

## FIELD EXPERIMENT HISTORY

Expt. Number: 9590 Year: 1995  
Title: Twenty Year Corn/Soybean Rotation Study  
Personnel: E.S. Oplinger, J.G. Lauer, J.M. Gaska, M.J. Martinka and K.D. Hudelson  
Location: Arlington Research Station, Arlington, WI  
Supported by: HATCH Project 1890

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### FIELD INFORMATION

Field: 334W  
Soil Type: Plano Silt Loam  
Soil Test Results: Test Date: 7/95 pH: 6.5 P (ppm): 33 K (ppm): 225 OM (%): 3.7  
Fertilizer Applied: Soybean : None  
Corn: 150 lb/a nitrogen  
Tillage Operations: No-till or  
Fall chisel plowed and Spring field cultivated(2x) and cultimulched  
Previous Crop: Corn and soybean  
Previous Herbicide: Basagran, Pinnacle, Poast, Pursuit, Buctril, and Accent  
Irrigation: None

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### EXPERIMENTAL PROCEDURE

Exp. Design: RCB Split-Split-Split Plot  
Replicates: 4  
Variables: A: Tillage, B: Rotation Sequence, C: Corn and Soybean - Seeding Rate

	<u>Corn</u>	<u>Soybean</u>
Area Planted:	10' x 35'	10' x 35'
Area Harvested:	5' x 31'	5' x 31'
Row Spacing:	30"	7.5"
Hybrid/Variety:	P3769	NK S19-90
Planting Date:	5/5/95	5/5/95
Planting Equip:	JD Maxemerge Planter	John Deere No-till Drill
Harvesting Date:	Oct. 4, 1995	Sept. 27, 1995
Harvesting Equip:	Almaco plot combines	

	<u>Date</u>	<u>Material</u>	<u>Plots</u>	<u>Rate</u>
Herbicides:	May 15	Round-up	Soybean+Corn	1 qt/a
	May 15	Dual	Soybean+Corn	3 pt/a
	May 15	Banvel	Corn	1 pt/a
	June 14	Pursuit	Soybean	4 oz/a
	June 14	Pinnacle	Soybean	0.25 oz/a
	June 14	28% UAN	Soybean	2 qt/a
	June 14	NIS	Soybean	0.5%
Insecticides:	5/5/95	Lorsban	Corn only	8 oz/1000' row

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Results: Table D-1 and D-2.

**Table D-1. 20 Year Corn/Soybean Rotation Study - Corn.  
Arlington, WI Experiment 9590.**

Tillage	Rotation 13th Year	Seeding Rate seeds/a	Final Population plants/a	Moist %	Yield bu/a
Conv			19829	18.9	126.7
No-Till			22134	20.2	125.0
	ccsssscccC		20808	19.9	120.9
	ccsssssscC		21112	19.3	129.0
	ccccsssssC		23138	18.7	141.6
	ssssccccC		19215	20.5	115.0
	csssscccC		20644	20.3	122.2
	ccccccccC		19719	19.5	113.2
	scscscscsC		22237	18.7	137.4
Conv	ccsssscccC		19368	18.9	122.6
No-Till	ccsssscccC		22248	20.9	119.4
Conv	ccsssssscC		19532	18.9	124.7
No-Till	ccsssssscC		22693	19.8	133.3
Conv	ccccsssssC		22646	18.3	141.3
No-Till	ccccsssssC		23630	19.0	141.9
Conv	ssssccccC		18361	19.3	123.0
No-Till	ssssccccC		20070	21.7	107.1
Conv	csssscccC		19157	19.6	121.2
No-Till	csssscccC		22131	21.0	123.2
Conv	ccccccccC		18548	18.8	121.0
No-Till	ccccccccC		20890	20.2	105.4
Conv	scscscscsC		21194	18.5	131.7
No-Till	scscscscsC		23279	19.0	143.2
		25K	16119	19.3	105.7
		30K	21514	19.7	129.3
		35K	25313	19.7	142.2
Conv		25K	15085	18.7	106.1
No-Till		25K	17153	19.8	105.3
Conv		30K	20335	18.9	131.5
No-Till		30K	22693	20.4	127.2
Conv		35K	24068	19.0	142.5
No-Till		35K	26557	20.4	142.0
	ccsssscccC	25K	15667	20.1	97.7
	ccsssssscC	25K	16159	18.8	112.6
	ccccsssssC	25K	18337	18.7	115.6
	ssssccccC	25K	12752	20.0	100.3
	csssscccC	25K	16862	19.9	104.2
	ccccccccC	25K	14824	19.2	96.1
	scscscscsC	25K	18232	18.6	111.9
	ccsssscccC	30K	21042	20.0	125.1
	ccsssssscC	30K	21499	19.8	131.8
	ccccsssssC	30K	23888	18.7	149.9
	ssssccccC	30K	20269	20.9	114.3
	csssscccC	30K	20796	20.6	122.4
	ccccccccC	30K	20164	19.4	115.7
	scscscscsC	30K	22939	18.6	144.8
	ccsssscccC	35K	25714	19.8	140.6
	ccsssssscC	35K	25679	19.5	142.8
	ccccsssssC	35K	27190	18.6	159.4
	ssssccccC	35K	24625	20.5	126.8
	csssscccC	35K	24274	20.5	142.6
	ccccccccC	35K	24169	19.9	127.8
	scscscscsC	35K	25539	19.1	155.6

**Table D-1. 20 Year Corn/Soybean Rotation Study - Corn.  
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Tillage	Rotation 13th Year	Seeding Rate seeds/a	Final Population plants/a	Moist %	Yield bu/a
Conv	ccsssscccC	25K	14333	19.1	99.2
No-Till	ccsssscccC	25K	17002	21.1	96.2
Conv	ccsssscccC	25K	14965	18.7	111.8
No-Till	ccsssscccC	25K	17354	18.8	113.3
Conv	ccsssscccC	25K	18618	18.3	118.7
No-Till	ccsssscccC	25K	18056	19.0	112.5
Conv	ssssccccC	25K	11593	19.2	101.3
No-Till	ssssccccC	25K	13911	20.8	99.3
Conv	csssscccC	25K	15457	19.2	107.3
No-Till	csssscccC	25K	18267	20.6	101.1
Conv	ccccccccC	25K	13279	18.6	97.8
No-Till	ccccccccC	25K	16370	19.9	94.4
Conv	scscscscC	25K	17354	18.3	105.1
No-Till	scscscscC	25K	19110	18.9	118.6
Conv	ccsssscccC	30K	19602	18.8	121.1
No-Till	ccsssscccC	30K	22482	20.8	128.0
Conv	ccsssscccC	30K	19602	19.3	123.0
No-Till	ccsssscccC	30K	23396	20.4	140.6
Conv	ccsssscccC	30K	23607	18.2	151.4
No-Till	ccsssscccC	30K	24169	19.2	148.4
Conv	ssssccccC	30K	20023	19.7	126.2
No-Till	ssssccccC	30K	20515	22.1	102.5
Conv	csssscccC	30K	19813	19.7	125.9
No-Till	csssscccC	30K	21780	21.8	117.7
Conv	ccccccccC	30K	18618	18.8	127.2
No-Till	ccccccccC	30K	21710	20.1	104.2
Conv	scscscscC	30K	21077	18.1	142.9
No-Till	scscscscC	30K	24801	19.0	146.7
Conv	ccsssscccC	35K	24169	18.7	147.2
No-Till	ccsssscccC	35K	27260	20.8	133.9
Conv	ccsssscccC	35K	24028	18.7	139.4
No-Till	ccsssscccC	35K	27330	20.2	146.1
Conv	ccsssscccC	35K	25714	18.5	153.9
No-Till	ccsssscccC	35K	28665	18.8	164.8
Conv	ssssccccC	35K	23466	19.0	135.9
No-Till	ssssccccC	35K	25785	22.0	117.6
Conv	csssscccC	35K	22201	20.1	133.5
No-Till	csssscccC	35K	26347	20.8	149.4
Conv	ccccccccC	35K	23747	19.2	138.0
No-Till	ccccccccC	35K	24590	20.7	117.6
Conv	scscscscC	35K	25152	19.0	147.0
No-Till	scscscscC	35K	25925	19.2	164.3
Mean			20982	19.6	125.8
<b>Probability%</b>					
Tillage (T)			1.1	0.1	> 50
Rotation (R)			< 0.1	< 0.1	< 0.1
T x R			> 50	3.1	25.4
Seeding Rate (S)			< 0.1	2.1	< 0.1
T x S			> 50	30.7	> 50
R x S			23.3	21.8	> 50
T x R x S			> 50	> 50	> 50
<b>LSD 10%</b>					
Tillage (T)			944	0.3	NS
Rotation (R)			1192	0.5	10.4
Seeding Rate (S)			650	0.2	5.2
<b>CV%</b>					
			9.9	4.0	13.1