

CRW Insect Resistance Management in Corn Growing Regions, 39-06 Clay Center, NE

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

AGRONOMIC:

| | |
|------------------------|---|
| Row Spacing: | 30 inches |
| Row Orientation: | North-South |
| Planting Date: | May 7, 2012 |
| Planter: | 4-row Kinze planter with finger pickup units |
| Planting Depth: | 2 inches |
| Application Equipment: | <u>Insecticides:</u> SmartBox application system; Force 3G @ 4 oz/1000 row ft was directed into the open seed furrow in front of the press wheels. |
| Previous Crop: | Late planted corn and pumpkins |
| Soil Information: | Crete silt loam |
| Herbicides Applied: | Broadcasted: Harness Xtra 5.6L @ 2.5 qt/acre, RoundUp WeatherMax @ 26 fl oz/acre and AMS @ 17 lbs/100 gal solution on May 9, 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: | NW @ 10-15 mph |
| Soil surface condition: | Excellent |
| Subsoil moisture: | Excellent to Moist |

EXPERIMENTAL DESIGN:

| | |
|-----------------------|---|
| Design: | Randomized complete block; replicated four times. |
| Plot Size: | 4 rows x ~30 ft long |
| Statistical Analyses: | PROC MIXED, with mean separation using the differences of least square means (MIXED; $p t >0.05$). |

DATA COLLECTION:

| | |
|--|---|
| Early Plant Populations: | The total number of plants in the center two rows of each plot was recorded on May 24, 2012. Corn growth stage was VC. |
| Pre-Harvest Plant Populations: | The total number of plants in the center two rows of each plot was recorded on September 7, 2012. |
| Broken Plant and Root Lodging Evaluations: | The total number of broken plants above and below the ear and the total number of root lodged plants in the center two rows of each plot was recorded on September 7, 2012. |
| 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, <i>Diabrotica virgifera virgifera</i> LeConte. |
| CRW Egg Hatch: | Initial hatch approximately on May 8, 2012. |
| Adult Western Corn Rootworm Emergence: | First observed on June 18, 2012. |
| Root Injury Ratings: | Five plants per plot were dug and rated using the Iowa 0-3 root injury rating scale on July 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 |

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| Hybrid | Genetic Traits(s) | Insecticide | Yield ² [bu/acre] (Sept. 26) | Pre-Harvest PPA ¹ (Sept. 7) | Total No. of Root Lodged Plants ² (Sept. 7) | Total No. of Broken Plants ² (Sept. 7) | 0-3 Scale Root Injury Ratings ¹ (July 25) | PPA ² (May 24) |
|-------------|------------------------------|-------------|---|---|---|--|---|------------------------------|
| DKC63-45HTT | RR2 | Force 3G | 254.3 | 29,725 a | 0 | 0 | 0.34 b | 30,569 |
| ND6021JRMA | GENSS RIB | ----- | 268.5 | 27,856 c | 0 | 0 | 0.12 ab | 28,916 |
| ND6021JRMA | GENSS RIB | Force 3G | 260.3 | 28,486 abc | 0 | 0 | 0.08 a | 29,402 |
| DKC62-97 | VT3P 100% | ----- | 245.6 | 29,170 ab | 0 | 0 | 0.13 ab | 29,942 |
| DKC62-97 | VT3P 100% | Force 3G | 252.6 | 27,975 bc | 0 | 0 | 0.14 ab | 28,892 |
| DKC62-97 | VT3P RIB | ----- | 248.0 | 29,359 a | 0 | 0 | 0.18 ab | 30,344 |
| DKC62-97 | VT3P RIB | Force 3G | 257.4 | 29,402 a | 0 | 0 | 0.11 ab | 30,460 |
| DKC63-45HTT | RR2 | ----- | 262.3 | 28,958 abc | 0 | 0 | 0.98 c | 30,647 |
| | Treatment Probability | | 0.1222 | 0.0490 | 1 | 1 | <0.0001 | 0.0791 |

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).