2007 CORN ROOTWORM SOIL INSECTICIDE / SEED TREATMENT EFFICACY EXPERIMENT [1]

Data Summary

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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 2007.

Agronomic

Hybrids:	DKC 60-17, DKC 60-13
Row Spacing:	30 inches
Planting Date:	23 April 2007
Planter:	Kinze model 2100, 4 row cone
Planting Depth:	2 inches
Application Equipment:	Granular insecticide Planting: planter mounted cone-belt system
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 NH_3, 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 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 80 row-ft $\pm$ SEM = 100.9 $\pm$ 2.2

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

Entomological

Species present: Northern corn rootworm, *Diabrotica barberi* Smith and Lawrence, and western corn rootworm, *D. virgifera virgifera* LeConte (predominantly western corn rootworm). 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. Five roots per replication were evaluated in each treatment.
Root Evaluation Date:	24 July 2007

Experimental Design

Design:	Randomized complete block design Replicated four times Four-row treatments
Row Length:	40 feet
Statistical Analysis:	Root ratings, stand, lodging: 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
Total		**8.10** (total does not include rainfall recorded after 23 August 07)

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 Corn Rootworm Soil Insecticide/Seed Treatment Experiment.
University of Nebraska Agricultural Research and Development Center, near Mead, NE.

Root Damage and Lodging Evaluation

Treatment	Seed Treatment or Insecticide Rate [a]	Mean Root Damage Rating [b]	Mean Percentage Lodged Plants [c]
DKC 60-13 + Poncho 250, (YieldGard Rootworm)	ST=Clothianidin 0.25 mg ai/seed	0.05 a	0.75
Isoline DKC 60-17 + Aztec 2.1G	Aztec: 0.141 oz ai/1000 row-ft, TB	0.19 a	0.75
Isoline DKC 60-17 + Poncho 1250	ST=Clothianidin 1.25 mg ai/seed	0.29 a	0.75
Isoline DKC 60-17 + Lorsban 15G	Lorsban: 1.2 oz ai/1000 row-ft, TB	0.32 a	0.50
Isoline DKC 60-17 + NUP 05071	ST=Imidacloprid 1.34 mg ai/seed	0.39 a	0.75
Isoline DKC 60-17 + NUP 07066	ST=Imidacloprid 1.34 mg ai/seed	0.47 a	0.25
Isoline DKC 60-17		1.23 b	2.00

[a] TB = T-band, 7-inch band placed over the open seed furrow; ST = seed treatment.

[b] Root rating scale used: 0 - 3 scale (Oleson et al. 2005); within the column, mean values followed by the same letter are not significantly different from each other (Fisher's protected LSD test @ 0.05 significance level).

[c] Lodged plants = plants leaning >45^{o} from vertical; lodged plants per treatment was recorded from two center rows of each plot on 27 August 2007. There were no significant differences in mean proportion lodged plants among treatments (P=0.68).

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