

Corn Soil-Applied Insecticide Shoot-Out Trial - 2012

Clay Center, NE

Terry A DeVries, University of Nebraska, South Central Ag Laboratory, Clay Center, NE 68933

Robert J Wright, Dept. Of Entomology, University of Nebraska-Lincoln, Lincoln NE 68583-0816, rwright2@unl.edu

Background information pertaining to corn rootworm experiments conducted at Clay Center, NE during 2012.

AGRONOMIC:

Corn Hybrid:	Pioneer P1173HR
Row Spacing:	30 inches
Row Orientation:	North-South
Planting Date:	April 23, 2012
Planter:	2-row 7100 JD Maximerge planter with finger pickup units
Planting Depth:	2 inches
Application Equipment:	<u>Granular Insecticides:</u> SmartBox application system; Force 3G and Aztec 2.1G granules directed into the open seed furrow in front of the press wheels.
	<u>Liquid Insecticides:</u> CO ₂ pressurized sprayer mounted on planter; Force CS directed into the open seed furrow in front of the press wheels in a 5 GPA solution.
Previous Crop:	Late planted corn and pumpkins
Soil Information:	Crete silt loam
Herbicides Applied:	Broadcasted: Lexar @ 3 qt/acre, RoundUp WeatherMax @ 24 fl oz/acre and AMS @ 17 lbs/100 gal solution on April 27, 2012. Broadcasted: RoundUp PowerMax @ 26 fl oz/acre and AMS @ 17 lbs/100 gal solution on May 15, 2012 to remove volunteer corn.
Fertilizer Applied:	220 lbs nitrogen applied as liquid 32% N fertilizer on March 28, 2012. 5 GPA of 10-34-0 starter fertilizer applied in furrow prior to planting.

ENVIRONMENTAL:

Conditions at planting:

Wind direction and speed: S @ 9-12 mph

Soil surface condition: Excellent

Subsoil moisture: Excellent

EXPERIMENTAL DESIGN:

Design: Randomized complete block; replicated four times. An application error occurred for treatment #3 (Aztec 2.1G) in rep 1. Reps 2-4 were analyzed for all treatments. Reps 1-4 were analyzed for the Force and untreated check treatments only.

Plot Size: 2 rows x ~145 ft long

Statistical Analyses: PROC MIXED, with mean separation using the differences of least square means (MIXED; $p|t|>0.05$).

DATA COLLECTION:

Plant Populations: The total number of plants in each plot was recorded on May 9, 2012. Corn growth stage was VC.

Harvest Evaluations: Plots were machine harvested on September 26, 2012. Percent moisture and lbs of grain were recorded and converted to 56 lbs/bu @ 15.5% moisture to evaluate yield.

ENTOMOLOGICAL DATA:

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

CRW Egg Hatch: Initial hatch approximately on May 8, 2012.

Adult CRW Emergence: Initial observation of adult western corn rootworm emergence on June 18, 2012.

Dead Plant Counts: The total number of dead plants due to larval corn rootworm feeding in each plot was recorded on June 27, 2012.

Root Injury Ratings: Five plants per plot were dug and rated using the Iowa 0-3 root injury rating scale on July 2, 2012.

Pre-Harvest
Root Lodging Evaluations: The total number of root lodged plants in each plot was recorded on September 25, 2012.

SEASONAL RECORD OF RAINFALL: (April 1 – September 30)

<u>Daily</u>	<u>Amount (Inches)</u>	<u>Daily</u>	<u>Amount (Inches)</u>
April 3	0.35	June 16	0.35
April 12	0.20	June 20	0.65
April 15	1.35	June 23	0.85
April 28	0.30	July 9	1.00
May 1	0.25	July 18	0.10
May 3	2.75	July 30	0.95
May 20	0.25	August 2	0.45
May 26	1.10	August 4	0.45
May 30	0.55	August 25	1.10
June 1	0.10	Sept. 13	<u>0.55</u>
June 15	1.40	Total	15.05

<u>Monthly</u>	<u>Total (Inches)</u>	<u>Monthly</u>	<u>Total (Inches)</u>
April	2.20	July	2.05
May	4.90	August	2.00
June	3.35	September	<u>0.55</u>
		Total	15.05

SEASONAL RECORD OF IRRIGATION:

<u>Daily</u>	<u>Amount (Inches)</u>
May 24	0.33
June 14	1.24
July 2	1.55
July 6	1.56
July 20	1.52
July 25	1.53
August 8	1.53
August 17	<u>1.56</u>
Total	10.82

<u>Monthly</u>	<u>Total (Inches)</u>
May	0.33
June	1.24
July	6.16
August	<u>3.09</u>
Total	10.82

**Corn Soil-Applied Insecticide Shoot-Out Trial - 2012
Clay Center, NE**

Insecticide Product	Rate of Product (/1000 row ft)	Yield ² [bu/acre] (Sept. 26)	Total No. of Root Lodged Plants ¹ (Sept. 25)	0-3 Scale Root Injury Ratings ^{1 or 2} (July 2)	Total No. of Dead Plants ² (June 27)	PPA ² (May 9)
REPS 2-4						
Force CS	0.46 fl oz	207.3	123.0 a	0.78	0.0	30,299
Force 3G	4 oz	207.1	138.0 a	0.65	0.3	30,323
Aztec 2.1G	6.7 oz	224.4	33.0 a	0.34	0.3	30,477
Untreated Check	-----	202.9	335.7 b	1.32	0.3	30,204
	Treatment Probability	0.4126	0.0252	0.0698²	0.8022	0.8863
REPS 1-4						
Force CS	0.46 fl oz	208.2	132.3 a	0.73 a	0.0	30,292
Force 3G	4 oz	207.8	122.0 a	0.66 a	0.3	30,354
Untreated Check	-----	202.7	316.8 b	1.42 b	1.3	30,051
	Treatment Probability	0.8494	0.0315	0.0395¹	0.3025	0.5407

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).