

**2007 HERCULEX XTRA CORN ROOTWORM
EFFICACY AND YIELD EXPERIMENT**

Data Summary

University of Nebraska
Agricultural Research and Development Center
Mead, Nebraska

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Background information pertaining to the experiment conducted at the ARDC, near Mead, Nebraska during 2007.

Agronomic

Hybrids: Mycogen 2T787, Mycogen 2T780
Row Spacing: 30 inches
Planting Date: 23 April 2007
Planter: Kinze model 2100, 4 row cone
Planting Depth: 2 inches
Field Preparation: 20 April 2007 - chopped and disked, 23 April 2007 - disked
Herbicides Applied: 2 May 2006: 2.4 qt BicepII Mag
15 June 2007: Spirit 1.0 oz/ac
Fertilizer Applied: 150 lb. N per acre applied as NH₃, 23 April 2007
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 Stand / Stress: There were no significant differences ($P = 0.43$) among
treatment stand count means at harvest (24 October 2007). The overall mean number of plants per acre \pm SEM = 24,102 \pm 811. There was no visible drought stress prior to anthesis.

Insecticide History: Insecticide free: 2000, 2002, 2004, 2006
Multiclass soil insecticide trials: 1999, 2001, 2003, 2005

Entomological

Species present: Adult emergence of *Diabrotica* species was recorded from single-plant emergence cages placed in Mycogen 2T780 plots. The species present and proportion of total *Diabrotica* collected in emergence cages were: northern corn rootworm, *Diabrotica*

barberi Smith and Lawrence (25.5%); western corn rootworm, *D. virgifera virgifera* LeConte (72.5%); and southern corn rootworm *D. undecimpunctata howardi* Barber (2%). Initial rootworm egg hatch occurred 25 May 2007.

Root Evaluation: 0-3 root rating scale (Oleson et al. 2005) was used to evaluate larval corn rootworm damage in each treatment. Ten roots per replication were evaluated in each treatment.

Root Evaluation Date: 31 July 2007

Experimental Design

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

Row Length: 20 feet

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

Environmental

Conditions at planting:

Air temperature:	26°C
Wind speed:	10 mph at 5 ft height
Wind direction:	E-SE
Soil temperature 2" depth:	21°C
Soil temperature surface:	26°C
Soil moisture, 0-3" depth:	14.1% (gravimetric method)
% cloud cover:	0 % , clear
% relative humidity:	not recorded
Residue on surface:	20% of soil surface covered with crop residue; soil moist, good planting bed

2007 Rainfall

April 01 0.01 inch
02 0.18
22 0.21
23 0.01
24 2.71
25 0.35
Total **3.47**

May 03 0.12 inch
04 0.04
05 2.52
06 1.01
07 0.03
14 0.39
15 0.17
22 0.02
23 0.40
24 0.84
26 0.17
27 0.01
28 0.03
29 0.03
30 0.03
31 0.47
Total **6.28**

June 02 0.14 inch
03 0.18
04 0.15
06 0.02
13 0.97
14 0.02
22 0.10
Total **1.58**

July 09 0.53 inch
12 0.06
13 0.01
15 0.01
19 0.51
27 0.21
28 0.02
Total **1.35**

Aug 01 0.13 inch
02 0.02
05 0.21
06 1.62
07 0.04
08 1.26
09 0.50
10 0.48
12 2.02
16 0.13
17 0.02
20 0.47
22 0.44
23 0.76
28 1.16
29 0.01
Total **9.27**

Sep 06 0.01 inch
07 0.01
10 0.15
17 0.05
18 1.19
19 0.01
24 0.41
25 0.68
Total **2.51**

Irrigation (through August 2007):

Sprinkler irrigation was applied as needed throughout the season.

June 26 1.00 inches
27 0.75

July 6 1.5 inches
17 0.5
26 0.75

Table 1. 2007 Herculex XTRA Corn Rootworm Efficacy and Yield Experiment
University of Nebraska Agricultural Research and Development Center, near Mead, NE

Root Damage Ratings, Percentage Lodging, Yield \pm SE

Treatment	Seed Treatment Rate	Mean Root Rating ¹ 0 - 3 Scale	Percentage ² Lodging	Yield ³
Mycogen 2T787 + Cruiser 5 FS (Herculex XTRA)	Thiamethoxam 0.25 mg ai / seed	0.09 \pm 0.01 a	0.43 \pm 0.004	199.76 \pm 2.7 a
Mycogen 2T780 + Cruiser 5 FS (Herculex I)	Thiamethoxam 0.25 mg ai / seed	0.88 \pm 0.08 b	0.86 \pm 0.005	184.53 \pm 1.9 b

Planting date: 23 April 2007; Plot size: six rows x 20 ft per treatment per replication, 4 replications; means within columns followed by different letters are significantly different ($P < 0.05$, Fishers Protected LSD Test); there were no significant differences in percentage lodging among treatments ($P = 0.3812$).

¹ Root evaluation date: 31 July 2007, rated 10 total roots from rows 2 and 5 (5 per row) per treatment per replication using 0-3 node injury scale (Oleson et al. 2005)

² Percentage lodging = proportion of final stand leaning >45 degree angle from vertical x 100

³ Bulk yield = hand harvested and shelled 37-40 row-ft from the two inside rows per plot on 24 October 2007, presented as bushels of corn per acre @ 15.5% moisture.