

FIELD EXPERIMENT HISTORY

Year: 2004

Expt. Number: 2490
Title: Corn and Soybean Rotation Study Est. 1983
Personnel: J.G. Lauer, R. Borges, J.M. Gaska, R. Temperly, K.D. Kohn, and T.F. Stanger
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 O.M.(%): 3.6 P(ppm): 27 K(ppm): 172 Date: 4/19/03
Fertilizer Applied: Soybean : None
 Corn: 210 lb/a nitrogen preemerge
Tillage Operations: No-till and fall chisel plowed
 Spring field cultivated and cultimulched
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

	<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"	30"
Seeding Rate (spa)	1.8 viable seeds per foot of row	7.4 viable seeds per foot of row
Hybrid/Variety:	Trelay 7693 RR2	NK S24-K4
Planting Date:	5-May-04	17-May-04
Planting Equip:	Kinze 2000 Interplant planter	Kinze 2000 Interplant planter
Harvesting Date:	10-Oct-04	12-Oct-04
Harvesting Equip:	Kincaid plot combine	Almaco plot combine #1

	<u>Date</u>	<u>Material</u>	<u>Rate</u>	<u>Notes</u>
Herbicides:	5/3/2004	Dual	2 pts/A	all plots
	5/3/2004	2,4-D ester	1 pt/A	no till plots only
	6/15/2004	Round-Up	1.5 pt/A	all plots
	7/13/2004	Round-Up	1.5 pt/A	soybean only
Insecticides:	5/5/2004	Force 3G	4.4 lbs/A	Corn following corn

Seed Applied Insecticides:	<u>Corn</u>	<u>Soybean</u>	<u>rate</u>	<u>fungicide</u>	<u>rate</u>
	Force	Gaucho	2 fl oz/cwt	SoyGard	0.32 oz/cwt
	Prescribe	Cruiser	1 oz/cwt	SoyGard	0.32 oz/cwt
	Poncho	Untreated check		SoyGard	0.32 oz/cwt

Results: Table C-69 and 70.

**Table C-69. Corn/Soybean Rotation and Tillage Study - Corn.
Arlington, WI - 2004**

Tillage	Rotation	Insecticide	Yield bu/A	Moisture %	Test Weight lbs/bu	Grower return \$/A	Lodged				Ears		Harvest	
							Total %	Stalk %	Root %	Barren %	Dropped %	plants/A	ears/A	
		Force	188	25.1	51	313	1	1	0	2	0	33745	33109	
		Prescribe	180	25.9	51	297	2	0	2	2	0	33236	32473	
		Poncho	182	26.1	51	300	2	1	1	2	0	34643	33857	
	1st Year Corn		203	23.5	52	345	1	1	0	1	0	34458	34000	
	2nd Year Corn		178	25.1	51	297	3	1	2	2	0	33625	32917	
	3rd Year Corn		181	26.3	51	298	2	0	2	3	0	33333	32375	
	4th Year Corn		176	25.5	51	292	2	1	1	2	0	34000	33208	
	5th Year Corn		174	26.7	51	285	2	0	1	4	0	34083	32833	
	Continuous Corn		176	26.4	51	289	1	1	0	2	0	33500	32955	
	Rotated Corn		192	26.4	51	316	0	0	0	1	0	34125	33750	
	1st Year Corn	Force	200	23.2	53	342	1	1	0	1	0	33500	33000	
	1st Year Corn	Prescribe	198	24.0	52	335	0	0	0	1	0	35000	34625	
	1st Year Corn	Poncho	210	23.5	52	357	2	2	0	1	0	34875	34375	
	2nd Year Corn	Force	178	25.3	51	297	2	2	0	3	0	34000	32875	
	2nd Year Corn	Prescribe	176	24.7	52	296	4	0	4	2	0	32875	32250	
	2nd Year Corn	Poncho	180	25.5	51	299	1	0	1	1	0	34000	33625	
	3rd Year Corn	Force	193	25.6	51	319	0	0	0	1	0	33250	33125	
	3rd Year Corn	Prescribe	172	26.8	50	282	1	0	1	4	0	32125	30875	
	3rd Year Corn	Poncho	178	26.5	50	293	6	1	5	4	0	34625	33125	
	4th Year Corn	Force	183	24.6	51	307	0	0	0	3	0	33750	32875	
	4th Year Corn	Prescribe	173	25.6	51	288	3	1	2	2	0	33500	32750	
	4th Year Corn	Poncho	171	26.3	50	282	2	1	1	2	0	34750	34000	
	5th Year Corn	Force	182	25.9	51	301	0	0	0	4	0	34625	33250	
	5th Year Corn	Prescribe	169	27.0	51	276	4	0	3	3	0	33125	32125	
	5th Year Corn	Poncho	171	27.3	50	278	1	0	0	4	0	34500	33125	
	Continuous Corn	Force	177	25.3	51	295	1	1	0	0	0	33571	33429	
	Continuous Corn	Prescribe	175	26.7	51	286	2	1	1	3	0	32571	31714	
	Continuous Corn	Poncho	175	27.0	51	286	1	0	0	2	0	34250	33625	
	Rotated Corn	Force	199	25.6	51	330	1	1	0	1	0	33500	33250	
	Rotated Corn	Prescribe	194	26.7	51	317	0	0	0	2	0	33375	32875	
	Rotated Corn	Poncho	185	26.8	51	302	0	0	0	1	0	35500	35125	
Conv			188	24.6	52	316	2	1	2	1	0	34226	33798	
NoTill			178	26.9	50	291	1	0	0	3	0	33524	32488	
Conv		Force	193	24.1	52	325	1	1	0	1	0	33714	33357	
Conv		Prescribe	184	24.8	52	308	3	0	2	1	0	34000	33536	
Conv		Poncho	188	24.9	52	314	3	1	2	1	0	34964	34500	
NoTill		Force	182	26.1	51	300	1	1	0	3	0	33778	32852	
NoTill		Prescribe	176	27.1	50	287	1	1	1	3	0	32444	31370	
NoTill		Poncho	175	27.4	50	285	0	0	0	3	0	34321	33214	

(continued)

Table C-69. Corn/Soybean Rotation and Tillage Study - Corn.

(continued) **Arlington, WI - 2004**

Tillage	Rotation	Insecticide	Yield bu/A	Moisture %	Test Wt. lbs/bu	Grower return \$/A	Lodged				Ears Dropped %	Harvest	
							Total %	Stalk %	Root %	Barren %		plants/A	ears/A
Conv	1st Year Corn		203	23.8	52	345	2	1	0	1	0	34333	34000
Conv	2nd Year Corn		177	23.6	52	300	4	1	3	1	0	33833	33417
Conv	3rd Year Corn		192	25.3	52	319	4	0	3	2	0	34500	33917
Conv	4th Year Corn		185	23.7	52	314	3	1	2	0	0	34000	33917
Conv	5th Year Corn		182	24.6	52	305	2	0	2	2	0	34500	33667
Conv	Continuous Corn		180	25.7	51	298	1	0	1	1	0	34500	34000
Conv	Rotated Corn		198	25.4	52	330	0	0	0	1	0	33917	33667
NoTill	1st Year Corn		202	23.3	52	345	0	0	0	2	0	34583	34000
NoTill	2nd Year Corn		180	26.7	51	295	1	0	1	3	0	33417	32417
NoTill	3rd Year Corn		170	27.3	50	277	0	0	0	4	0	32167	30833
NoTill	4th Year Corn		167	27.3	50	271	1	1	0	4	0	34000	32500
NoTill	5th Year Corn		166	28.9	49	265	1	0	0	5	0	33667	32000
NoTill	Continuous Corn		171	27.2	50	278	1	1	0	2	0	32300	31700
NoTill	Rotated Corn		187	27.4	50	303	0	0	0	2	0	34333	33833
Conv	1st Year Corn	Force	199	23.5	53	339	3	2	1	1	0	33000	32750
Conv	1st Year Corn	Prescribe	198	24.1	52	334	0	0	0	1	0	35250	34750
Conv	1st Year Corn	Poncho	213	23.7	52	361	2	2	0	1	0	34750	34500
Conv	2nd Year Corn	Force	174	23.6	52	295	3	3	0	2	0	33250	32750
Conv	2nd Year Corn	Prescribe	178	23.2	53	303	7	1	6	1	0	33500	33000
Conv	2nd Year Corn	Poncho	178	23.9	52	302	2	0	2	1	0	34750	34500
Conv	3rd Year Corn	Force	204	24.8	52	342	0	0	0	1	0	34500	34000
Conv	3rd Year Corn	Prescribe	181	25.6	51	301	1	0	1	2	0	33750	33000
Conv	3rd Year Corn	Poncho	190	25.6	51	314	11	1	10	1	0	35250	34750
Conv	4th Year Corn	Force	197	23.0	53	337	1	0	1	0	0	34000	34000
Conv	4th Year Corn	Prescribe	182	23.7	52	309	4	1	3	1	0	33500	33500
Conv	4th Year Corn	Poncho	176	24.5	52	296	5	2	3	1	0	34500	34250
Conv	5th Year Corn	Force	188	24.0	52	318	0	0	0	3	0	34500	33500
Conv	5th Year Corn	Prescribe	174	24.8	51	292	5	0	5	1	0	34250	34000
Conv	5th Year Corn	Poncho	183	24.9	52	306	1	1	1	4	0	34750	33500
Conv	Continuous Corn	Force	181	25.0	52	303	1	1	0	0	0	33750	33750
Conv	Continuous Corn	Prescribe	177	26.1	51	292	1	0	1	3	0	34000	33000
Conv	Continuous Corn	Poncho	181	25.9	51	300	1	1	1	1	0	35750	35250
Conv	Rotated Corn	Force	205	24.8	52	344	1	1	0	1	0	33000	32750
Conv	Rotated Corn	Prescribe	195	25.9	52	323	0	0	0	1	0	33750	33500
Conv	Rotated Corn	Poncho	195	25.5	52	323	1	1	0	1	0	35000	34750

(continued)

Table C-69. Corn/Soybean Rotation and Tillage Study - Corn.

(continued) **Arlington, WI - 2004**

Tillage	Rotation	Insecticide	Yield bu/A	Moisture %	Test Wt. lbs/bu	Grower		Lodged			Ears		Harvest	
						return \$/A	%	Total %	Stalk %	Root %	Barren %	Dropped %	plants/A	ears/A
NoTill	1st Year Corn	Force	201	22.8	53	344	0	0	0	2	0	34000	33250	
NoTill	1st Year Corn	Prescribe	198	23.8	52	336	0	0	0	1	0	34750	34500	
NoTill	1st Year Corn	Poncho	207	23.4	52	353	1	1	0	2	0	35000	34250	
NoTill	2nd Year Corn	Force	183	27.0	50	298	1	1	0	5	0	34750	33000	
NoTill	2nd Year Corn	Prescribe	175	26.2	51	289	2	0	2	2	0	32250	31500	
NoTill	2nd Year Corn	Poncho	182	27.1	50	297	0	0	0	1	0	33250	32750	
NoTill	3rd Year Corn	Force	181	26.5	51	297	0	0	0	0	0	32000	32250	
NoTill	3rd Year Corn	Prescribe	164	28.0	49	263	1	0	1	6	0	30500	28750	
NoTill	3rd Year Corn	Poncho	167	27.4	50	271	0	0	0	7	0	34000	31500	
NoTill	4th Year Corn	Force	169	26.3	50	278	0	0	0	5	0	33500	31750	
NoTill	4th Year Corn	Prescribe	164	27.5	50	266	2	2	0	3	0	33500	32000	
NoTill	4th Year Corn	Poncho	166	28.2	49	268	0	0	0	4	0	35000	33750	
NoTill	5th Year Corn	Force	175	27.8	49	283	0	0	0	5	0	34750	33000	
NoTill	5th Year Corn	Prescribe	163	29.1	50	259	2	1	1	5	0	32000	30250	
NoTill	5th Year Corn	Poncho	159	29.7	49	251	0	0	0	4	0	34250	32750	
NoTill	Continuous Corn	Force	171	25.6	51	284	2	2	0	1	0	33333	33000	
NoTill	Continuous Corn	Prescribe	172	27.4	50	279	2	2	0	2	0	30667	30000	
NoTill	Continuous Corn	Poncho	169	28.2	50	273	0	0	0	2	0	32750	32000	
NoTill	Rotated Corn	Force	192	26.4	50	316	1	1	0	1	0	34000	33750	
NoTill	Rotated Corn	Prescribe	193	27.6	50	312	0	0	0	3	0	33000	32250	
NoTill	Rotated Corn	Poncho	175	28.0	50	281	0	0	0	1	0	36000	35500	
Mean			183	25.7	51	303	2	1	1	2	0	33880	33151	
Probability(%)														
Tillage (T)			0.1	0.5	0.1	0.0	5.2	46.5	4.0	0.0	-	4.6	0.7	
Rotation (R)			0.0	4.5	0.1	0.0	35.9	46.9	22.0	0.1	-	36.5	15.6	
T x R			4.5	32.1	19.9	3.9	41.2	56.8	49.7	12.5	-	10.1	12.0	
Insecticide (I)			0.0	0.0	0.0	0.0	32.7	50.4	5.5	70.5	-	0.3	0.6	
T x I			40.2	17.9	99.6	41.3	18.4	14.2	17.8	97.6	-	15.0	17.3	
R x I			0.6	1.4	0.1	0.3	10.3	17.9	9.8	9.1	-	79.0	73.8	
T x R x I			60.8	95.9	88.7	63.0	40.0	90.0	26.9	12.8	-	99.0	99.3	
LSD(0.10)														
Tillage (T)			3	1.0	0	6	1	NS	1	0	-	623	665	
Rotation (R)			7	1.7	1	13	NS	NS	NS	1	-	NS	NS	
T x R			10	NS	NS	19	NS	NS	NS	NS	-	NS	NS	
Insecticide (I)			3	0.2	0	5	NS	NS	1	NS	-	707	753	
T x I			NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS	
R x I			8	0.6	0	14	NS	NS	3	2	-	NS	NS	
T x R x I			NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS	
CV(%)														
			5	3	1	6	242	286	331	109	-	7	7	

**Table C-69b. Corn/Soybean Rotation and Tillage Study - Corn Quality
Arlington, WI - 2004**

Tillage	Rotation	Insecticide	Grain Composition			Ethanol	
			Oil	Starch	Protein	per bu	per A
			%	%	%	gallons	gallons
		Force	3.5	61.3	7.2	2.90	543
		Poncho	3.5	61.3	7.1	2.90	526
		Prescribe	3.5	61.2	7.2	2.89	520
	1st Year Corn		3.5	61.1	7.4	2.90	588
	2nd Year Corn		3.5	61.4	7.0	2.91	519
	3rd Year Corn		3.5	61.4	7.0	2.90	524
	4rd Year Corn		3.4	61.4	7.0	2.90	509
	5th Year Corn		3.4	61.3	7.2	2.89	502
	Continuous Corn		3.5	61.3	7.2	2.89	508
	Rotated Corn		3.4	61.0	7.4	2.88	555
	1st Year Corn	Force	3.5	61.0	7.4	2.90	581
	1st Year Corn	Poncho	3.4	61.2	7.2	2.90	610
	1st Year Corn	Prescribe	3.5	61.0	7.4	2.90	574
	2nd Year Corn	Force	3.5	61.4	7.1	2.90	517
	2nd Year Corn	Poncho	3.5	61.5	7.0	2.92	527
	2nd Year Corn	Prescribe	3.4	61.4	7.0	2.91	514
	3rd Year Corn	Force	3.5	61.6	7.0	2.89	557
	3rd Year Corn	Poncho	3.4	61.5	6.9	2.90	517
	3rd Year Corn	Prescribe	3.5	61.0	7.2	2.90	499
	4rd Year Corn	Force	3.4	61.5	7.0	2.91	531
	4rd Year Corn	Poncho	3.5	61.3	7.0	2.89	495
	4rd Year Corn	Prescribe	3.5	61.4	7.0	2.90	503
	5th Year Corn	Force	3.4	61.3	7.2	2.89	525
	5th Year Corn	Poncho	3.4	61.4	7.1	2.89	494
	5th Year Corn	Prescribe	3.5	61.3	7.3	2.88	487
	Continuous Corn	Force	3.5	61.2	7.3	2.89	512
	Continuous Corn	Poncho	3.5	61.3	7.1	2.90	508
	Continuous Corn	Prescribe	3.5	61.2	7.2	2.88	505
	Rotated Corn	Force	3.4	61.3	7.3	2.89	575
	Rotated Corn	Poncho	3.4	60.9	7.5	2.88	532
	Rotated Corn	Prescribe	3.5	60.8	7.5	2.87	558
Conventional			3.5	61.1	7.4	2.89	544
NoTill			3.4	61.5	6.9	2.90	515
Conventional		Force	3.5	61.2	7.4	2.89	558
Conventional		Poncho	3.5	61.1	7.4	2.89	544
Conventional		Prescribe	3.5	61.0	7.5	2.89	530
NoTill		Force	3.4	61.5	7.0	2.90	528
NoTill		Poncho	3.4	61.5	6.8	2.90	508
NoTill		Prescribe	3.4	61.4	7.0	2.90	509
Conventional	1st Year Corn		3.5	60.9	7.5	2.89	589
Conventional	2nd Year Corn		3.5	61.3	7.2	2.92	515
Conventional	3rd Year Corn		3.6	61.1	7.4	2.89	555
Conventional	4rd Year Corn		3.5	61.1	7.4	2.90	536
Conventional	5th Year Corn		3.5	61.1	7.5	2.88	525
Conventional	Continuous Corn		3.5	61.1	7.5	2.88	518
Conventional	Rotated Corn		3.4	60.9	7.6	2.88	572
NoTill	1st Year Corn		3.4	61.3	7.2	2.91	588
NoTill	2nd Year Corn		3.5	61.5	6.9	2.90	523
NoTill	3rd Year Corn		3.4	61.6	6.6	2.90	494
NoTill	4rd Year Corn		3.4	61.7	6.6	2.91	479
NoTill	5th Year Corn		3.4	61.6	6.9	2.89	479
NoTill	Continuous Corn		3.4	61.4	6.9	2.90	496
NoTill	Rotated Corn		3.4	61.1	7.2	2.88	538

(continued)

Table C-69b. Corn/Soybean Rotation and Tillage Study - Corn Quality.
(continued) **Arlington, WI - 2004**

Tillage	Rotation	Insecticide	Grain Composition			Ethanol	
			Oil %	Starch %	Protein %	per bu gallons	per A gallons
Conventional	1st Year Corn	Force	3.5	60.8	7.5	2.90	578
Conventional	1st Year Corn	Poncho	3.5	60.9	7.5	2.89	616
Conventional	1st Year Corn	Prescribe	3.5	61.0	7.5	2.89	572
Conventional	2nd Year Corn	Force	3.4	61.3	7.2	2.91	506
Conventional	2nd Year Corn	Poncho	3.5	61.3	7.1	2.94	525
Conventional	2nd Year Corn	Prescribe	3.4	61.1	7.3	2.90	515
Conventional	3rd Year Corn	Force	3.5	61.4	7.3	2.89	590
Conventional	3rd Year Corn	Poncho	3.5	61.3	7.4	2.89	549
Conventional	3rd Year Corn	Prescribe	3.7	60.6	7.6	2.90	525
Conventional	4rd Year Corn	Force	3.4	61.4	7.4	2.91	573
Conventional	4rd Year Corn	Poncho	3.5	60.9	7.4	2.88	507
Conventional	4rd Year Corn	Prescribe	3.5	61.1	7.4	2.89	528
Conventional	5th Year Corn	Force	3.5	61.1	7.4	2.89	543
Conventional	5th Year Corn	Poncho	3.5	61.0	7.5	2.88	528
Conventional	5th Year Corn	Prescribe	3.5	61.2	7.5	2.89	503
Conventional	Continuous Corn	Force	3.5	61.0	7.6	2.88	522
Conventional	Continuous Corn	Poncho	3.5	61.1	7.5	2.89	524
Conventional	Continuous Corn	Prescribe	3.5	61.1	7.5	2.87	509
Conventional	Rotated Corn	Force	3.4	61.1	7.5	2.89	592
Conventional	Rotated Corn	Poncho	3.5	60.9	7.7	2.88	561
Conventional	Rotated Corn	Prescribe	3.4	60.6	7.6	2.87	561
NoTill	1st Year Corn	Force	3.4	61.3	7.3	2.90	583
NoTill	1st Year Corn	Poncho	3.4	61.6	7.0	2.91	604
NoTill	1st Year Corn	Prescribe	3.4	61.1	7.4	2.90	576
NoTill	2nd Year Corn	Force	3.5	61.4	7.1	2.89	527
NoTill	2nd Year Corn	Poncho	3.4	61.6	6.9	2.90	529
NoTill	2nd Year Corn	Prescribe	3.5	61.6	6.7	2.92	513
NoTill	3rd Year Corn	Force	3.5	61.7	6.7	2.90	524
NoTill	3rd Year Corn	Poncho	3.4	61.7	6.4	2.91	485
NoTill	3rd Year Corn	Prescribe	3.4	61.4	6.8	2.90	474
NoTill	4rd Year Corn	Force	3.5	61.6	6.5	2.91	476
NoTill	4rd Year Corn	Poncho	3.4	61.6	6.5	2.91	484
NoTill	4rd Year Corn	Prescribe	3.4	61.7	6.6	2.91	478
NoTill	5th Year Corn	Force	3.4	61.6	6.9	2.89	507
NoTill	5th Year Corn	Poncho	3.4	61.7	6.8	2.89	460
NoTill	5th Year Corn	Prescribe	3.4	61.4	7.0	2.88	470
NoTill	Continuous Corn	Force	3.4	61.4	7.0	2.89	498
NoTill	Continuous Corn	Poncho	3.4	61.4	6.8	2.91	493
NoTill	Continuous Corn	Prescribe	3.4	61.4	6.9	2.89	499
NoTill	Rotated Corn	Force	3.4	61.4	7.1	2.90	557
NoTill	Rotated Corn	Poncho	3.4	61.0	7.3	2.88	503
NoTill	Rotated Corn	Prescribe	3.5	61.0	7.3	2.87	554
Mean			3.5	61.3	7.2	2.90	530
Probability(%)							
Tillage (T)			2.6	0.1	0.0	11.4	0.1
Rotation (R)			22.2	1.5	0.2	0.3	0.0
T x R			18.0	74.6	11.7	46.0	4.6
Insecticide (I)			28.9	0.9	3.3	25.1	0.0
T x I			23.8	47.0	23.9	74.2	37.3
R x I			56.5	2.7	50.9	35.2	0.7
T x R x I			16.6	43.7	74.6	15.2	60.6
LSD(0.10)							
Tillage (T)			0.0	0.1	0.1	NS	9
Rotation (R)			NS	1.7	1.9	0.01	20
T x R			NS	NS	NS	NS	28
Insecticide (I)			NS	0.1	0.1	NS	9
T x I			NS	NS	NS	NS	NS
R x I			NS	0.2	NS	NS	24
T x R x I			NS	NS	NS	NS	NS
CV(%)							
			2	0	3	1	5

**Table C-70. Corn/Soybean Rotation and Tillage Study - Soybean.
Arlington, WI - 2004**

Tillage	Rotation	Insecticide	Grower				100 Seed			Seed Composition			Protein		Fatty Acid Composition					
			Yield bu/A	Moisture %	return \$/A	Height inches	Lodging 1 to 5	Weight grams	Protein %	Oil %	Fiber %	Protein lbs/A	Oil lbs/A	+ Oil lbs/A	Palmitic %	Stearic %	Oleic %	Linoleic %	Linolenic %	P/M ratio
		Untreated	51	10.3	258	36	1	16.9	35.2	17.9	4.9	1070	542	1611	11.8	2.8	28.5	50.6	6.4	2.0
		Cruiser	51	10.5	259	36	1	16.9	35.3	17.8	4.9	1076	542	1617	11.7	2.8	28.7	50.4	6.5	2.0
		Gaicho	51	10.4	259	36	1	17.0	35.2	17.8	4.9	1076	544	1620	11.7	2.8	28.8	50.3	6.5	2.0
	1st Year Soybean		55	10.8	282	37	1	17.7	35.8	17.6	4.9	1187	582	1769	11.9	2.6	27.7	51.4	6.4	2.1
	2nd Year Soybean		54	10.8	277	37	1	17.1	35.2	17.7	4.9	1149	578	1727	11.6	2.8	28.0	50.9	6.7	2.1
	3rd Year Soybean		51	10.3	258	35	1	16.8	34.9	17.9	5.0	1061	543	1604	11.6	2.7	28.9	50.3	6.5	2.0
	4th Year Soybean		48	10.4	247	37	1	16.9	35.3	17.8	4.9	1028	516	1544	11.8	2.8	29.1	49.8	6.5	1.9
	5th Year Soybean		49	10.2	251	36	1	16.7	35.0	18.0	4.9	1033	529	1562	11.8	2.8	28.6	50.4	6.4	2.0
	Rotated Soybean		53	10.3	272	37	1	17.0	35.4	17.8	4.9	1134	569	1703	11.7	2.9	28.9	50.2	6.3	2.0
	Continuous Soybean		44	10.0	226	33	1	16.4	34.8	18.1	5.0	924	479	1403	11.6	2.8	29.5	49.8	6.4	1.9
	1st Year Soybean	Untreated	56	10.5	284	37	1	17.4	35.7	17.6	4.9	1192	587	1780	12.0	2.6	27.4	51.7	6.3	2.1
	1st Year Soybean	Cruiser	56	10.8	284	37	1	17.8	35.9	17.5	4.9	1200	584	1784	11.8	2.6	27.8	51.4	6.3	2.1
	1st Year Soybean	Gaicho	54	10.9	278	38	1	17.9	35.8	17.6	4.9	1169	575	1744	11.9	2.6	28.0	51.1	6.4	2.1
	2nd Year Soybean	Untreated	55	10.8	280	37	1	17.2	35.2	17.8	4.9	1159	585	1744	11.6	2.9	27.3	51.5	6.6	2.1
	2nd Year Soybean	Cruiser	53	10.7	270	36	1	16.9	35.2	17.8	4.9	1119	564	1683	11.5	2.8	29.0	50.1	6.6	2.0
	2nd Year Soybean	Gaicho	55	11.0	282	37	1	17.1	35.3	17.7	5.0	1170	586	1756	11.7	2.7	27.6	51.2	6.8	2.1
	3rd Year Soybean	Untreated	49	10.3	250	36	1	16.6	34.9	17.9	5.0	1027	526	1553	11.5	2.7	29.4	50.0	6.4	1.9
	3rd Year Soybean	Cruiser	51	10.4	260	35	1	16.9	34.9	18.0	5.0	1070	550	1619	11.7	2.7	28.3	50.8	6.5	2.1
	3rd Year Soybean	Gaicho	52	10.4	264	36	1	17.0	35.0	17.9	4.9	1087	553	1640	11.6	2.8	29.0	50.2	6.4	2.0
	4th Year Soybean	Untreated	48	10.3	246	37	1	16.8	35.4	17.8	4.9	1025	515	1540	11.7	2.9	29.2	49.8	6.4	1.9
	4th Year Soybean	Cruiser	48	10.5	244	38	1	17.0	35.3	17.7	4.9	1015	509	1524	11.8	2.7	29.3	49.7	6.5	1.9
	4th Year Soybean	Gaicho	49	10.3	251	37	1	16.9	35.3	17.8	4.9	1042	525	1567	11.8	2.7	28.9	50.0	6.5	2.0
	5th Year Soybean	Untreated	48	10.2	245	36	1	16.5	34.8	18.1	5.0	1005	520	1524	11.8	2.8	28.6	50.3	6.5	2.0
	5th Year Soybean	Cruiser	49	10.3	252	36	1	16.9	35.2	17.8	4.9	1043	527	1570	11.7	2.8	28.5	50.6	6.4	2.0
	5th Year Soybean	Gaicho	50	10.1	255	36	1	16.7	35.1	18.0	4.9	1052	540	1593	11.8	2.8	28.9	50.2	6.4	2.0
	Rotated Soybean	Untreated	54	10.1	274	37	1	17.3	35.4	17.7	4.9	1142	570	1712	11.9	2.8	28.7	50.5	6.2	2.0
	Rotated Soybean	Cruiser	55	10.4	278	38	1	17.0	35.5	17.8	4.9	1164	583	1747	11.8	2.9	28.4	50.5	6.5	2.0
	Rotated Soybean	Gaicho	52	10.5	264	37	1	16.7	35.3	17.8	4.9	1098	554	1652	11.6	2.9	29.6	49.6	6.4	1.9
	Continuous Soybean	Untreated	45	10.0	230	32	1	16.5	34.6	18.1	5.0	937	490	1427	11.8	2.7	29.1	50.0	6.3	1.9
	Continuous Soybean	Cruiser	44	10.1	224	33	1	16.2	34.9	18.0	4.9	920	476	1396	11.4	2.8	29.7	49.7	6.4	1.9
	Continuous Soybean	Gaicho	44	9.9	222	34	1	16.5	34.9	18.1	5.0	914	472	1387	11.5	2.8	29.7	49.6	6.4	1.9
Conv			47	10.4	241	35	1	16.9	35.0	18.0	4.9	995	511	1505	11.7	2.8	28.9	50.1	6.5	2.0
NoTill			54	10.4	276	37	1	17.0	35.4	17.7	4.9	1153	574	1727	11.7	2.8	28.5	50.7	6.4	2.0
Conv		Untreated	47	10.3	241	35	1	16.8	35.0	18.0	4.9	991	510	1502	11.8	2.8	28.9	50.1	6.5	2.0
Conv		Cruiser	47	10.4	242	35	1	17.0	35.0	18.0	4.9	999	512	1511	11.7	2.7	28.8	50.3	6.5	2.0
Conv		Gaicho	47	10.4	241	36	1	16.9	35.0	18.0	4.9	994	510	1504	11.7	2.8	28.9	50.1	6.5	2.0
NoTill		Untreated	54	10.3	276	36	1	17.0	35.4	17.7	4.9	1148	573	1721	11.7	2.8	28.2	51.1	6.3	2.0
NoTill		Cruiser	54	10.6	276	37	1	16.9	35.5	17.6	4.9	1153	571	1724	11.6	2.8	28.6	50.5	6.5	2.0
NoTill		Gaicho	54	10.5	278	37	1	17.0	35.5	17.7	4.9	1158	577	1735	11.7	2.7	28.7	50.4	6.5	2.0

(continued)

Table C-70. Corn/Soybean Rotation and Tillage Study - Soybean.

(continued) **Arlington, WI - 2004**

Tillage	Rotation	Insecticide	Yield bu/A	Moisture %	Grower			100 Seed				Seed Composition			Protein			Fatty Acid Composition				
					return \$/A	Height inches	Lodging 1 to 5	Wt. grams	Protein %	Oil %	Fiber %	Protein lbs/A	Oil lbs/A	+ Oil lbs/A	Palmitic %	Stearic %	Oleic %	Linoleic %	Linolenic %	P/M ratio		
Conv	1st Year Soybean		52	10.8	264	39	1	17.9	35.8	17.5	4.9	1114	545	1658	11.9	2.5	28.5	50.8	6.4	2.0		
Conv	2nd Year Soybean		52	10.8	264	36	1	16.9	34.8	17.9	5.0	1083	558	1641	11.7	2.8	28.6	50.2	6.7	2.0		
Conv	3rd Year Soybean		46	10.2	232	34	1	16.8	34.6	18.2	5.0	947	497	1444	11.6	2.8	29.3	49.9	6.4	2.0		
Conv	4th Year Soybean		45	10.3	232	36	1	17.0	35.1	18.0	4.9	956	491	1447	11.9	2.8	28.6	50.1	6.5	2.0		
Conv	5th Year Soybean		46	10.2	236	34	1	16.6	34.8	18.2	4.9	968	505	1474	11.8	2.8	28.0	50.8	6.6	2.1		
Conv	Rotated Soybean		50	10.3	254	36	1	17.1	35.4	17.8	4.9	1059	532	1591	11.7	2.8	29.9	49.2	6.4	1.9		
Conv	Continuous Soybean		41	10.1	207	32	1	16.1	34.3	18.4	5.0	835	448	1283	11.7	2.7	29.2	49.9	6.4	1.9		
NoTill	1st Year Soybean		59	10.7	300	36	1	17.5	35.7	17.6	4.9	1260	620	1880	11.9	2.6	27.0	52.1	6.4	2.2		
NoTill	2nd Year Soybean		57	10.9	290	37	1	17.3	35.6	17.5	4.9	1215	598	1814	11.5	2.9	27.4	51.6	6.6	2.1		
NoTill	3rd Year Soybean		56	10.5	283	37	1	16.9	35.3	17.7	4.9	1176	588	1764	11.6	2.6	28.5	50.8	6.5	2.0		
NoTill	4th Year Soybean		51	10.5	262	38	1	16.8	35.6	17.6	4.9	1099	542	1641	11.7	2.7	29.6	49.5	6.4	1.9		
NoTill	5th Year Soybean		52	10.2	265	37	1	16.8	35.2	17.8	4.9	1098	553	1651	11.7	2.8	29.3	49.9	6.3	1.9		
NoTill	Rotated Soybean		57	10.4	290	38	1	16.9	35.4	17.8	4.9	1210	606	1816	11.8	2.9	27.9	51.1	6.3	2.1		
NoTill	Continuous Soybean		48	10.0	244	34	1	16.7	35.3	17.8	4.9	1013	511	1523	11.5	2.8	29.8	49.6	6.3	1.9		
Conv	1st Year Soybean	Untreated	53	10.6	269	38	1	17.5	35.7	17.6	4.9	1131	557	1689	11.9	2.5	28.8	50.5	6.3	2.0		
Conv	1st Year Soybean	Cruiser	52	10.9	263	39	1	18.0	35.8	17.5	4.9	1108	540	1649	11.8	2.6	28.2	51.1	6.3	2.1		
Conv	1st Year Soybean	Gaicho	51	10.9	261	40	1	18.1	35.9	17.5	4.9	1102	536	1638	11.9	2.5	28.5	50.7	6.4	2.0		
Conv	2nd Year Soybean	Untreated	53	10.9	272	36	1	16.9	34.8	18.0	5.0	1115	575	1689	11.9	2.8	27.0	51.5	6.8	2.2		
Conv	2nd Year Soybean	Cruiser	50	10.6	255	35	1	16.9	34.7	17.9	5.0	1043	538	1582	11.5	2.7	30.3	48.9	6.6	1.8		
Conv	2nd Year Soybean	Gaicho	52	10.9	266	36	1	16.8	34.9	17.9	5.0	1092	560	1653	11.7	2.7	28.4	50.3	6.8	2.0		
Conv	3rd Year Soybean	Untreated	44	10.1	223	34	1	16.5	34.7	18.2	5.0	910	478	1388	11.5	2.6	30.7	48.8	6.4	1.8		
Conv	3rd Year Soybean	Cruiser	47	10.3	241	33	1	16.9	34.5	18.2	5.0	981	517	1498	11.7	2.8	28.4	50.7	6.5	2.1		
Conv	3rd Year Soybean	Gaicho	46	10.2	232	34	1	16.9	34.7	18.2	5.0	949	496	1446	11.5	3.0	28.8	50.2	6.5	2.0		
Conv	4th Year Soybean	Untreated	46	10.2	233	36	1	16.9	35.1	18.2	4.9	962	497	1460	11.8	3.0	29.4	49.5	6.4	1.9		
Conv	4th Year Soybean	Cruiser	44	10.3	226	37	1	17.1	35.2	17.9	4.9	937	476	1414	11.9	2.7	28.4	50.5	6.5	2.0		
Conv	4th Year Soybean	Gaicho	46	10.4	235	36	1	17.0	35.0	18.0	4.9	969	498	1467	11.9	2.8	28.2	50.5	6.6	2.1		
Conv	5th Year Soybean	Untreated	45	10.3	228	34	1	16.5	34.7	18.2	5.0	933	489	1423	11.9	2.8	27.6	51.0	6.8	2.1		
Conv	5th Year Soybean	Cruiser	47	10.1	238	35	1	16.7	34.9	18.2	4.9	975	507	1482	11.8	2.7	28.0	50.9	6.7	2.1		
Conv	5th Year Soybean	Gaicho	48	10.2	243	34	1	16.5	34.9	18.2	4.9	998	519	1516	11.9	2.8	28.3	50.7	6.3	2.0		
Conv	Rotated Soybean	Untreated	50	10.2	257	36	1	17.2	35.5	17.7	4.9	1073	535	1608	11.7	2.9	30.0	49.4	6.1	1.9		
Conv	Rotated Soybean	Cruiser	51	10.4	262	37	1	17.3	35.6	17.9	4.9	1097	551	1648	11.8	2.8	28.6	50.3	6.5	2.0		
Conv	Rotated Soybean	Gaicho	48	10.2	243	36	1	16.8	35.2	17.9	4.9	1006	511	1517	11.6	2.8	31.1	48.0	6.5	1.8		
Conv	Continuous Soybean	Untreated	40	10.0	203	32	1	16.3	34.2	18.4	5.0	815	439	1254	12.0	2.8	28.6	50.0	6.6	2.0		
Conv	Continuous Soybean	Cruiser	41	10.1	210	32	1	15.8	34.4	18.3	5.0	849	454	1303	11.5	2.7	29.9	49.6	6.3	1.9		
Conv	Continuous Soybean	Gaicho	41	10.1	208	33	1	16.3	34.4	18.4	5.0	841	451	1292	11.5	2.7	29.1	50.2	6.4	1.9		

(continued)

Table C-70. Corn/Soybean Rotation and Tillage Study - Soybean.

(continued) **Arlington, WI - 2004**

Tillage	Rotation	Insecticide	Grower					100 Seed Seed Composition					Protein		Fatty Acid Composition					
			Yield	Moisture	return	Height	Lodging	Wt.	Protein	Oil	Fiber	Protein	Oil	+ Oil	Palmitic	Stearic	Oleic	Linoleic	Linolenic	P/M ratio
			bu/A	%	\$/A	inches	1 to 5	grams	%	%	%	lbs/A	lbs/A	lbs/A	%	%	%	%	%	
NoTill	1st Year Soybean	Untreated	59	10.4	299	36	1	17.3	35.7	17.6	4.9	1253	617	1870	12.0	2.7	26.0	53.0	6.3	2.3
NoTill	1st Year Soybean	Cruiser	60	10.8	305	35	1	17.5	35.9	17.5	4.9	1291	627	1918	11.8	2.5	27.5	51.8	6.3	2.1
NoTill	1st Year Soybean	Gaucho	58	10.9	295	37	1	17.6	35.6	17.7	4.9	1235	615	1850	11.9	2.7	27.5	51.5	6.4	2.1
NoTill	2nd Year Soybean	Untreated	56	10.8	288	37	1	17.5	35.5	17.5	4.9	1203	595	1798	11.4	3.0	27.6	51.6	6.4	2.1
NoTill	2nd Year Soybean	Cruiser	56	10.9	285	38	1	16.8	35.6	17.6	4.9	1194	590	1784	11.5	2.9	27.8	51.2	6.6	2.1
NoTill	2nd Year Soybean	Gaucho	58	11.1	298	38	2	17.5	35.6	17.5	5.0	1248	611	1859	11.7	2.7	26.7	52.1	6.8	2.2
NoTill	3rd Year Soybean	Untreated	54	10.4	276	37	2	16.7	35.2	17.7	5.0	1144	574	1717	11.6	2.7	28.0	51.2	6.5	2.1
NoTill	3rd Year Soybean	Cruiser	55	10.6	279	38	1	16.9	35.3	17.8	4.9	1158	582	1740	11.7	2.6	28.2	51.0	6.6	2.0
NoTill	3rd Year Soybean	Gaucho	58	10.6	295	37	1	17.0	35.3	17.6	4.9	1225	609	1834	11.7	2.6	29.1	50.2	6.4	1.9
NoTill	4th Year Soybean	Untreated	51	10.4	259	37	1	16.7	35.7	17.5	4.9	1088	532	1621	11.6	2.8	29.0	50.2	6.3	1.9
NoTill	4th Year Soybean	Cruiser	51	10.7	262	39	1	16.9	35.5	17.6	4.9	1093	541	1634	11.7	2.7	30.2	48.9	6.5	1.8
NoTill	4th Year Soybean	Gaucho	52	10.3	267	39	1	16.8	35.6	17.6	4.9	1116	552	1667	11.7	2.7	29.6	49.6	6.4	1.9
NoTill	5th Year Soybean	Untreated	51	10.1	262	37	1	16.5	34.9	17.9	5.0	1076	550	1626	11.7	2.8	29.6	49.7	6.2	1.9
NoTill	5th Year Soybean	Cruiser	52	10.6	266	38	1	17.0	35.5	17.5	4.9	1111	546	1657	11.7	2.9	29.0	50.2	6.2	1.9
NoTill	5th Year Soybean	Gaucho	52	10.1	267	38	1	16.9	35.3	17.9	4.9	1107	562	1669	11.8	2.8	29.4	49.6	6.5	1.9
NoTill	Rotated Soybean	Untreated	57	9.9	290	38	1	17.5	35.4	17.7	4.9	1210	605	1815	12.0	2.8	27.4	51.6	6.2	2.1
NoTill	Rotated Soybean	Cruiser	58	10.4	295	39	1	16.7	35.5	17.8	4.9	1230	615	1846	11.7	3.0	28.2	50.7	6.4	2.0
NoTill	Rotated Soybean	Gaucho	56	10.7	286	39	1	16.6	35.4	17.8	4.9	1189	598	1787	11.6	2.9	28.0	51.1	6.4	2.1
NoTill	Continuous Soybean	Untreated	50	10.1	257	33	1	16.7	35.0	17.8	5.0	1060	540	1600	11.7	2.6	29.6	50.0	6.1	1.9
NoTill	Continuous Soybean	Cruiser	47	10.0	239	34	1	16.6	35.3	17.8	4.9	991	498	1490	11.2	2.9	29.4	49.9	6.6	1.9
NoTill	Continuous Soybean	Gaucho	46	9.8	236	35	1	16.7	35.5	17.8	4.9	987	494	1481	11.5	2.9	30.2	48.9	6.4	1.9
Mean			51	10.4	259	36	1	16.9	35.2	17.8	4.9	1074	542	1616	11.7	2.8	28.7	50.4	6.4	2.0
Probability(%)																				
Tillage (T)			0.0	47.3	0.0	4.7	9.4	63.2	1.8	0.4	30.1	0.0	0.0	0.0	31.5	93.4	51.4	29.4	48.7	51.0
Rotation (R)			0.0	1.0	0.0	0.0	71.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	20.8	22.5	20.8	10.8	33.4	11.9
T x R			83.8	95.4	83.8	0.8	54.4	28.9	4.3	0.0	53.9	79.4	78.7	82.3	81.9	74.3	14.4	13.8	89.2	15.0
Insecticide (I)			96.7	1.3	96.7	0.3	43.5	87.9	16.2	34.8	12.3	91.6	96.8	94.4	26.6	75.6	78.5	68.6	18.2	84.1
T x I			93.6	22.8	93.6	20.8	88.7	51.4	75.0	74.8	28.9	95.5	89.8	94.0	86.6	78.0	80.6	52.2	10.4	77.4
R x I			84.1	22.8	84.1	25.7	47.5	19.7	40.6	31.5	92.3	82.7	85.0	83.8	11.7	56.4	93.0	95.3	89.3	92.8
T x R x I			96.1	23.1	96.1	65.7	62.9	81.9	91.4	26.0	99.7	97.3	94.4	96.7	73.7	49.8	71.0	72.7	25.6	72.8
LSD(0.10)																				
Tillage (T)			1	NS	5	1	0	NS	0.3	0.1	NS	27	9	35	NS	NS	NS	NS	NS	NS
Rotation (R)			3	0.4	14	1	NS	0.4	0.3	0.1	0.0	58	30	87	NS	NS	NS	NS	NS	NS
T x R			NS	NS	NS	2	NS	NS	0.4	0.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Insecticide (I)			NS	0.1	NS	0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
T x I			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
R x I			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
T x R x I			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CV(%)			8	3	8	3	21	3	1	1	1	9	8	8	2	8	8	4	5	11