

**2006 CORN ROOTWORM EFFICACY TRIAL:
HERCULEX RW™ COMPARISON TO SOIL INSECTICIDES AND SEED
TREATMENT¹**

Final Report

University of Nebraska
Agricultural Research and Development Center
Mead, Nebraska

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¹ The data presented in this report are not to be released to the public without the written permission of the Department of Entomology, University of Nebraska, Lincoln, Nebraska.

Background information pertaining to the experiment conducted at the ARDC, near Mead, Nebraska during 2006.

Agronomic

Hybrids:	Pioneer® Brand Hybrids 34A15, 34A19
Row Spacing:	30 inches
Planting Date:	20 April 2006
Planter:	Kinze model 2100, 4 row cone
Planting Depth:	2 inches
Application Equipment:	<u>Granular insecticide</u> Planting: planter mounted cone-belt system <u>Liquid insecticide</u> Planter mounted CO ₂ pressurized sprayer
Field Preparation: disked	10 March 2006 - chopped and disked, 18 April 2006 -
Herbicides Applied:	28 April 2006: Cintch ATZ, 2.6 qt/A, pre emerge 5 June 2006: 1.0 oz/A SPIRIT
Fertilizer Applied:	150 lb. N/A applied as NH ₃ , 13 April 2006
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:	There were no significant differences ($P > 0.05$) among treatment stand count means at V3 growth stage (Hanway 1997). The overall mean number of plants per 33.5 ft \pm SEM = 45.7 \pm 0.5
Insecticide History:	Insecticide free: 1999, 2001, 2003, 2005 Multiclass soil insecticide trials: 1998, 2000, 2002, 2004

Entomological

Species present:	Northern corn rootworm, <i>Diabrotica barberi</i> Smith and Lawrence, and western corn rootworm, <i>D. virgifera virgifera</i> LeConte. Initial rootworm egg hatch occurred between 27-29 May 2006 (predominantly western corn rootworm).
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Root Evaluation: 0-3 root rating scale (Oleson et al. 2005) was used to evaluate larval corn rootworm damage in each treatment. Five roots per replication were evaluated in each treatment.

Root Evaluation Date: 12 July 2006

Experimental Design

Design: Randomized complete block design
Replicated four times
Four-row treatments

Row Length: 33.5 feet

Statistical Analysis: Root ratings, stand: Used SAS Mixed Procedure; Protected LSD test was used for mean separation ($P \leq 0.05$).

Environmental

Conditions at planting:

Air temperature:	18°C
Wind speed:	15 mph at 5 ft height
Wind direction:	N - NW
Soil temperature 2" depth:	19°C
Soil temperature surface:	23°C
Soil moisture, 0-3" depth:	not recorded
% cloud cover:	60 % cloud cover
% relative humidity:	not recorded
Residue on surface:	40% of soil surface covered with crop residue; soil moist, some clods on surface

Rainfall

April 01	0.24 inches
02	0.40
06	0.91
07	0.01

15	0.12
24	0.30
25	0.23
28	1.45
29	0.30
30	0.17

April **Total 4.13 inches**

May 02	0.03 inches
03	0.06
08	0.35
11	0.01
23	0.64
26	0.04
27	0.06

May **Total 1.19 inches**

June 04	0.32 inches
16	0.60
17	0.90
24	0.34
25	0.10

June **Total 1.94 inches**

July 02	0.16 inches
08	0.42
10	0.40
13	1.65
21	0.62

July **Total 3.25 inches**

August 01	0.13 inches
02	0.02
05	0.21
06	0.72
07	0.50
08	2.16
10	0.13

16 0.77
 17 0.11
 18 0.19
 27 0.34
 28 0.01

August **Total 5.29 inches**

Irrigation (through August 2006):

Sprinkler irrigation was applied as needed throughout the season.

June	01 1.00 inches	August 04 1.50 inches
	15 1.00	
	30 2.00	
July	07 1.00 inches	
	26 1.25	

Table 1. 2006 Corn Rootworm Experiment 4.
 Pioneer Hi-Bred Herculex Rootworm™ Corn Rootworm Efficacy Study

University of Nebraska Agricultural Research and Development Center, near Mead, NE

Root Damage Evaluation

Treatment	Treatment Rate¹	Mean Root Rating₂
Pioneer® Brand Hybrid 34A19 Cry 34/35 plus Poncho®250 (Herculex Rootworm®)	Clothianidin 0.25 mg ai per seed, ST	0.05 ± 0.01 a

Pioneer [®] Brand Hybrid 34A15 plus Regent [®] 4SC	0.13 lb ai per acre, I, 5 gpa, MT	0.18 ± 0.05 a
Pioneer [®] Brand Hybrid 34A15 plus Aztec [®] 2.1G	0.141 oz ai per 1000 row-ft, TB	0.33 ± 0.10 ab
Pioneer [®] Brand Hybrid 34A15 plus Poncho [®] 1250	Clothianidin 1.25 mg ai per seed, ST	0.71 ± 0.15 b
Pioneer [®] Brand Hybrid 34A15		1.80 ± 0.22 c

Planting date: 20 April 2006; Plot size: four rows x 33.5 ft per treatment per replication, 4 replications; means within columns followed by the same letter are not significantly different ($P > 0.05$, Fishers Protected LSD Test).

¹ I= placed in the open seed furrow, ST=seed treatment, TB=T-band (7 inch band placed over open seed furrow),

MT=microtube application

² Root evaluation date: 12 July 2006, rated 5 roots from two inside rows per treatment per replication using 0-3

node injury scale (Oleson et al. 2005)