALUATION OF LIQUID AND GRANULAR INSECTICIDE FORMULATIONS AT PLANTING FOR LARVAL CORN ROOTWORM CONTROL, 2017A

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

AGRONOMIC:

Row Spacing: 30 inches

Row Orientation: North-South

Planting Date: April 19, 2017

Planter: 2-row JD 7100 Maximerge planter with finger pickup units

Hybrid (Traits): DeKalb DKC60-69RIB (VT2PRIB)

Planting Depth: 2½ inches

Target Seeding Rate: 35,700 seeds per acre

Previous Crop: Late planted corn and pumpkins

Soil Information: *Soil type: Crete silt loam
Soil Drainage: Good
Soil Texture: % Sand: 15, % Silt: 56, % Clay: 29
Soil pH: 6.5
% Organic Matter: 3.0
Sum of Cations: 18.5 me/100g
Tillage type: Reduced, planted into established ridge/row.*

Insecticide Applications: Liquid Products-
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.

Granular Products-
Insecticide granules were applied via the SmartBox application system and directed into the open seed furrow in front of the press wheels.

Herbicides Applied: *Broadcasted:*
Acuron @ 2.0 Qt/A and RoundUp PowerMax @ 40 fl oz/A on May 5, 2017.
RoundUp PowerMax @ 26 fl oz/A and Atrazine 4L @ 1.5 Qt/A on May 30, 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 2017.

EXPERIMENTAL DESIGN:

Design: Randomized complete block; replicated four times
Plot Size: 4 rows x 67-78 ft length

ENVIRONMENTAL:

Conditions at planting:

Soil Temperature @ 4": 59° F @ 1:30 PM

Wind direction and speed: SW @ 10-15 mph

Soil surface condition: Excellent

Subsoil moisture: Excellent to slightly moist

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 19, 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:
Initial Rootworm Egg Hatch 42 days

Adult Emergence: Initial adult emergence witnessed on June 28, 2017.

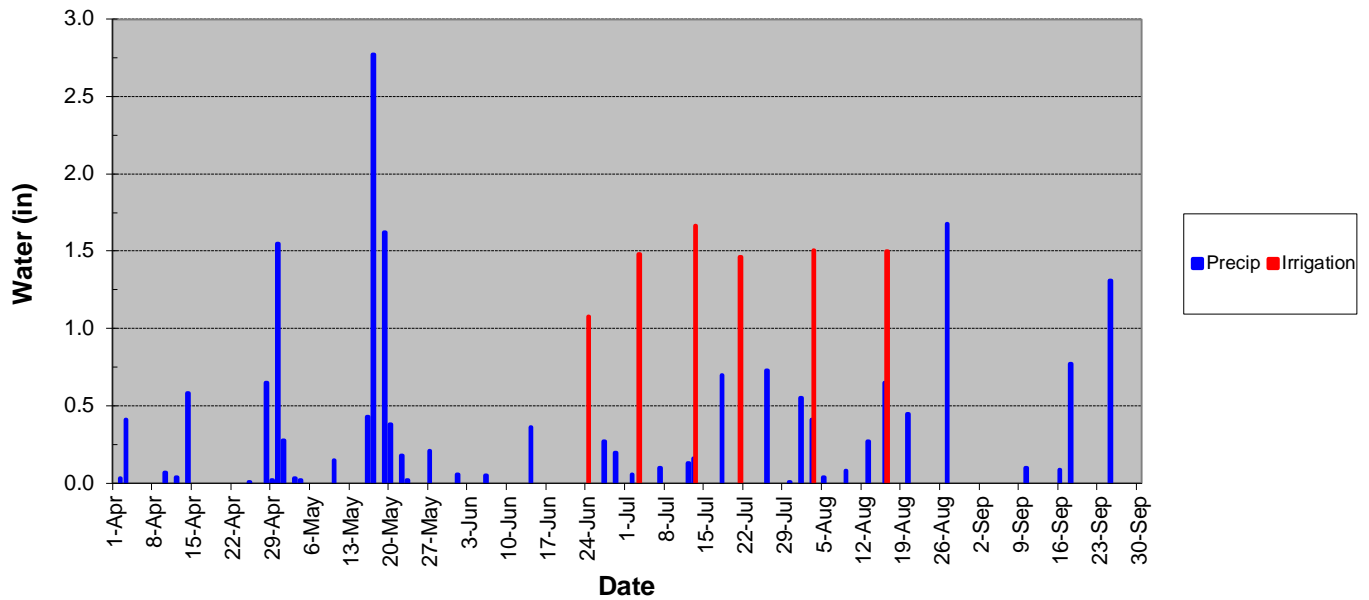
Root Lodging & Dead Plant Evaluations: The total number of root lodged and dead plants due to larval corn rootworm feeding in the center two rows of each plot was recorded on June 30, 2017. No dead plants were recorded at time of evaluation.

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 10, 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
Total>>	18.71	20.00	93.6

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FOR LARVAL CORN ROOTWORM CONTROL, 2017A**

Insecticide Product	Rate of Product (/1000 row ft)	Yield² (bu/acre)	Iowa 0-3 Root Ratings¹	% Consistency Iowa 0-3 Scale ≤ 0.25^{1,3}	% Root Lodging¹	Extended Leaf Height² (inches)	PPA²
Index 2.8CS	0.72 fl oz	266.3	1.16 bc	30 a	2.5 a	39.1	34,699
Capture LFR	0.98 fl oz	258.3	1.28 c	25 ab	10.9 a	38.1	34,672
Force 10G	1.30 oz	257.7	0.68 ab	30 a	0.8 a	37.0	34,696
Force CS	0.50 fl oz	253.5	0.74 ab	20 ab	0.6 a	39.6	33,916
Aztec HC	1.50 oz	253.1	0.57 a	50 a	4.6 a	39.9	34,888
SmartChoice HC	1.70 oz	252.7	1.47 c	5 b	16.1 a	33.4	34,937
Untreated Check	-----	247.7	2.00 d	5 b	53.1 b	37.1	34,621
	Treatment Probability	0.1106	0.0001	0.0410	<0.0001	0.0911	0.8258

¹Means in column followed by the same lowercase letter are not statistically different using the differences of least square means (MIXED; p|t|>0.05).

²Means in column are not statistically different using the differences of least square means (MIXED; p|t|>0.05).

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