



University of Nebraska-Lincoln

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

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***Background Information -Agronomic***

**Hybrid:** Pioneer 33G26

**Row Spacing:** 30 inches

**Planting Date** 28 April 2000

**Planter:** Kinze model 2100, 4 row

**Planting Depth:** 2 inches

<b>Application Equipment:</b>	<u>Granular Insecticides</u> Planting: Planter mounted cone-belt system <u>Liquid Insecticides</u> CO <sub>2</sub> pressurized sprayer
<b>Field Preparation:</b>	Spring 2000 - disked and harrowed
<b>Herbicides Applied:</b>	4 May 2000: Bicep II Magnum, 2.1 qt./A, pre-emerge
<b>Fertilizer Applied:</b>	150 lb. N/A applied as NH <sub>3</sub> on 4 April 2000
<b>Previous Crop:</b>	Continuous corn (trap crop)
<b>Soil Information:</b>	
<b>Type:</b>	Silty clay loam
<b>Ph:</b>	6.4
<b>CEC:</b>	29.4
<b>% organic matter:</b>	2.8
<b>% clay:</b>	29.05
<b>% silt:</b>	66.67
<b>% sand:</b>	4.28
<b>Plant Population:</b>	Overall mean number of plants/33.5' ± SEM = 48.4 ± 0.3
<b>Phytotoxicity:</b>	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).
<b>Insecticide History:</b>	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) was 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 rating scale description.)

**Root Evaluation Date:** 10 July 2000

### ***Experimental Design***

**Design:** Randomized complete block design  
Replicated four times  
Single row treatments except for broadcast Furadan 4F plots which were 3 rows wide

**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:** 5-10 mph at 5 ft. height

**Wind direction:** NW

**Soil temperature 2" depth:** 14.5°C

**Soil temperature surface:** 16°C

**Soil moisture, 0-3" depth:** 23.5% water (gravimetric method)

**% cloud cover:** 25%

**% relative humidity:** not recorded

**Residue on surface:** 20% of soil surface covered with crop residue; soil very moist

***Environmental Conditions:Furadan applications***

**Air temperature:** 20°C

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

**Wind direction:** N

**Soil temperature 2" depth:** 25°C

**Soil temperature surface:** 26°C

**Soil moisture, 0-3" depth:** 24.8% water (gravimetric method)

**% cloud cover:** 0% (clear)

**% relative humidity:** not recorded

**Soil surface condition:** some crop residue on the surface, cultivated in well after Furadan 4F application

**Crop stage:** V5 (Hanway 1997)

***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**

*Experimental Formulations/Applications Evaluated - 2000*

<u>Compound</u>	<u>Company</u>
Aztec 2.1G BD	Bayer
CRAG-00011	Stockhausen, Inc.
Force CS	Zeneca

*Root Damage Evaluation*

<b>Insecticide</b>	<b>Rate/Placement<sup>a</sup> oz ai/1000 ft.</b>	<b>Mean Root Damage Rating (1-6 scale)</b>
Counter 20 CR	1.2 TB	2.15 a
Regent 4 SC	see footnote b	2.15 a
Force 3G	0.12 TB	2.30 ab
Force CS	0.12 I 2 gpa, mtube	2.50 a-c
Regent 4 SC	see footnote c	2.60 a-d
Aztec 2.1G	0.141 TB	2.70 a-e
Pilot 15G	1.2 TB	2.75 a-e
Force CS	0.12 TB 5 gpa	2.75 a-e
Force 3G	0.12 I	2.80 b-f
Furadan 4F	see footnote d	2.80 b-f
Aztec BD 2.1G	0.141 TB	2.85 b-f
Capture 2EC	0.0875 TB 5 gpa	2.90 b-f
Capture 2EC	0.0875 I 2 gpa, mtube	2.95 c-f
Capture 2EC	0.075 TB 5 gpa	3.05 c-f
CRAG-00011 20G	0.9 TB	3.05 c-f
Lorsban 15G	1.2 I	3.05 c-f
Lorsban 15G	1.2 TB	3.15 d-f
Capture 2EC	0.075 I 2 gpa, mtube	3.15 d-f
Aztec BD 2.1G	0.110 TB	3.30 e-g
CRAG-00011 20G	1.2 TB	3.40 fg
Capture 2EC	see footnote e	3.90 gh

<b>CRAG 00011 20G</b>	<b>0.6 TB</b>	<b>4.35 hi</b>
<b>Thimet 20G</b>	<b>1.2 TB</b>	<b>4.40 hi</b>
<b>Untreated</b>		<b>4.80 ij</b>
<b>Untreated</b>		<b>5.15 j</b>

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Means followed by the same lower case letter are not significantly different from each other (ANOVA, LSD test,  $P > 0.05$ ).

<sup>a</sup> placement:

I = Placement directly into open seed furrow

TB = T-band, 7-inch band placed over the open seed furrow

mtube = microtube, gpa = gallons per acre

<sup>b</sup>Regent:

rate: 0.13 lb ai/A; volume: 4 gallons 10-34-0 fertilizer/A through microtube into open seed furrow

<sup>c</sup>Regent:

rate: 0.13 lb ai/A; volume: 1 gallon water/A through microtube into open seed furrow

<sup>d</sup>Furadan:

rate: 1.0 lb ai/A; broadcast application on 2 June 2000, 28.8 gpa, 20 psi, Teejet 8004 nozzle tips

<sup>e</sup>Capture:

rate: 0.05 oz ai/1000' I, 2 gpa mtube; 0.025 oz ai/1000' banded over closed seed furrow

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