

FIELD EXPERIMENT HISTORY

Year 2003
Expt. Number: 09334
Title: Twenty Year Corn/Soybean Rotation Study
Personnel: R. Borges, J. Lauer, J. Gaska, R. Temperly, and K.D. Kohn
Supported by: HATCH and Wisconsin Soybean Marketing Board
Organization: UW Madsion, Dept. of Agronomy
Location: Arlington Agricultural Research Station, Arlington, WI

FIELD INFORMATION

Field: 334W
Soil Type: Plano Silt Loam
Soil Test Results: pH: 6.4 OM (%): 3.6 P (ppm): 27 K (ppm): 172
Fertilizer Applied: Soybean : None
 Corn: 210 lb/a nitrogen preemerge
Tillage Operations: No-till and fall chisel plowed
 Spring field cultivated and cultmulched
Previous Crop: Corn and soybean
Previous Herbicide: Roundup
Irrigation: None

EXPERIMENTAL PROCEDURE

Exp. Design: RCB Split-Split Plot
Replicates: 4
Variables: A: Tillage, B: Rotation Sequence, C: Insecticide Seed Treatment
Plot Size: Planted: 10' x 35'
 Harvested: 5' x 31'
Row Spacing: 30"

	<u>Corn</u>	<u>Soybean</u>
Planting:	Date: 13-May-03	17-May-03
	Equipment: Kinze 2000 Interplant planter	Kinze 2000 Interplant planter
	Rate: 1.8 viable seeds per foot of row	7.4 viable seeds per foot of row
	Depth: 1.5"	1"
	Cultivar: DKC5334	NK S24-K4
Harvesting:	Date: 9-Oct-03	20-Oct-03
	Equipment: Kincaid plot combine	Almaco plot combine #1

	<u>Date</u>	<u>Material</u>	<u>Rate</u>	
Herbicides:	28-Apr	2,4-D	1.0 pt/a	
	13-May	Gramoxone + 25% oil	2.0 pt/a	
	21-May	Dual	2.0 pt/a	
	12-Jun	Roundup WMX	1.0 qt/a	
	9-Jul	Roundup WMX	21 oz	Soybean only

	<u>Corn</u>	<u>Soybean</u>
Seed Applied Insecticides:	Force	Gaucho
	Prescribe	Cruiser
	Poncho	Untreated check

Results: Table C-77 and C-78.

**Table C-77. 20 Year Corn/Soybean Rotation Study - Corn.
Arlington, WI - 2003**

Tillage	Rotation 20th year	Fungicide	Yield bu/A	Moisture %	Test wt. lbs/bu	Grower return \$/A	Lodged %	Harvest population plants/A	Ear density ears/A
		Force	172	26.8	52	306	2	27265	28394
		Poncho	171	27.3	51	303	0	27852	28865
		Prescribe	174	26.9	52	310	0	27754	28945
	1st Year Corn		190	25.7	52	342	1	27982	29289
	2nd Year Corn		182	27.6	52	322	0	27588	28542
	3rd Year Corn		165	26.1	51	296	1	27194	28273
	4th Year Corn		164	28.1	51	287	2	27132	28169
	5th Year Corn		152	27.9	51	268	0	27899	29185
	Continuous Corn		163	27.1	51	288	0	27692	28750
	Rotated Corn		192	26.4	52	342	0	27878	28936
	1st Year Corn	Force	184	25.3	52	334	0	28314	29496
	1st Year Corn	Poncho	188	26.3	52	337	1	28003	29185
	1st Year Corn	Prescribe	197	25.5	52	356	1	27629	29185
	2nd Year Corn	Force	182	27.9	52	320	1	27007	27941
	2nd Year Corn	Poncho	178	27.4	52	316	0	27505	28190
	2nd Year Corn	Prescribe	187	27.5	52	331	0	28252	29496
	3rd Year Corn	Force	168	26.1	52	302	3	26260	27505
	3rd Year Corn	Poncho	161	25.7	51	289	1	27941	28874
	3rd Year Corn	Prescribe	165	26.4	51	296	0	27381	28438
	4th Year Corn	Force	161	27.7	52	284	6	26012	26883
	4th Year Corn	Poncho	162	28.5	51	282	0	28252	29310
	4th Year Corn	Prescribe	168	28.1	51	294	1	27132	28314
	5th Year Corn	Force	157	27.9	51	276	1	27754	29061
	5th Year Corn	Poncho	154	28.6	51	270	0	28190	29496
	5th Year Corn	Prescribe	144	27.4	50	257	0	27754	28999
	Continuous Corn	Force	158	26.5	51	282	0	27132	28376
	Continuous Corn	Poncho	164	27.6	51	290	0	27878	28687
	Continuous Corn	Prescribe	166	27.3	52	294	0	28065	29185
	Rotated Corn	Force	191	26.2	52	342	0	28376	29496
	Rotated Corn	Poncho	191	27.0	52	339	0	27194	28314
	Rotated Corn	Prescribe	193	25.9	52	345	0	28065	28999
Conventional			166	24.9	52	301	1	26669	27772
No-Till			179	29.1	51	312	1	28578	29698
Conventional		Force	164	24.9	52	297	1	25958	27025
Conventional		Poncho	165	25.2	52	298	0	26936	27950
Conventional		Prescribe	168	24.6	52	307	1	27114	28341
No-Till		Force	180	28.7	51	314	2	28572	29763
No-Till		Poncho	178	29.4	51	308	0	28767	29781
No-Till		Prescribe	181	29.2	51	314	0	28394	29550

continued

Table C-77. 20 Year Corn/Soybean Rotation Study - Corn.
(continued) **Arlington, WI - 2003**

Tillage	Rotation 20th year	Fungicide	Yield bu/A	Moisture %	Test wt. lbs/bu	Grower return \$/A	Lodged %	Harvest population plants/A	Ear density ears/A
Conventional	1st Year Corn		178	25.1	52	322	1	26800	28335
Conventional	2nd Year Corn		187	26.1	53	336	0	26966	27795
Conventional	3rd Year Corn		153	22.7	52	285	1	26758	27837
Conventional	4th Year Corn		156	25.2	52	283	3	26468	27381
Conventional	5th Year Corn		158	25.9	52	284	0	27215	28625
Conventional	Continuous Corn		154	24.9	52	280	0	26509	27505
Conventional	Rotated Corn		173	24.3	53	315	0	25970	26924
No-Till	1st Year Corn		202	26.3	52	362	0	29164	30243
No-Till	2nd Year Corn		178	29.1	51	308	0	28210	29289
No-Till	3rd Year Corn		177	29.4	50	306	1	27629	28708
No-Till	4th Year Corn		171	31.0	50	291	2	27795	28957
No-Till	5th Year Corn		146	30.0	50	251	1	28584	29745
No-Till	Continuous Corn		171	29.4	51	297	0	28874	29994
No-Till	Rotated Corn		211	28.5	52	369	0	29787	30948
Conventional	1st Year Corn	Force	173	25.1	52	314	0	26758	28127
Conventional	1st Year Corn	Poncho	176	25.7	52	317	1	26758	28003
Conventional	1st Year Corn	Prescribe	185	24.6	52	336	2	26883	28874
Conventional	2nd Year Corn	Force	184	26.3	52	330	1	26385	27132
Conventional	2nd Year Corn	Poncho	185	25.9	53	333	0	26509	26883
Conventional	2nd Year Corn	Prescribe	192	26.1	53	345	0	28003	29372
Conventional	3rd Year Corn	Force	154	22.7	53	287	2	25638	27007
Conventional	3rd Year Corn	Poncho	150	22.5	52	281	1	26883	27878
Conventional	3rd Year Corn	Prescribe	154	22.8	52	287	0	27754	28625
Conventional	4th Year Corn	Force	156	25.8	53	281	6	25389	26012
Conventional	4th Year Corn	Poncho	156	25.3	52	282	0	27505	28501
Conventional	4th Year Corn	Prescribe	157	24.7	52	286	2	26509	27629
Conventional	5th Year Corn	Force	155	25.7	51	280	0	26012	27381
Conventional	5th Year Corn	Poncho	159	26.5	51	284	0	28252	29621
Conventional	5th Year Corn	Prescribe	160	25.4	52	289	0	27381	28874
Conventional	Continuous Corn	Force	148	24.4	52	271	0	25389	26509
Conventional	Continuous Corn	Poncho	156	25.7	52	282	0	27007	27878
Conventional	Continuous Corn	Prescribe	158	24.7	52	288	0	27132	28127
Conventional	Rotated Corn	Force	174	24.3	53	319	0	26136	27007
Conventional	Rotated Corn	Poncho	171	24.8	53	311	0	25638	26883
Conventional	Rotated Corn	Prescribe	172	23.8	53	316	0	26136	26883

continued

Table C-77. 20 Year Corn/Soybean Rotation Study - Corn.
(continued) **Arlington, WI - 2003**

Tillage	Rotation 20th year	Fungicide	Yield		Test	Grower	Lodged	Harvest	Ear
			bu/A	Moisture %	wt. lbs/bu	return \$/A		population plants/A	density ears/A
No-Till	1st Year Corn	Force	195	25.5	52	353	0	29870	30865
No-Till	1st Year Corn	Poncho	201	26.8	51	358	0	29247	30368
No-Till	1st Year Corn	Prescribe	210	26.4	52	375	0	28376	29496
No-Till	2nd Year Corn	Force	179	29.4	51	310	1	27629	28750
No-Till	2nd Year Corn	Poncho	172	28.9	51	299	0	28501	29496
No-Till	2nd Year Corn	Prescribe	182	28.9	51	317	0	28501	29621
No-Till	3rd Year Corn	Force	183	29.5	51	316	3	26883	28003
No-Till	3rd Year Corn	Poncho	171	28.8	50	297	0	28999	29870
No-Till	3rd Year Corn	Prescribe	177	30.0	50	305	0	27007	28252
No-Till	4th Year Corn	Force	167	29.7	51	287	7	26634	27754
No-Till	4th Year Corn	Poncho	168	31.7	50	283	0	28999	30119
No-Till	4th Year Corn	Prescribe	179	31.5	50	302	0	27754	28999
No-Till	5th Year Corn	Force	159	30.0	50	273	2	29496	30741
No-Till	5th Year Corn	Poncho	150	30.7	50	255	0	28127	29372
No-Till	5th Year Corn	Prescribe	129	29.4	49	225	0	28127	29123
No-Till	Continuous Corn	Force	168	28.7	51	293	0	28874	30243
No-Till	Continuous Corn	Poncho	172	29.5	51	298	0	28750	29496
No-Till	Continuous Corn	Prescribe	174	30.0	51	299	0	28999	30243
No-Till	Rotated Corn	Force	208	28.2	52	365	0	30616	31985
No-Till	Rotated Corn	Poncho	212	29.1	52	367	0	28750	29745
No-Till	Rotated Corn	Prescribe	213	28.0	52	374	0	29994	31114
Mean			172	27.0	51	306	1	27624	28735
Probability(%)									
Tillage (T)			13.9	0.0	0.1	44.3	73.5	0.2	0.4
Rotation (R)			1.0	3.4	0.0	0.2	12.3	56.2	33.5
T x R			32.6	5.0	0.7	25.2	98.1	12.5	12.7
Fungicide (F)			28.2	3.7	45.9	14.0	2.4	12.2	18.3
T x F			58.8	16.4	67.1	40.4	57.8	9.3	6.1
R x F			15.8	23.7	53.5	28.7	9.8	23.8	26.6
T x R x F			42.6	65.3	76.0	61.1	99.9	76.8	72.7
LSD(0.10)									
Tillage (T)			NS	0.3	0.3	NS	NS	428	571
Rotation (R)			20	1.4	0.3	33	NS	NS	NS
T x R			NS	2.0	0.4	NS	NS	NS	NS
Fungicide (F)			NS	0.3	NS	NS	1	NS	NS
T x F			NS	NS	NS	NS	NS	712	752
R x F			NS	NS	NS	NS	2	NS	NS
T x R x F			NS	NS	NS	NS	NS	NS	NS
CV(%)									
			6	4	1	6	407	6	6

**Table C-78. 20 Year Corn/Soybean Rotation Study
Arlington, WI Expt. 2390**

Tillage	Rotation	Seed		Yield	Moisture	Height	Lodging	Protein	Oil	Fiber	Protein	Oil	Protein+Oil	Aphid
		Treatment												bu/a
		UTC		37.4	10.3	36.1	1.0	36.0	20.6	4.86	804	461	1265	1.75
		Cruiser		41.0	10.5	36.3	1.0	36.0	20.6	4.85	883	506	1389	1.15
		Gaicho		41.0	10.5	36.5	1.0	35.9	20.7	4.86	880	508	1387	1.02
	Continuous soybean			33.5	10.1	35.1	1.0	35.7	21.0	4.86	717	423	1140	1.32
	5th year soybean			35.9	10.4	35.6	1.0	36.0	20.9	4.85	772	449	1221	1.25
	4th year soybean			39.7	10.6	35.4	1.0	35.8	20.7	4.85	850	493	1343	1.16
	3rd year soybean			36.3	10.3	35.0	1.0	36.4	20.5	4.81	786	444	1230	1.50
	2nd year soybean			43.4	10.5	38.1	1.0	35.8	20.6	4.88	930	536	1466	1.35
	1st year soybean			45.9	10.6	37.9	1.0	36.2	20.2	4.87	993	556	1549	1.35
	S/C rotation			43.9	10.5	37.0	1.0	35.8	20.5	4.88	940	541	1481	1.23
	Continuous soybean	UTC		31.9	10.1	35.0	1.0	35.9	21.0	4.86	685	401	1087	1.75
	Continuous soybean	Cruiser		35.7	10.2	35.5	1.0	35.6	21.1	4.86	762	452	1214	1.20
	Continuous soybean	Gaicho		32.9	10.1	34.9	1.0	35.7	21.0	4.85	704	415	1119	1.00
	5th year soybean	UTC		33.4	10	36.3	1.0	36.2	20.8	4.85	723	416	1138	1.55
	5th year soybean	Cruiser		38.0	10.5	36.1	1.0	35.8	20.9	4.84	814	476	1290	1.16
	5th year soybean	Gaicho		36.3	10.4	34.5	1.0	35.9	21.0	4.85	779	456	1235	1.03
	4th year soybean	UTC		38.3	10.5	35.0	1.0	35.7	20.7	4.88	819	476	1295	1.43
	4th year soybean	Cruiser		39.6	10.7	35.5	1.0	36.0	20.6	4.83	853	489	1342	1.04
	4th year soybean	Gaicho		41.1	10.6	35.8	1.0	35.7	20.8	4.85	879	513	1392	1.01
	3rd year soybean	UTC		32.6	10.1	34.6	1.0	36.7	20.5	4.80	702	393	1095	2.29
	3rd year soybean	Cruiser		38.0	10.3	35.6	1.0	36.3	20.6	4.83	826	470	1296	1.16
	3rd year soybean	Gaicho		38.2	10.6	34.8	1.0	36.3	20.5	4.81	829	471	1300	1.05
	2nd year soybean	UTC		39.3	10.5	37.5	1.0	35.9	20.6	4.89	843	487	1330	1.86
	2nd year soybean	Cruiser		45.4	10.4	38.0	1.0	35.9	20.6	4.85	976	561	1537	1.18
	2nd year soybean	Gaicho		45.4	10.6	38.9	1.0	35.8	20.5	4.89	970	559	1530	1.01
	1st year soybean	UTC		43.6	10.5	37.8	1.0	36.1	20.2	4.88	942	528	1470	1.86
	1st year soybean	Cruiser		45.8	10.7	36.9	1.0	36.3	20.1	4.86	994	552	1546	1.18
	1st year soybean	Gaicho		48.2	10.7	39.0	1.0	36.2	20.2	4.86	1045	586	1631	1.00
	S/C rotation	UTC		42.7	10.4	36.3	1.0	35.9	20.5	4.88	917	526	1443	1.53
	S/C rotation	Cruiser		44.4	10.6	36.8	1.0	35.9	20.4	4.88	952	544	1496	1.13
	S/C rotation	Gaicho		44.7	10.5	38.0	1.0	35.5	20.6	4.90	951	553	1504	1.04
Notill				43.3	10.5	36.4	1.0	36.0	20.5	4.86	932	533	1464	1.39
Conventional				36.2	10.4	36.2	1.0	35.9	20.7	4.85	779	451	1230	1.22
Notill		UTC		40.9	10.4	36.0	1.0	36.0	20.5	4.87	878	502	1380	1.90
Notill		Cruiser		44.7	10.5	36.7	1.0	36.0	20.5	4.86	963	550	1513	1.23
Notill		Gaicho		44.4	10.5	36.4	1.0	35.9	20.5	4.86	954	546	1500	1.04
Conventional		UTC		33.9	10.3	36.1	1.0	36.1	20.7	4.85	731	420	1151	1.60
Conventional		Cruiser		37.3	10.5	36.0	1.0	35.9	20.7	4.84	802	463	1265	1.07

Continued

**Table C-78. 20 Year Corn/Soybean Rotation Study
Arlington, WI Expt. 2390**

Tillage	Rotation	Seed			Lodging	Protein	Oil	Fiber	Protein	Oil	Protein+Oil	Aphid Rating	
		Treatment	Yield	Moisture									Height
Conventional		Gaicho	37.6	10.5	36.6	1.0	35.8	20.8	4.85	806	469	1275	1.00
Notill	Continuous soybean		34.0	10.1	35.7	1.0	35.8	21.0	4.87	730	428	1157	1.36
Notill	5th year soybean		38.4	10.5	35.4	1.0	36.3	20.6	4.82	833	475	1308	1.23
Notill	4th year soybean		43.8	10.6	36.3	1.0	35.8	20.6	4.87	941	542	1482	1.28
Notill	3rd year soybean		39.9	10.5	35.8	1.0	37.0	20.1	4.80	870	478	1347	1.68
Notill	2nd year soybean		48.7	10.5	38.3	1.0	35.5	20.6	4.89	1039	602	1641	1.48
Notill	1st year soybean		50.0	10.5	36.9	1.0	35.9	20.3	4.88	1078	610	1688	1.48
Notill	S/C rotation		48.4	10.5	36.3	1.0	35.5	20.5	4.92	1031	594	1625	1.22
Conventional	Continuous soybean		33.0	10.1	34.6	1.0	35.7	21.1	4.85	704	418	1123	1.28
Conventional	5th year soybean		33.3	10.3	35.8	1.0	35.6	21.2	4.88	711	423	1134	1.26
Conventional	4th year soybean		35.6	10.5	34.6	1.0	35.8	20.8	4.83	759	444	1204	1.04
Conventional	3rd year soybean		32.6	10.2	34.2	1.0	35.9	21.0	4.83	702	411	1113	1.33
Conventional	2nd year soybean		38.0	10.5	38.0	1.0	36.2	20.6	4.86	821	470	1291	1.22
Conventional	1st year soybean		41.7	10.7	38.8	1.0	36.5	20.0	4.85	908	502	1410	1.21
Conventional	S/C rotation		39.5	10.5	37.7	1.0	36.0	20.5	4.85	849	488	1337	1.24
Notill	Continuous soybean	UTC	32.1	10.1	35.8	1.0	36.0	20.9	4.88	692	402	1094	1.78
Notill	Continuous soybean	Cruiser	36.8	10.2	36.3	1.0	35.6	21.1	4.88	787	466	1253	1.30
Notill	Continuous soybean	Gaicho	33.1	10.2	35.0	1.0	35.8	20.9	4.85	710	416	1126	1.00
Notill	5th year soybean	UTC	36.3	10.4	36.0	1.0	36.5	20.5	4.83	793	447	1240	1.38
Notill	5th year soybean	Cruiser	40.6	10.5	35.8	1.0	36.3	20.5	4.80	876	502	1378	1.28
Notill	5th year soybean	Gaicho	38.4	10.5	34.5	1.0	36.2	20.7	4.83	831	477	1308	1.05
Notill	4th year soybean	UTC	41.4	10.5	35.8	1.0	35.6	20.7	4.90	885	515	1400	1.75
Notill	4th year soybean	Cruiser	44.2	10.7	37.3	1.0	36.1	20.5	4.83	957	545	1501	1.05
Notill	4th year soybean	Gaicho	45.7	10.6	35.8	1.0	35.8	20.6	4.88	981	566	1546	1.03
Notill	3rd year soybean	UTC	35.8	10.3	35.5	1.0	37.3	20.1	4.78	767	415	1182	2.68
Notill	3rd year soybean	Cruiser	41.9	10.4	36.8	1.0	36.7	20.2	4.83	918	510	1428	1.25
Notill	3rd year soybean	Gaicho	42.1	10.7	35.3	1.0	36.9	20.0	4.80	924	509	1433	1.10
Notill	2nd year soybean	UTC	45.3	10.5	37.0	1.0	35.5	20.6	4.90	964	562	1526	2.10
Notill	2nd year soybean	Cruiser	49.9	10.3	38.5	1.0	35.7	20.6	4.88	1069	617	1686	1.33
Notill	2nd year soybean	Gaicho	51.0	10.7	39.3	1.0	35.4	20.5	4.90	1083	628	1711	1.03
Notill	1st year soybean	UTC	47.1	10.5	36.8	1.0	35.7	20.4	4.90	1009	577	1586	2.18
Notill	1st year soybean	Cruiser	50.3	10.7	36.3	1.0	36.1	20.2	4.88	1089	608	1697	1.28
Notill	1st year soybean	Gaicho	52.7	10.5	37.8	1.0	36.0	20.4	4.88	1138	645	1782	1.00
Notill	S/C rotation	UTC	48.5	10.3	35.3	1.0	35.7	20.5	4.90	1036	596	1632	1.45
Notill	S/C rotation	Cruiser	49.1	10.6	36.3	1.0	35.6	20.4	4.93	1048	601	1648	1.13
Notill	S/C rotation	Gaicho	47.5	10.5	37.5	1.0	35.4	20.6	4.93	1008	586	1594	1.08
Conventional	Continuous soybean	UTC	31.7	10.1	34.3	1.0	35.8	21.0	4.85	679	400	1079	1.73
Conventional	Continuous soybean	Cruiser	34.6	10.3	34.8	1.0	35.6	21.1	4.85	737	439	1176	1.10
Conventional	Continuous soybean	Gaicho	32.7	10.1	34.8	1.0	35.6	21.1	4.85	697	415	1112	1.00

Continued

**Table C-78. 20 Year Corn/Soybean Rotation Study
Arlington, WI Expt. 2390**

Tillage	Rotation	Seed										Aphid Rating	
		Treatment	Yield	Moisture	Height	Lodging	Protein	Oil	Fiber	Protein	Oil		Protein+Oil
Conventional	5th year soybean	UTC	30.4	10.2	36.5	1.0	35.8	21.1	4.88	652	385	1037	1.73
Conventional	5th year soybean	Cruiser	35.5	10.4	36.5	1.0	35.4	21.2	4.88	752	450	1203	1.05
Conventional	5th year soybean	Gaucha	34.1	10.3	34.5	1.0	35.6	21.3	4.88	728	435	1163	1.00
Conventional	4th year soybean	UTC	35.2	10.4	34.3	1.0	35.9	20.7	4.85	752	438	1191	1.10
Conventional	4th year soybean	Cruiser	34.9	10.6	33.8	1.0	36.0	20.7	4.83	749	434	1183	1.03
Conventional	4th year soybean	Gaucha	36.6	10.6	35.8	1.0	35.5	20.9	4.83	777	460	1237	1.00
Conventional	3rd year soybean	UTC	29.5	10.0	33.8	1.0	36.1	21.0	4.83	636	371	1007	1.90
Conventional	3rd year soybean	Cruiser	34.2	10.2	34.5	1.0	35.9	21.0	4.83	735	430	1164	1.08
Conventional	3rd year soybean	Gaucha	34.3	10.4	34.3	1.0	35.8	21.0	4.83	734	433	1167	1.00
Conventional	2nd year soybean	UTC	33.3	10.4	38.0	1.0	36.3	20.6	4.88	722	413	1135	1.63
Conventional	2nd year soybean	Cruiser	40.8	10.6	37.5	1.0	36.1	20.6	4.83	884	504	1388	1.03
Conventional	2nd year soybean	Gaucha	39.8	10.5	38.5	1.0	36.1	20.5	4.88	858	491	1349	1.00
Conventional	1st year soybean	UTC	40.0	10.6	38.8	1.0	36.6	20.0	4.85	875	480	1354	1.55
Conventional	1st year soybean	Cruiser	41.3	10.7	37.5	1.0	36.5	20.0	4.85	899	497	1396	1.08
Conventional	1st year soybean	Gaucha	43.7	10.9	40.3	1.0	36.5	20.1	4.85	951	528	1479	1.00
Conventional	S/C rotation	UTC	37.0	10.5	37.3	1.0	36.1	20.5	4.85	798	456	1254	1.60
Conventional	S/C rotation	Cruiser	39.6	10.5	37.3	1.0	36.1	20.4	4.83	856	487	1343	1.13
Conventional	S/C rotation	Gaucha	41.9	10.4	38.5	1.0	35.7	20.7	4.88	895	520	1415	1.00
Means			39.8	10.4	36.3	1.0	36.0	20.6	4.86	855	492	1347	1.31
Probability													
Tillage (T)			<0.1	26.1	>50	>50	46.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Rotation (R)			<0.1	>50	<0.1	>50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	8.60
T x R			<0.1	1.7	<0.1	>50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	47.90
Seed Treatment (S)			<0.1	<0.1	29.2	>50	10.7	34.4	9.4	<0.1	<0.1	<0.1	<0.1
T x S			>50	>50	23.2	>50	>50	38.2	>50	>50	>50	>50	22.20
R x S			>50	30.8	6.3	>50	>50	>50	9.6	>50	7.3	6.4	19.30
T x R x S			>50	43.5	>50	>50	>50	>50	49.1	>50	>50	>50	>50
LSD 10%													
Tillage (T)			2.9	0.0	1.2	0.0	0.3	0.2	0.02	59	36	96	0.10
Rotation (R)			5.2	0.2	2.3	0.0	0.7	0.3	0.05	98	68	166	0.20
T x R			7.3	0.2	3.3	0.0	0.9	0.4	0.06	141	96	236	0.27
Seed Treatment (S)			1.0	0.1	0.5	0.0	0.1	0.2	0.01	20	13	33	0.13
T x S			3.1	0.1	1.4	0.0	0.3	0.3	0.02	64	39	102	0.18
R x S			5.6	0.2	2.6	0.0	0.8	0.6	0.05	108	73	180	0.34
C.V. %			7	2	4	0	1	1	1	7	8	7	30