

**2000 CORN ROOTWORM SOIL INSECTICIDE EVALUATIONS  
AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER  
MEAD, NEBRASKA**

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*Background Information -Agronomic*

|                                   |                                                                                    |
|-----------------------------------|------------------------------------------------------------------------------------|
| <b>Hybrid:</b>                    | <b>Experiment 1: Pioneer 33G26<br/>Experiment 2: N58-D1</b>                        |
| <b>Row Spacing:</b>               | <b>30 inches</b>                                                                   |
| <b>Planting Date</b>              | <b>26 April 2000</b>                                                               |
| <b>Planter:</b>                   | <b>Kinze model 2100, 4 row cone</b>                                                |
| <b>Planting Depth:</b>            | <b>2 inches</b>                                                                    |
| <b>Application<br/>Equipment:</b> | <b><u>Granular Insecticides</u><br/>Planting: Planter mounted cone-belt system</b> |
| <b>Field Preparation:</b>         | <b>Spring 2000 - disked and harrowed</b>                                           |
| <b>Herbicides Applied:</b>        | <b>4 May 2000: Bicep II Magnum, 2.1 qt./A, pre-emerge</b>                          |

**Fertilizer Applied:** 150 lb. N/A applied as NH<sub>3</sub> on 4 April 2000

**Previous Crop:** Continuous corn (trap crop)

**Soil Information:**

**Type:** Silty clay loam

**Ph:** 6.4

**CEC:** 29.4

**% organic matter:** 2.8

**% clay:** 29.05

**% silt:** 66.67

**% sand:** 4.28

**Plant Population:** Overall mean number of plants/33.5' ± SEM  
Experiment 1: 46.9 ± 0.6  
Experiment 2: 45.5 ± 0.8

**Phytotoxicity:** There were no significant differences ( $P > 0.05$ ) among treatment stand count means or among number of abnormal plants/treatment at V2-3 growth stage (Hanway 1997).

**Insecticide History:** Insecticide free: 1991, 1993, 1994, 1997-1999  
Multiclass soil insecticide trials: 1990, 1992, 1995-1996

***Background Information - Entomology***

**Species Present:** Northern corn rootworm, *Diabrotica barberi* Smith and Lawrence, and western corn rootworm, *D. virgifera virgifera* LeConte. Initial rootworm egg hatch detected 24 May 2000 (predominantly western corn rootworm)

**Root Evaluation:** A 1 - 6 root rating scale (Hills and Peters, 1971) and 0 - 3 root rating scale (Oleson and Tollefson, unpublished) were used to

evaluate larval corn rootworm damage in each treatment. Five roots were evaluated in each treatment per replication. (See Nebguide G92-1108-A for the [1 - 6 rating scale description](#), and the Iowa State University Corn Rootworm Home Page for the [0 - 3 rating scale description](#).)

**Root  
Evaluation  
Date:** 13 July 2000

### *Experimental Design*

**Design:** Randomized complete block design  
Replicated four times  
Single row treatments

**Row Length:** 33.5 feet

**Statistical  
Analysis:** Root Ratings: Standard ANOVA procedures, LSD test was used for mean separation where statistical differences (P less than or equal to 0.05) occurred.

### *Environmental Conditions at Planting*

**Air Temperature:** 17°C

**Wind speed:** 10-15 mph at 5 ft. height

**Wind direction:** SE

**Soil temperature 2"  
depth:** 15°C

**Soil temperature surface:** 18°C

**Soil moisture, 0-3"  
depth:** 18.6% water (gravimetric method)

**% cloud cover:** 100%

**% relative humidity:**            **not recorded**

**Residue on surface:**            **40% of soil surface covered with crop residue; soil very moist**

***Rainfall and Irrigation***

**April 10 0.45 inch**

**15 0.55 inch**

**27 0.45 inch**

**30 0.20 inch**

**Total                                    1.65 inches**

**May 08 0.75 inch**

**18 0.40 inch**

**20 0.20 inch**

**26 0.90 inch**

**30 0.25 inch**

**Total                                    2.50 inches**

**June 10 0.70 inch**

**12 0.30 inch**

**13 0.45**

**15 0.20 inch**

**20 0.80 inch**

**24 1.80 inches**

**25 2.20 inches**

**Total                                    6.45 inches**

**July 02 0.20 inch**

**04 0.50 inch**

12 0.50 inch  
 16 0.25 inch  
 18 0.80 inch  
 20 0.20 inch  
 28 0.60 inch  
 29 0.30 inch

**Total 3.35 inches**

**Irrigation was applied once between planting and root damage evaluation - 9 June 2000, 0.60 inches**

***Corn Rootworm Seed Treatment - Experiment 1***

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| Insecticide       | Rate/Placement <sup>1</sup> | Mean Root Damage Rating <sup>2</sup> |             |
|-------------------|-----------------------------|--------------------------------------|-------------|
|                   |                             | (1-6 scale)                          | (0-3 scale) |
| Aztec 2.1G        | TB                          | 2.40a                                | 0.23 a      |
| Force 3.0G        | TB                          | 2.95a                                | 0.46 a      |
| Gaucht 00MW018 A4 | 0.60 mg/k ST                | 3.85 b                               | 1.30 b      |
| Gaucht 00MW018 A2 | 1.35 mg/k ST                | 4.15 b                               | 1.69 b      |
| Gaucht 00MW018 A3 | 1.00 mg/k ST                | 4.20 b                               | 1.58 b      |
| Untreated         |                             | 5.30 c                               | 2.55 c      |

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<sup>1</sup>Aztec 2.1G rate applied: 0.141 oz ai/1000 row ft; Force 3.0G rate applied: 0.12 oz ai/1000 row ft; TB = T-band, 7-inch band placed over the open seed furrow; mg/k = milligrams per kernal, ST = seed treatment.

<sup>2</sup>Root rating scales used: 1 - 6 scale (Hills and Peters 1971); 0 - 3 scale (J. Oleson and J.J. Tollefson, Iowa State University); Within columns, mean root rating values followed by the same letter are not significantly different from each other (Fisher's protected LSD test @ 0.05 significance level).

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***Corn Rootworm Seed Treatment - Experiment 2***

| <b>Insecticide</b>        | <b>Rate/Placement<sup>1</sup><br/>oz ai/1000 ft.</b> | <b>Mean Root Damage<br/>Rating<sup>2</sup></b> |                    |
|---------------------------|------------------------------------------------------|------------------------------------------------|--------------------|
|                           |                                                      | <b>(1-6 scale)</b>                             | <b>(0-3 scale)</b> |
| <b>Counter 20 CR</b>      | <b>1.2 TB</b>                                        | <b>2.25 a</b>                                  | <b>0.21 a</b>      |
| <b>Force 3G</b>           | <b>0.12 TB</b>                                       | <b>2.45 a</b>                                  | <b>0.20 a</b>      |
| <b>Lorsban 15G</b>        | <b>1.2 TB</b>                                        | <b>2.50 a</b>                                  | <b>0.21 a</b>      |
| <b>ProShield Force ST</b> | <b>ST</b>                                            | <b>3.20 b</b>                                  | <b>0.71 b</b>      |
| <b>Untreated</b>          |                                                      | <b>4.15 c</b>                                  | <b>1.48 c</b>      |

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<sup>1</sup>ProShield Force ST applied as a seed treatment at label rate, tefluthrin loaded onto the seed equal to 63% of Force 3G rate; TB = T-band, 7-inch band placed over the open seed furrow; ST = seed treatment.

<sup>2</sup>Root rating scales used: 1 - 6 scale (Hills and Peters 1971); 0 - 3 scale (J. Oleson and J.J. Tollefson, Iowa State University); Within columns, mean root rating values followed by the same letter are not significantly different from each other (Fisher's protected LSD test @ 0.05 significance level).

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