

**2006 CORN ROOTWORM EFFICACY TRIAL
YIELDGARD ROOTWORM COMPARISON TO SOIL INSECTICIDES AND
SEED TREATMENTS¹**

Final Report

University of Nebraska
Agricultural Research and Development Center
Mead, Nebraska

Lance J. Meinke, Jim Brown,
Laura Campbell, Bill McCormick

Department of Entomology
University of Nebraska
Lincoln, Nebraska 68583-0816

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:	DKC 60-17, DKC 60-13
Row Spacing:	30 inches
Planting Date:	27 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 - disked
Herbicides Applied:	28 April 2006: Cintch ATZ, 2.6qt/ac, pre emerge 5 June 2006: Spirit 1.0 oz/ac
Fertilizer Applied:	150 lb. N per acre 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-V4 growth stage (Hanway 1997). The overall mean number of plants per 33.5 ft \pm SEM = 41.9 \pm 0.4
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).
------------------	---

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
Single-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:	26°C
Wind speed:	10 mph at 5 ft height
Wind direction:	W
Soil temperature 2" depth:	19°C
Soil temperature surface:	29°C
Soil moisture, 0-3" depth:	not recorded
% cloud cover:	25 % cloud cover
% relative humidity:	not recorded
Residue on surface:	30% of soil surface covered with crop residue;

soil

moist, some clods on surface

Rainfall

April 01	0.24 inch
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 inch
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	1	1.00 inches	August 04	1.5 inches
	15	1.0		
	30	2.0		
July	7	1.0 inches		
	26	1.25		

Table 1. 2006 Corn Rootworm Soil Insecticide Experiment 1.
University of Nebraska Agricultural Research and Development Center, near Mead, NE

Root Damage Evaluation

Insecticide	Rate/Placement ^a	Mean Root Damage Rating ^b (0-3 scale)
YieldGard Rootworm +Poncho 250	0.25 mg ai/seed ST	0.03 a
Regent 4 SC	0.13 lb ai/A 5 gpa, mtube I	0.12 ab
Regent 4 SC + Poncho 250	3.25 oz/A 5 gpa mtube I, 0.25 mg ai/seed ST	0.16 abc
Aztec 4.67G	0.14 I smartbox appl.	0.18 abc
Regent 4 SC + Regent TS	2.08 oz/A 5 gpa mtube I, 2.0 oz/100 wt seed ST	0.19 abc
A14974 250 CS	1.12 g ai/100 row m TB	0.21 abc
Fortress 5G	0.20 I smartbox appl.	0.26 abc
Lorsban 15G + Poncho 250	0.9 TB, 0.25 mg ai/seed	0.26 abc
Lorsban 15G	1.2 TB	0.30 abcd
Aztec 2.1G	0.141 TB	0.31 abcd
A14974 250 CS	1.12 g ai/100 row m I	0.33 abcd
Force 3G	0.12 TB	0.34 abcd
Poncho 1250	1.25 mg ai/seed ST	0.34 abcd
Capture 2EC	0.09 TB 5 gpa, water carrier	0.38 bcd
Capture LFR	0.09 TB 5 gpa, water carrier	0.38 bcd
Cruiser 5 FS	1.25 mg ai/seed ST	0.43 bcd
Regent TS	2.0 oz/100 wt seed ST	0.46 cd
Poncho 250	0.25 mg ai/seed ST	0.59 d
Untreated (2)		1.22 e
Untreated (1)		1.51 f

^a Rate presented as oz ai per 1000 row ft except where other units listed:

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

I = placed in the open seed furrow;

ST = seed treatment.

A14974 250 CS is a liquid formulation of tefluthrin

^b Root rating scale used: 0 - 3 scale (Oleson et al. 2005); 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). No plant lodging was observed in any treatment on 10 July 2006.