

FIELD EXPERIMENT HISTORY

Expt. Number: 9589 **Year:** 1995
Title: Managing Corn Seed Decay and Seedling Blight in Reduced Tillage Systems
Personnel: J.G. Lauer, J.R. Meyer, K.D. Hudelson
Location: Arlington Research Station, Arlington, WI
Supported by: Gustafson, Inc., Hatch Project 1890

FIELD INFORMATION

Field: 338
Soil Type: Plano Silt Loam
Soil Test Results: Test Date: 4/95 pH: 7.0 P (ppm): 50 K (ppm): 105 OM (%): 4.0
Fertilizer: 25-Apr 100 lbs/a 6-24-24 starter
25-Apr 150 lbs N/a 28-0-0
Tillage Operations: None
Previous Crop: Corn
Irrigation: None

EXPERIMENTAL PROCEDURE

Exp. Design: RCB Split-Split Plot
Replicates: 6
Variables: A: Tillage, B: Seed Quality, C: Seed Treatment

		Rates (oz F.P./CWT):
Seed Treatments:	Captan 400	1.76 fl oz
	Captan 400 + Apron	1.76 fl oz + 0.1 fl oz
	Captan 400 + Apron + Raxil	1.76 fl oz + 20 ppm + 20 ppm
	Captan 400 + Apron + Gaucho	1.76 fl oz + 0.1 fl oz + 1.0 fl oz
	Captan 400 + Apron + Baytan	1.76 fl oz + 0.1 fl oz + 0.25 fl oz
	Maxim + Apron	25 ppm + 20 ppm
	Untreated Control	

Area Planted: 10' x 30'
Area Harvested: 5.0' x 25'
Row Spacing: 30"

Hybrid/Variety: Pioneer 3556 (Poor Seedling Vigor)
Pioneer 3475 (Average Seedling Vigor)

Planting Date: 25-Apr
Planting Equip: JD 7000 Planter w/ 3 coulters
Planting Rate: 32,000 seeds/acre
Harvesting Date: 5,6-Oct
Harvesting Equip: Gleaner Plot Combine

	<u>Date</u>	<u>Material</u>	<u>Rate</u>	<u>Method</u>
Insecticide:	25-Apr	Lorsban	8 oz/1000 ft	planter
Herbicides:	1-May	Bladex	2 qts/a	preemerg
	1-May	Lasso	2 qts/a	preemerg

Results: Table E-36.

**Table E-36. Corn Seed Decay and Seedling Blight in Reduced Tillage Systems
Arlington, WI**

			Root and Plant Ratings - 35 Days after Planting																						
Tillage	Seedling Vigor	Seed Treatment	Days After Planting					Total										Whole Plant		Harvest Population	Final Emerg	Broken Stalks	Moist %	Yield bu/a	
			24	27	29	31	35	41	Leaf Collars	Leaves Visible	Kernel Rot	Root Discolor	Primary Root Longevity	Root Length	Seminal Root Number	Seminal Root Length	Nodal Root Number	Nodal Root Length	Dry Wt						g
			% Emergence					1\1	1\2	1\3	cm	cm	cm	cm	cm	cm	cm	cm	g						plants/a
No-Till			12.0	36.1	45.2	47.6	52.8	57.6	0.9	1.6	1.9	2.0	2.2	4.2	3.7	15.7	1.9	5.2	0.20	16822	52.5	1.8	30.1	100.8	
Zone-Till			28.2	51.8	57.8	59.3	61.8	64.6	1.1	1.7	1.9	1.9	2.2	5.6	3.8	19.3	2.8	9.6	0.23	18756	58.5	2.2	29.3	115.7	
	Average		15.1	36.5	43.3	46.3	50.4	54.7	0.9	1.6	1.9	2.1	2.2	4.9	3.0	14.2	1.7	4.7	0.20	15922	49.7	1.7	29.9	101.5	
	Poor		25.2	51.4	59.7	60.7	64.2	67.4	1.1	1.7	1.9	1.8	2.2	4.9	4.5	20.8	3.1	10.1	0.23	19656	61.3	2.3	29.5	115.0	
No-Till	Average		9.4	29.8	37.7	41.1	46.5	51.7	0.9	1.6	1.9	2.0	2.2	4.3	2.9	12.7	1.3	3.4	0.20	15151	47.3	1.7	30.4	93.5	
Zone-Till	Average		20.7	43.2	48.9	51.4	54.3	57.8	0.9	1.6	1.9	2.2	2.2	5.4	3.1	15.6	2.1	5.9	0.21	16694	52.1	1.7	29.3	109.6	
No-Till	Poor		14.6	42.5	52.6	54.1	59.1	63.5	1.0	1.7	1.9	2.1	2.3	4.0	4.5	18.5	2.5	7.0	0.21	18494	57.7	1.9	29.7	108.1	
Zone-Till	Poor		35.8	60.4	66.8	67.3	69.3	71.3	1.3	1.7	2.0	1.6	2.2	5.9	4.6	23.4	3.6	13.4	0.25	20818	64.9	2.8	29.3	121.9	
		Captan	20.6	44.7	52.5	54.9	57.0	61.8	1.0	1.7	1.9	2.3	2.2	4.5	3.5	16.3	2.6	8.2	0.22	17932	55.9	2.1	29.6	109.7	
		Captan+Apron	21.2	44.0	52.7	54.2	58.3	61.2	1.0	1.6	1.9	1.8	2.3	5.0	3.9	18.9	2.3	6.8	0.21	17903	55.8	1.4	29.6	111.3	
		Captan+Apron+Baytan	22.9	49.4	57.2	60.0	64.2	66.3	1.1	1.6	1.9	1.9	2.1	5.2	3.8	17.1	2.5	7.1	0.22	19050	59.4	2.0	29.5	109.6	
		Captan+Apron+Gaucho	20.3	44.4	53.6	55.8	59.1	62.6	1.1	1.7	2.0	1.8	2.1	5.1	4.1	19.7	2.4	7.7	0.23	18571	57.9	2.3	29.5	111.2	
		Captan+Apron+Raxil	18.3	39.0	45.5	47.8	53.9	58.7	1.0	1.7	1.9	2.0	2.1	4.8	3.8	16.0	2.2	7.0	0.22	17119	53.4	2.0	29.9	106.5	
		Maxim+Apron	21.6	47.4	54.0	55.4	58.9	63.1	1.1	1.6	1.9	2.1	2.2	5.3	3.9	19.0	2.6	9.0	0.22	18179	56.7	2.6	29.3	112.7	
		Untreated	16.0	38.8	45.0	46.4	49.6	53.8	1.0	1.6	1.9	2.1	2.5	4.3	3.3	14.9	2.1	6.0	0.21	15769	49.2	1.7	30.3	96.8	
No-Till		Captan	11.6	37.5	46.4	48.3	52.7	59.0	0.9	1.8	1.9	2.4	2.2	3.7	3.6	16.5	2.2	6.9	0.20	16785	52.4	1.9	29.8	102.6	
Zone-Till		Captan	29.7	51.9	58.7	61.5	61.3	64.5	1.0	1.7	1.9	2.2	2.2	5.3	3.4	16.1	3.0	9.6	0.24	19079	59.5	2.4	29.4	116.9	
No-Till		Captan+Apron	15.2	38.3	48.3	50.0	54.9	59.0	0.9	1.7	1.9	1.8	2.2	4.7	3.7	17.2	1.7	4.0	0.20	17482	54.5	0.8	30.1	107.1	
Zone-Till		Captan+Apron	27.1	49.7	57.1	58.3	61.8	63.3	1.2	1.6	1.9	1.9	2.4	5.3	4.0	20.5	2.9	9.4	0.22	18324	57.2	1.9	29.1	115.6	
No-Till		Captan+Apron+Baytan	14.7	42.0	52.4	56.3	61.0	63.5	0.9	1.6	1.9	2.0	2.1	4.3	3.7	13.5	1.7	4.1	0.21	18440	57.5	2.3	29.9	103.4	
Zone-Till		Captan+Apron+Baytan	31.1	56.8	62.1	63.7	67.5	69.0	1.2	1.7	2.0	1.9	2.0	6.2	4.0	21.0	3.4	10.1	0.24	19660	61.3	1.7	29.2	115.8	
No-Till		Captan+Apron+Gaucho	14.6	39.7	50.2	51.9	56.5	60.4	1.0	1.7	2.0	1.9	2.3	4.3	4.0	18.2	1.9	6.0	0.21	17308	54.0	1.9	30.1	101.6	
Zone-Till		Captan+Apron+Gaucho	26.1	49.1	57.0	59.6	61.6	64.8	1.2	1.7	2.0	1.7	2.0	5.8	4.2	21.0	2.8	9.4	0.24	19834	61.9	2.7	28.9	120.8	
No-Till		Captan+Apron+Raxil	7.3	27.5	36.5	40.2	48.0	55.4	0.9	1.7	1.9	2.0	2.3	4.0	3.6	13.8	1.8	4.4	0.21	16698	52.1	2.6	30.5	99.3	
Zone-Till		Captan+Apron+Raxil	29.3	50.6	54.5	55.4	59.8	62.0	1.1	1.7	1.9	2.0	2.0	5.6	4.0	18.7	2.6	9.5	0.23	17540	54.7	1.3	29.3	113.7	
No-Till		Maxim+Apron	13.2	40.0	47.5	49.0	54.7	59.1	1.1	1.5	1.9	2.1	2.0	4.5	4.1	18.2	2.6	7.5	0.21	16930	52.8	1.6	29.6	105.5	
Zone-Till		Maxim+Apron	30.0	54.7	60.5	61.8	63.0	67.1	1.1	1.7	1.9	1.7	2.4	6.1	3.8	19.9	2.6	10.6	0.23	19428	60.6	3.6	29.1	119.9	
No-Till		Untreated	7.8	28.0	34.9	37.6	41.9	46.5	0.8	1.5	1.9	2.2	2.6	3.5	3.2	12.6	1.6	3.5	0.20	14113	44.0	1.5	30.4	86.3	
Zone-Till		Untreated	24.3	49.6	55.1	55.2	57.4	61.2	1.1	1.6	1.9	2.0	2.4	5.1	3.4	17.2	2.5	8.5	0.21	17424	54.3	1.9	30.1	107.3	
	Average	Captan	15.7	37.1	44.3	48.5	50.6	57.7	0.8	1.6	1.9	2.9	2.0	4.8	2.6	12.1	1.8	5.3	0.20	16582	51.7	1.5	29.5	107.2	
	Poor	Captan	25.6	52.4	60.8	61.3	63.4	65.9	1.1	1.8	2.0	1.8	2.4	4.2	4.4	20.5	3.4	11.4	0.24	19283	60.1	2.8	29.6	112.3	
	Average	Captan+Apron	17.0	39.4	47.7	49.9	54.4	58.2	0.8	1.7	1.9	1.8	2.3	4.8	3.1	14.3	1.6	4.3	0.19	16901	52.7	1.3	29.8	108.6	
	Poor	Captan+Apron	25.3	48.6	57.6	58.4	62.2	64.1	1.2	1.6	2.0	1.9	2.3	5.2	4.6	23.5	3.0	9.2	0.23	18905	59.0	1.4	29.4	114.1	
	Average	Captan+Apron+Baytan	19.3	41.5	48.3	52.8	56.6	58.4	1.0	1.6	1.9	2.3	2.0	5.4	3.1	14.4	1.8	4.2	0.22	17279	53.9	1.8	29.6	104.0	
	Poor	Captan+Apron+Baytan	26.4	57.3	66.1	67.1	71.8	74.1	1.2	1.7	2.0	1.6	2.1	5.1	4.6	20.0	3.3	10.1	0.23	20822	64.9	2.3	29.5	115.3	
	Average	Captan+Apron+Gaucho	14.9	38.3	46.3	49.6	52.6	56.4	1.0	1.6	2.0	1.8	2.0	5.5	3.2	15.4	1.6	4.2	0.22	16553	51.6	2.2	29.5	105.1	
	Poor	Captan+Apron+Gaucho	25.8	50.5	60.9	61.9	65.5	68.7	1.2	1.8	2.0	1.9	2.2	4.6	5.0	23.6	3.2	11.3	0.24	20589	64.2	2.4	29.6	117.4	
	Average	Captan+Apron+Raxil	12.8	31.0	36.1	39.9	46.1	50.1	0.8	1.6	1.8	2.0	2.3	4.1	2.8	14.3	1.2	3.5	0.19	14839	46.3	1.6	30.6	94.6	
	Poor	Captan+Apron+Raxil	23.9	47.1	55.0	55.7	61.7	67.4	1.1	1.8	2.0	2.1	2.0	5.5	4.7	18.1	3.1	10.4	0.24	19399	60.5	2.3	29.3	118.4	
	Average	Maxim+Apron	14.3	35.9	41.6	43.1	48.5	53.4	1.0	1.6	1.9	2.0	2.2	5.4	3.3	15.1	1.9	6.5	0.20	15536	48.5	2.1	29.7	104.3	
	Poor	Maxim+Apron	28.8	58.9	66.5	67.7	69.3	72.9	1.1	1.7	2.0	1.8	2.2	5.2	4.6	23.0	3.3	11.5	0.24	20822	64.9	3.1	29.0	121.1	
	Average	Untreated	11.5	32.4	38.9	40.1	44.0	48.9	0.9	1.6	1.9	2.0	2.5	4.0	2.9	13.8	2.0	4.6	0.21	13765	42.9	1.4	30.5	87.2	
	Poor	Untreated	20.6	45.2	51.1	52.6	55.3	58.7	1.0	1.5	1.9	2.1	2.5	4.7	3.8	15.9	2.1	7.4	0.20	17772	55.4	2.0	30.0	106.5	

**Table E-36. Corn Seed Decay and Seedling Blight in Reduced Tillage Systems
Arlington, WI**

			Root and Plant Ratings - 35 Days after Planting																						
Tillage	Seedling Vigor	Seed Treatment	Days After Planting						Total		Kernel Rot	Root Discolor	Primary Root Longevity	Root		Seminal Root		Nodal Root		Whole Plant Dry Wt	Harvest Population	Final Emerg	Broken Stalks	Moist %	Yield bu/a
			24	27	29	31	35	41	Collars	Leaves Visible				Length	Length	Number	Length	Number	Length						
			% Emergence						\1\	\2\	\3\	cm	cm	cm	cm	g	g	g	g	g	g	g	g	g	g
No-Till	Average	Captan	10.5	30.8	37.5	42.2	45.3	53.1	0.8	1.7	1.9	2.8	2.0	4.7	2.8	12.6	1.7	4.7	0.19	15740	49.1	1.9	30.2	96.0	
Zone-Till	Average	Captan	20.8	43.3	51.1	54.7	56.0	62.3	0.8	1.5	1.9	2.9	2.1	5.0	2.4	11.7	1.9	5.9	0.20	17424	54.3	1.0	28.9	118.3	
No-Till	Poor	Captan	12.7	44.2	55.3	54.4	60.1	65.0	1.0	1.8	1.9	2.0	2.5	2.8	4.4	19.7	2.7	9.2	0.21	17831	55.6	1.9	29.4	109.1	
Zone-Till	Poor	Captan	38.6	60.5	66.3	68.3	66.7	66.7	1.2	1.9	2.0	1.5	2.3	5.7	4.4	21.3	4.1	14.1	0.28	20735	64.7	3.8	29.9	115.6	
No-Till	Average	Captan+Apron	11.3	34.2	44.4	46.9	52.4	57.6	0.8	1.7	1.9	1.4	2.2	4.5	3.3	13.8	1.4	4.0	0.20	17134	53.4	0.7	30.6	107.0	
Zone-Till	Average	Captan+Apron	22.8	44.6	51.1	52.9	56.5	58.9	0.9	1.7	1.9	2.1	2.4	5.2	2.9	14.8	1.8	4.5	0.19	16669	52.0	1.9	29.1	110.1	
No-Till	Poor	Captan+Apron	19.2	42.4	52.2	53.1	57.4	60.4	0.9	1.6	1.9	2.1	2.2	5.0	4.0	20.7	1.9	4.1	0.20	17831	55.6	0.9	29.7	107.2	
Zone-Till	Poor	Captan+Apron	31.3	54.9	63.1	63.8	67.0	67.8	1.5	1.6	2.0	1.6	2.4	5.5	5.1	26.3	4.0	14.2	0.25	19980	62.3	1.9	29.1	121.1	
No-Till	Average	Captan+Apron+Baytan	12.1	35.0	44.9	51.1	53.4	56.9	0.9	1.5	1.9	2.1	2.3	4.4	2.8	9.9	1.2	2.5	0.21	16901	52.7	2.9	30.0	96.2	
Zone-Till	Average	Captan+Apron+Baytan	26.4	48.0	51.6	54.6	59.8	60.0	1.0	1.7	2.0	2.5	1.8	6.3	3.3	18.9	2.3	5.8	0.22	17656	55.1	0.7	29.2	111.8	
No-Till	Poor	Captan+Apron+Baytan	17.2	49.1	59.8	61.4	68.5	70.1	0.9	1.6	1.9	1.9	2.0	4.2	4.5	17.0	2.2	5.7	0.20	19980	62.3	1.7	29.8	110.7	
Zone-Till	Poor	Captan+Apron+Baytan	35.7	65.6	72.5	72.8	75.2	78.1	1.4	1.8	2.0	1.2	2.2	6.1	4.8	23.5	4.4	14.4	0.26	21664	67.6	2.8	29.1	119.8	
No-Till	Average	Captan+Apron+Gaucho	12.0	35.9	44.4	47.3	52.2	56.0	0.9	1.6	2.0	1.6	2.1	5.3	3.1	14.8	1.0	2.7	0.22	15507	48.4	2.4	30.1	95.1	
Zone-Till	Average	Captan+Apron+Gaucho	17.8	40.7	48.2	52.0	53.1	56.9	1.0	1.5	1.9	1.9	1.9	5.7	3.2	15.8	2.1	5.7	0.22	17598	54.9	1.9	28.9	115.0	
No-Till	Poor	Captan+Apron+Gaucho	17.2	43.5	56.0	56.5	60.9	64.9	1.0	1.8	2.0	2.3	2.4	3.3	4.8	21.0	2.8	9.4	0.21	19108	59.6	1.5	30.1	108.1	
Zone-Till	Poor	Captan+Apron+Gaucho	34.4	57.5	65.8	67.2	70.1	72.6	1.3	1.9	2.0	1.4	2.1	5.8	5.1	26.3	3.6	13.2	0.26	22070	68.8	3.4	29.0	126.7	
No-Till	Average	Captan+Apron+Raxil	5.4	19.0	26.6	31.7	41.1	46.0	0.8	1.5	1.8	1.9	2.5	3.4	2.5	12.7	0.9	1.7	0.19	14230	44.4	1.7	31.1	85.0	
Zone-Till	Average	Captan+Apron+Raxil	20.1	43.0	45.5	48.0	51.1	54.2	0.8	1.7	1.9	2.1	2.1	4.9	3.0	16.0	1.6	5.4	0.20	15449	48.2	1.6	30.1	104.1	
No-Till	Poor	Captan+Apron+Raxil	9.2	35.9	46.4	48.7	54.9	64.9	0.9	1.8	1.9	2.1	2.1	4.7	4.6	15.0	2.7	7.1	0.22	19166	59.8	3.5	30.0	113.6	
Zone-Till	Poor	Captan+Apron+Raxil	38.6	58.3	63.6	62.7	68.5	69.9	1.3	1.7	2.0	2.0	1.9	6.2	4.9	22.8	3.5	13.7	0.26	19631	61.2	1.1	28.6	123.2	
No-Till	Average	Maxim+Apron	8.2	30.1	36.2	37.1	44.4	49.6	1.1	1.4	1.9	2.4	1.9	4.5	3.3	13.4	1.5	4.6	0.17	14520	45.3	0.3	30.2	104.2	
Zone-Till	Average	Maxim+Apron	20.5	41.7	46.9	49.1	52.5	57.1	1.0	1.7	1.9	1.7	2.5	6.3	3.3	16.8	2.3	8.5	0.23	16553	51.6	3.9	29.2	104.4	
No-Till	Poor	Maxim+Apron	18.1	50.0	58.9	60.9	65.0	68.7	1.1	1.7	2.0	1.8	2.1	4.6	4.9	23.0	3.7	10.3	0.24	19341	60.3	2.9	29.0	106.8	
Zone-Till	Poor	Maxim+Apron	39.5	67.8	74.1	74.5	73.6	77.2	1.1	1.7	1.9	1.7	2.2	5.8	4.3	23.1	3.0	12.7	0.24	22303	69.6	3.3	29.0	135.4	
No-Till	Average	Untreated	6.7	23.6	30.1	31.7	37.0	42.4	0.7	1.6	1.8	2.1	2.7	3.5	2.5	12.2	1.6	3.8	0.22	12023	37.5	2.1	31.0	71.0	
Zone-Till	Average	Untreated	16.3	41.3	47.7	48.6	51.1	55.5	1.0	1.7	1.9	1.9	2.3	4.4	3.3	15.3	2.4	5.4	0.21	15507	48.4	0.7	30.0	103.3	
No-Till	Poor	Untreated	8.9	32.4	39.7	43.5	46.8	50.6	0.9	1.4	1.9	2.2	2.6	3.6	4.0	13.0	1.6	3.1	0.19	16204	50.5	0.9	29.9	101.5	
Zone-Till	Poor	Untreated	32.3	58.0	62.5	61.8	63.8	66.9	1.2	1.6	1.8	2.0	2.4	5.9	3.6	19.5	2.7	11.6	0.21	19341	60.3	3.1	30.2	111.4	
Mean			20.1	44.0	51.5	53.5	57.3	61.1	1.0	1.6	1.9	2.0	2.2	4.9	3.8	17.5	2.4	7.4	0.22	17789	55.5	2.0	29.7	108.3	
Probability (%)																									
Tillage (T)			0.3	0.1	0.1	0.2	0.2	0.2	1.8	12.3	14.6	46.7	48.3	< 0.1	44.6	3.2	1.4	0.9	7.2	0.2	0.2	36.2	1.1	0.6	
Seedling Vigor (V)			0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.6	9.1	17.4	> 50	> 50	< 0.1	< 0.1	< 0.1	> 50	0.1	< 0.1	< 0.1	11.3	2.8	< 0.1	
T x V			7.4	23.7	41.2	44.5	45.4	> 50	2.9	> 50	> 50	16.7	> 50	34.9	> 50	38.2	19.2	0.7	3.6	42.3	42.3	23.8	4.7	> 50	
Seed Treatment (S)			22.0	0.2	< 0.1	< 0.1	< 0.1	< 0.1	> 50	39.2	26.4	10.9	11.9	38.5	5.2	15.8	> 50	> 50	> 50	< 0.1	< 0.1	> 50	17.7	9.0	
T x S			> 50	18.5	15.8	44.6	43.5	42.5	48.8	> 50	> 50	> 50	23.1	> 50	> 50	> 50	44.3	> 50	> 50	> 50	> 50	20.8	> 50	> 50	
V x S			> 50	36.1	15.8	17.5	27.7	7.7	> 50	8.1	46.8	0.3	47.1	27.3	30.5	46.0	26.0	> 50	> 50	35.1	35.1	> 50	49.1	> 50	
T x V x S			> 50	> 50	> 50	> 50	> 50	> 50	> 50	> 50	> 50	14.8	> 50	> 50	19.1	> 50	27.1	> 50	13.0	> 50	> 50	3.3	> 50	31.9	
LDS (0.10)																									
Tillage (T)			NS	4.9	3.8	3.9	3.0	2.5	0.1	NS	NS	NS	NS	0.4	NS	2.4	0.5	2.2	0.02	617	1.9	NS	0.4	6.4	
Seedling Vigor (V)			4.5	3.2	3.3	3.4	2.8	3.1	0.1	0.1	0.1	NS	NS	NS	0.4	1.7	0.2	NS	0.01	846	2.6	NS	0.3	4.4	
Seed Treatment (S)			NS	4.8	4.6	4.7	4.2	4.2	NS	NS	NS	NS	NS	NS	0.4	NS	NS	NS	NS	1223	3.8	NS	0.6	9.3	
CV%			46.7	23.0	18.5	18.5	15.4	14.5	29.3	15.7	6.5	32.9	23.8	35.6	22.7	36.2	50.4	81.6	19.6	14.4	14.4	108.7	4.2	17.9	

\1\ Kernel rot with 1=deterioration 2=no deterioration
 \2\ Root discoloration with 1=none, 2=trace, 3=light, 4=moderate, and 5=severe
 \3\ Longevity of primary root with 1=living, 2=blighted, 3=dead or pruned