

FIELD EXPERIMENT HISTORY

Title: Corn/Soybean/Wheat Rotation Study

Experiment: 09CSW **Trial ID:** 3397 **Year:** 2010

Personnel: J. G. Lauer, J.M. Gaska, T. H. Diallo, K. D. Kohn,

Location: Arlington **County:** Columbia

Supported By: HATCH

Site Information

Field: 335 **Previous Crop:** Corn/Soybean/Wheat **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 6 /15/10 **pH** 6.9 **OM (%)** 3.1 **P (ppm)** 19 **K (ppm)** 127

Plot Management

Tillage Operations: Field Cultivator Soil Finisher

Fertilizer:	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Preplant :	N/A	N/A	N/A
Starter :	N/A	N/A	N/A
Post plant :	C: 28-0-0 W: 46-0-0	C: 70 gal/A W: 100 lb/A	C: 6/10/10 W: 4/13/10
Manure:	N/A	N/A	N/A

Herbicide: Mirage plus: 22 oz/ 4-18-10
Radar LV: 8 oz/A 4-18-10
Dual II Mag :4 oz/A 4-28-10
Mirage plus 24oz/A 5-17-1

Insecticide: None

Hybrid: See Factors/Treatments

Planting Date: Corn: 5/10/10 **Planting Depth:** C: 1.5"
Soybean: 5/4/10 S: 1"
W: 1"

Row Width: C/S: 30"
W: 7.5"

Target Plant Density: C: 32500 Plants/A
S: 150000 Plants/A
W: 1.7million Plants/A

Planting Method: C:Kinze Interplant
S:JD Plot Drill
W:JD750 Drill

Harvest Date: Corn: 9/30/10 **Harvest Method:** C: MF 8XP
Soybean: 10/04/10 S/W: Almaco plot combine #2
Wheat: N/A

Notes:

Experimental Design

Design: RCB split-split plot **Replications:** 3

Plot Size Seeded: 10' x 30' **Experiment Size:** 3.27 A

Harvest Plot Size: 5' x 26

Factors/Treatments:

<u>Rotation:</u>	<u>Hybrid/Variety:</u>	<u>Fungicide:</u>
Continuous: Corn, Soybean or Winter Wheat	Resistant: Corn: Pioneer 37N68	C: Headline 7.8 fl oz/A
Rotation: Corn/Soybean	Soybean: Pioneer 92Y30	S: Maxim .08 fl oz/cwt
Grain Syst I: Corn/Soybean(early)/Winter Wheat	Wheat: Illinois IL01-11934	W: Headline 9 fl oz/A
Grain Syst II: Corn(early)/Winter Wheat/Soybean	Suscptible: Corn: Pioneer 37N16	Prosaro 6.5 fl oz/A
Lvstck Syst: Corn(silage)/Winter Wheat(straw rmvd)/Soybean	Soybean: 92M33	
	Wheat: Pioneer 25R47	

Results: Tables C-50, C-51, C-52 and C-53

**Table C- 50. Corn, Soybean and Wheat Rotation - Corn
Arlington, WI - 2010.**

Rotation	Variety	Fungicide	Yield bu/A	Moisture %	Test weight lbs/bu	Grower return \$/A	Lodged			Harvest
							Total %	Stalk %	Root %	plants plants/A
		Headline	247	21.8	53.7	1079	0.1	0.1	0.0	34479
		UTC	249	21.6	53.7	1088	0.7	0.6	0.1	34104
	RR: P37N68		252	21.7	53.8	1098	0.2	0.1	0.1	35833
	RS: P37N16		251	21.8	53.7	1094	0.0	0.0	0.0	32667
	SR: P37N68		243	21.7	53.5	1061	0.1	0.1	0.0	35292
	SS: P37N16		247	21.5	53.8	1081	1.1	1.1	0.0	33375
	RR: P37N68	Headline	249	21.9	53.9	1089	0.0	0.0	0.0	36583
	RR: P37N68	UTC	254	21.6	53.7	1108	0.5	0.2	0.2	35083
	RS: P37N16	Headline	255	21.8	53.4	1115	0.0	0.0	0.0	32417
	RS: P37N16	UTC	246	21.8	54.1	1073	0.0	0.0	0.0	32917
	SR: P37N68	Headline	242	21.8	53.8	1058	0.0	0.0	0.0	34667
	SR: P37N68	UTC	244	21.7	53.2	1065	0.2	0.2	0.0	35917
	SS: P37N16	Headline	242	21.7	53.7	1055	0.2	0.2	0.0	34250
	SS: P37N16	UTC	253	21.3	53.8	1108	2.0	2.0	0.0	32500
CC			238	24.5	52.5	1026	0.0	0.0	0.0	32917
CS			250	21.0	53.9	1096	0.3	0.3	0.0	34583
CSW			258	21.3	53.9	1128	0.9	0.7	0.1	34208
CWS			247	19.9	54.4	1085	0.4	0.4	0.0	35458
CC		Headline	233	25.0	52.4	1001	0.0	0.0	0.0	33667
CC		UTC	243	24.1	52.6	1051	0.0	0.0	0.0	32167
CS		Headline	254	20.9	54.1	1113	0.0	0.0	0.0	35083
CS		UTC	246	21.1	53.8	1079	0.5	0.5	0.0	34083
CSW		Headline	258	21.4	54.0	1129	0.0	0.0	0.0	33750
CSW		UTC	257	21.2	53.8	1126	1.7	1.5	0.2	34667
CWS		Headline	244	19.9	54.3	1073	0.2	0.2	0.0	35417
CWS		UTC	249	20.0	54.5	1097	0.5	0.5	0.0	35500
CC	RR: P37N68		247	25.0	52.9	1062	0.0	0.0	0.0	34667
CC	RS: P37N16		243	24.5	52.1	1046	0.0	0.0	0.0	31667
CC	SR: P37N68		229	24.4	52.6	987	0.0	0.0	0.0	32667
CC	SS: P37N16		234	24.2	52.6	1010	0.0	0.0	0.0	32667
CS	RR: P37N68		243	21.2	53.7	1062	0.0	0.0	0.0	35000
CS	RS: P37N16		252	20.7	54.1	1106	0.0	0.0	0.0	33667
CS	SR: P37N68		247	21.5	53.6	1081	0.0	0.0	0.0	36833
CS	SS: P37N16		259	20.7	54.3	1135	1.1	1.1	0.0	32833

continued

Table C- 50. Corn, Soybean and Wheat Rotation - Corn**(continued) Arlington, WI - 2010.**

Rotation	Variety	Fungicide	Yield bu/A	Moisture %	Test weight lbs/bu	Grower return \$/A	Lodged			Harvest
							Total %	Stalk %	Root %	plants plants/A
CSW	RR: P37N68		267	21.0	54.2	1171	0.9	0.5	0.5	37167
CSW	RS: P37N16		255	21.9	53.8	1112	0.0	0.0	0.0	30333
CSW	SR: P37N68		260	21.0	53.6	1139	0.0	0.0	0.0	35667
CSW	SS: P37N16		249	21.3	54.1	1089	2.5	2.5	0.0	33667
CWS	RR: P37N68		249	19.7	54.3	1098	0.0	0.0	0.0	36500
CWS	RS: P37N16		253	20.1	54.9	1111	0.0	0.0	0.0	35000
CWS	SR: P37N68		236	20.1	54.2	1039	0.5	0.5	0.0	36000
CWS	SS: P37N16		248	19.8	54.1	1092	1.0	1.0	0.0	34333
CC	RR: P37N68	Headline	242	25.7	52.6	1036	0.0	0.0	0.0	35000
CC	RR: P37N68	UTC	252	24.3	53.2	1087	0.0	0.0	0.0	34333
CC	RS: P37N16	Headline	241	24.7	51.8	1039	0.0	0.0	0.0	32000
CC	RS: P37N16	UTC	244	24.3	52.5	1053	0.0	0.0	0.0	31333
CC	SR: P37N68	Headline	219	24.9	52.8	944	0.0	0.0	0.0	32667
CC	SR: P37N68	UTC	238	23.9	52.4	1030	0.0	0.0	0.0	32667
CC	SS: P37N16	Headline	228	24.7	52.7	984	0.0	0.0	0.0	35000
CC	SS: P37N16	UTC	239	23.7	52.5	1036	0.0	0.0	0.0	30333
CS	RR: P37N68	Headline	244	21.1	54.0	1068	0.0	0.0	0.0	37333
CS	RR: P37N68	UTC	242	21.3	53.4	1057	0.0	0.0	0.0	32667
CS	RS: P37N16	Headline	266	20.5	54.0	1168	0.0	0.0	0.0	33333
CS	RS: P37N16	UTC	238	20.8	54.3	1043	0.0	0.0	0.0	34000
CS	SR: P37N68	Headline	255	21.3	54.0	1114	0.0	0.0	0.0	36000
CS	SR: P37N68	UTC	240	21.6	53.3	1047	0.0	0.0	0.0	37667
CS	SS: P37N16	Headline	252	20.8	54.3	1103	0.0	0.0	0.0	33667
CS	SS: P37N16	UTC	266	20.6	54.3	1167	2.1	2.1	0.0	32000
CSW	RR: P37N68	Headline	257	21.1	54.2	1127	0.0	0.0	0.0	37667
CSW	RR: P37N68	UTC	277	20.9	54.2	1216	1.8	0.9	0.9	36667
CSW	RS: P37N16	Headline	267	21.9	53.9	1163	0.0	0.0	0.0	30000
CSW	RS: P37N16	UTC	243	21.8	53.7	1062	0.0	0.0	0.0	30667
CSW	SR: P37N68	Headline	261	21.0	54.0	1145	0.0	0.0	0.0	34333
CSW	SR: P37N68	UTC	259	21.1	53.2	1133	0.0	0.0	0.0	37000
CSW	SS: P37N16	Headline	248	21.7	54.0	1082	0.0	0.0	0.0	33000
CSW	SS: P37N16	UTC	250	20.9	54.3	1096	5.0	5.0	0.0	34333
CWS	RR: P37N68	Headline	255	19.6	54.7	1123	0.0	0.0	0.0	36333
CWS	RR: P37N68	UTC	243	19.7	53.9	1073	0.0	0.0	0.0	36667
CWS	RS: P37N16	Headline	248	20.1	54.0	1090	0.0	0.0	0.0	34333
CWS	RS: P37N16	UTC	257	20.1	55.9	1132	0.0	0.0	0.0	35667

continued

Table C- 50. Corn, Soybean and Wheat Rotation - Corn**(continued) Arlington, WI - 2010.**

Rotation	Variety	Fungicide	Yield bu/A	Moisture %	Test weight lbs/bu	Grower return \$/A	Lodged			Harvest
							Total %	Stalk %	Root %	plants plants/A
CWS	SR: P37N68	Headline	234	20.1	54.6	1028	0.0	0.0	0.0	35667
CWS	SR: P37N68	UTC	239	20.1	53.9	1051	0.9	0.9	0.0	36333
CWS	SS: P37N16	Headline	239	19.7	53.9	1052	0.9	0.9	0.0	35333
CWS	SS: P37N16	UTC	257	20.0	54.3	1132	1.0	1.0	0.0	33333
Mean			248	21.7	53.7	1084	0	0	0	34292
<u>Probability(%)</u>										
Rotation (R)			0.2	0.0	1.1	0.0	5.0	6.3	40.5	1.7
Variety (V)			30.6	58.6	54.3	32.4	0.1	0.0	40.5	0.0
Fungicide(F)			57.8	2.5	97.8	54.1	0.5	0.4	32.5	47.0
R x V			31.3	26.2	28.8	30.9	17.8	8.4	46.0	18.2
R x F			26.2	0.1	60.5	23.7	3.5	4.5	40.5	35.6
V x F			18.5	60.7	3.3	18.1	1.7	0.4	40.5	12.3
R x V x F			48.7	80.8	43.4	50.0	6.8	2.2	46.0	75.0
<u>LSD(0.10)</u>										
Rotation (R)			8	0.8	0.7	36	0.5	0.5	NS	1273
Variety (V)			NS	NS	NS	NS	0.5	0.5	NS	1273
Fungicide(F)			NS	0.2	NS	NS	0.4	0.3	NS	NS
R x V			NS	NS	NS	NS	NS	0.9	NS	NS
R x F			NS	0.7	NS	NS	0.7	0.6	NS	NS
V x F			NS	NS	0.5	NS	0.7	0.6	NS	NS
R x V x F			NS	NS	NS	NS	1.4	1.3	NS	NS

* RS= Resistant planted in odd years
 SR= Resistant planted in even years

RR = Resistant all years
 SS = Susceptible all years

**Table C- 51. Corn, Soybean and Wheat Rotation - Silage
Arlington, WI - 2010.**

Variety	Fungicide	Plant population plants/A	Whole Plant										Milk per	
			Dry Matter		Kernel milk %	Crude protein %	ADF %	NDF %	<i>In Vitro</i>		Starch %	Ton	Acre	
			Yield tons/A	Moisture %					Digest %	NDFD %		lbs/T	lbs/T	
	Headline	34667	8.9	66.2	47.1	6.6	27.2	46.7	77.7	52.4	32.9	2990	26564	
	UTC	34333	9.0	65.1	47.1	6.8	26.7	46.7	78.2	53.3	33.1	3014	27187	
RR: P37N68		35000	9.1	66.0	45.8	6.7	27.6	47.8	77.2	52.4	31.3	2947	26851	
RS: P37N16		33833	8.8	65.1	51.7	6.7	26.7	46.2	78.0	52.4	34.0	3007	26663	
SR: P37N68		34833	8.6	67.9	46.7	6.7	27.4	47.3	77.3	52.0	31.8	2959	25502	
SS: P37N16		34333	9.2	63.6	44.2	6.5	26.1	45.4	79.4	54.6	34.9	3093	28486	
RR: P37N68	Headline	35000	9.1	66.8	41.7	6.4	29.4	49.8	76.4	52.8	29.5	2882	25939	
RR: P37N68	UTC	35000	9.2	65.1	50.0	7.1	25.7	45.8	78.0	52.0	33.1	3012	27763	
RS: P37N16	Headline	33667	8.4	66.3	53.3	6.9	25.9	44.8	78.1	51.0	34.8	3024	25577	
RS: P37N16	UTC	34000	9.2	64.0	50.0	6.6	27.6	47.6	77.9	53.9	33.2	2990	27750	
SR: P37N68	Headline	36333	8.6	67.0	46.7	6.5	27.4	46.8	76.7	50.2	32.3	2930	25358	
SR: P37N68	UTC	33333	8.6	68.9	46.7	6.9	27.5	47.8	78.0	53.8	31.4	2988	25646	
SS: P37N16	Headline	33667	9.4	64.7	46.7	6.6	26.1	45.3	79.9	55.7	34.8	3122	29381	
SS: P37N16	UTC	35000	9.0	62.6	41.7	6.4	26.0	45.5	78.9	53.6	35.0	3065	27591	
Mean		34500	8.9	65.7	47.1	6.7	27.0	46.7	78.0	52.9	33.0	3002	26876	
Probability(%)														
	Hybrid (H)	61.3	64.0	29.8	29.1	21.4	79.2	74.7	41.7	20.0	52.6	48.1	60.3	
	Fungicide (F)	51.8	76.0	20.3	100.0	48.1	68.8	99.5	65.1	32.8	88.1	74.0	57.5	
	H x F	6.6	68.1	25.0	35.9	0.5	44.8	52.9	75.8	10.6	75.7	77.9	57.0	
LSD (0.10)														
	Hybrid (H)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	Fungicide (F)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	H x F	2002	NS	NS	NS	0.4	NS	NS	NS	NS	NS	NS	NS	

**Table 52. Corn/Soybean/Wheat Rotation - Soybean
Arlington, WI - 2010.**

Name	Rotation		Disease/ variety rotation*	Seed applied fungicide **	Yield bu/a	Lodg. 1 to 5	Population ppa/1000
	Sequence	#					
				UTC	66.2	1.0	127.9
				Maxim	67.0	1.0	126.5
			RR:P92Y30		66.8	1.0	125.7
			SS:P92M33		64.9	1.0	132.4
			RS:P92M33		66.7	1.0	133.4
			SR:P92Y30		67.9	1.0	117.2
			RR:P92Y30	UTC	66.3	1.0	128.6
			RR:P92Y30	Maxim	67.2	1.0	122.9
			SS:P92M33	UTC	62.9	1.0	131.3
			SS:P92M33	Maxim	66.8	1.0	133.6
			RS:P92M33	UTC	66.3	1.0	135.6
			RS:P92M33	Maxim	67.1	1.0	131.3
			SR:P92Y30	UTC	69.0	1.0	116.2
			SR:P92Y30	Maxim	66.9	1.0	118.1
Continuous	S-S-S	2			57.9	1.0	124.6
Alternating	C-S	5			63.7	1.0	127.4
Grain System I	W-Cgrain-S	8			68.7	1.0	135.5
Grain System II	Cgrain-W-S	9			72.5	1.0	114.0
Livestock System	Csilage-W-S	12			70.7	1.0	134.4
Continuous	S-S-S	2		UTC	58.9	1.0	119.8
Continuous	S-S-S	2		Maxim	57.0	1.0	129.4
Alternating	C-S	5		UTC	64.2	1.0	126.8
Alternating	C-S	5		Maxim	63.2	1.0	128.1
Grain System I	W-Cgrain-S	8		UTC	67.5	1.0	137.7
Grain System I	W-Cgrain-S	8		Maxim	69.8	1.0	133.3
Grain System II	Cgrain-W-S	9		UTC	71.4	1.0	117.9
Grain System II	Cgrain-W-S	9		Maxim	73.4	1.0	110.2
Livestock System	Csilage-W-S	12		UTC	69.3	1.0	137.4
Livestock System	Csilage-W-S	12		Maxim	72.1	1.0	131.4
Continuous	S-S-S	2	RR:P92Y30		58.6	1.0	119.7
Continuous	S-S-S	2	SS:P92M33		56.4	1.0	131.0
Continuous	S-S-S	2	RS:P92M33		58.4	1.0	131.3
Continuous	S-S-S	2	SR:P92Y30		58.4	1.0	116.5
Alternating	C-S	5	RR:P92Y30		65.9	1.0	129.5
Alternating	C-S	5	SS:P92M33		62.2	1.0	137.4
Alternating	C-S	5	RS:P92M33		64.0	1.0	116.2
Alternating	C-S	5	SR:P92Y30		62.7	1.0	126.6
Grain System I	W-Cgrain-S	8	RR:P92Y30		65.8	1.0	131.5
Grain System I	W-Cgrain-S	8	SS:P92M33		67.2	1.0	148.4
Grain System I	W-Cgrain-S	8	RS:P92M33		71.8	1.0	143.2
Grain System I	W-Cgrain-S	8	SR:P92Y30		69.4	1.0	118.8

continued

Table 52. Corn/Soybean/Wheat Rotation - Soybean
(continued) **Arlington, WI - 2010.**

Name	Rotation		Disease/ variety rotation*	Seed applied fungicide **	Yield bu/a	Lodg. 1 to 5	Population ppa/1000
	Sequence	#					
Grain System II	Cgrain-W-S	9	RR:P92Y30		73.2	1.0	114.1
Grain System II	Cgrain-W-S	9	SS:P92M33		72.7	1.0	114.7
Grain System II	Cgrain-W-S	9	RS:P92M33		71.0	1.0	128.6
Grain System II	Cgrain-W-S	9	SR:P92Y30		73.1	1.0	98.7
Livestock System	Csilage-W-S	12	RR:P92Y30		71.6	1.0	133.9
Livestock System	Csilage-W-S	12	SS:P92M33		66.6	1.0	130.7
Livestock System	Csilage-W-S	12	RS:P92M33		68.4	1.0	147.8
Livestock System	Csilage-W-S	12	SR:P92Y30		76.1	1.0	125.2
Continuous	S-S-S	2	RR:P92Y30	UTC	61.1	1.0	119.7
Continuous	S-S-S	2	RR:P92Y30	Maxim	56.0	1.0	119.6
Continuous	S-S-S	2	SS:P92M33	UTC	56.2	1.0	136.5
Continuous	S-S-S	2	SS:P92M33	Maxim	56.6	1.0	125.5
Continuous	S-S-S	2	RS:P92M33	UTC	60.1	1.0	117.3
Continuous	S-S-S	2	RS:P92M33	Maxim	56.6	1.0	145.2
Continuous	S-S-S	2	SR:P92Y30	UTC	58.3	1.0	105.7
Continuous	S-S-S	2	SR:P92Y30	Maxim	58.5	1.0	127.2
Alternating	C-S	5	RR:P92Y30	UTC	67.9	1.0	122.0
Alternating	C-S	5	RR:P92Y30	Maxim	63.8	1.0	137.0
Alternating	C-S	5	SS:P92M33	UTC	60.8	1.0	127.2
Alternating	C-S	5	SS:P92M33	Maxim	63.6	1.0	147.5
Alternating	C-S	5	RS:P92M33	UTC	63.7	1.0	128.4
Alternating	C-S	5	RS:P92M33	Maxim	64.3	1.0	104.0
Alternating	C-S	5	SR:P92Y30	UTC	64.5	1.0	129.5
Alternating	C-S	5	SR:P92Y30	Maxim	61.0	1.0	123.7
Grain System I	W-Cgrain-S	8	RR:P92Y30	UTC	61.2	1.0	137.0
Grain System I	W-Cgrain-S	8	RR:P92Y30	Maxim	70.4	1.0	126.0
Grain System I	W-Cgrain-S	8	SS:P92M33	UTC	62.4	1.0	138.8
Grain System I	W-Cgrain-S	8	SS:P92M33	Maxim	72.0	1.0	158.0
Grain System I	W-Cgrain-S	8	RS:P92M33	UTC	72.9	1.0	158.6
Grain System I	W-Cgrain-S	8	RS:P92M33	Maxim	70.7	1.0	127.8
Grain System I	W-Cgrain-S	8	SR:P92Y30	UTC	72.0	1.0	116.2
Grain System I	W-Cgrain-S	8	SR:P92Y30	Maxim	66.9	1.0	121.4
Grain System II	Cgrain-W-S	9	RR:P92Y30	UTC	74.4	1.0	118.5
Grain System II	Cgrain-W-S	9	RR:P92Y30	Maxim	72.4	1.0	109.8
Grain System II	Cgrain-W-S	9	SS:P92M33	UTC	70.4	1.0	117.3
Grain System II	Cgrain-W-S	9	SS:P92M33	Maxim	74.9	1.0	112.1
Grain System II	Cgrain-W-S	9	RS:P92M33	UTC	67.9	1.0	123.7
Grain System II	Cgrain-W-S	9	RS:P92M33	Maxim	74.2	1.0	133.6

continued

Table 52. Corn/Soybean/Wheat Rotation - Soybean
(continued) **Arlington, WI - 2010.**

Name	Rotation		Disease/ variety rotation*	Seed applied fungicide **	Yield bu/a	Lodg. 1 to 5	Population ppa/1000
	Sequence	#					
Grain System II	Cgrain-W-S	9	SR:P92Y30	UTC	74.1	1.0	112.1
Grain System II	Cgrain-W-S	9	SR:P92Y30	Maxim	72.0	1.0	85.4
Livestock System	Csilage-W-S	12	RR:P92Y30	UTC	69.6	1.0	145.8
Livestock System	Csilage-W-S	12	RR:P92Y30	Maxim	73.6	1.0	122.0
Livestock System	Csilage-W-S	12	SS:P92M33	UTC	64.5	1.0	136.5
Livestock System	Csilage-W-S	12	SS:P92M33	Maxim	68.8	1.0	124.9
Livestock System	Csilage-W-S	12	RS:P92M33	UTC	67.0	1.0	149.8
Livestock System	Csilage-W-S	12	RS:P92M33	Maxim	69.8	1.0	145.8
Livestock System	Csilage-W-S	12	SR:P92Y30	UTC	76.0	1.0	117.3
Livestock System	Csilage-W-S	12	SR:P92Y30	Maxim	76.1	1.0	133.0
Mean					66.6	1.0	127.2
Probability (Pr>F) %							
Rotation (R)					0.1	>50	19.9
Variety (V)					30.9	>50	1.7
R x V					44.4	>50	>50
Fungicide (F)					37.4	>50	>50
R x F					16.4	>50	>50
V x F					3.4	>50	>50
R x V x F					12.2	>50	10.5
LSD (0.10)							
Rotation (R)					4.1	NS	NS
Variety (V)					NS	NS	9.1
R x V					NS	NS	NS
Fungicide (F)					NS	NS	NS
R x F					NS	NS	NS
V x F					3	NS	NS
R x V x F							
CV(%)							
					6	0	15

* RS= Resistant planted in odd years

SR= Resistant planted in even years

RR = Resistant all years

SS = Susceptible all years

** Maxim (fludioxonil) applied at 0.08 fl oz/cwt

**Table C-53. Corn/Soybean/Wheat Rotation - Wheat
Expt. 1091 - Arlington, WI**

Rotation		Variety	Fungicide	Yield bu/A
Name	Sequence			
			UTC	64.5
			Prosaro @ GS10.5.1	67.2
		RR:IL01-11934		58.5
		SS:P25R47		72.7
		RS:P25R47		72.7
		SR:IL01-11934		59.0
		RR:IL01-11934	UTC	56.6
		RR:IL01-11934	Prosaro @ GS10.5.1	60.4
		SS:P25R47	UTC	71.9
		SS:P25R47	Prosaro @ GS10.5.1	73.6
		RS:P25R47	UTC	68.3
		RS:P25R47	Prosaro @ GS10.5.1	77.2
		SR:IL01-11934	UTC	60.8
		SR:IL01-11934	Prosaro @ GS10.5.1	57.4
Grain system I	C-S-W			66.9
Grain system II	S-C-W			57.8
Livestock System	S-C _{silage} -W			72.9
Grain system I	C-S-W		UTC	67.4
Grain system I	C-S-W		Prosaro @ GS10.5.1	66.4
Grain system II	S-C-W		UTC	55.7
Grain system II	S-C-W		Prosaro @ GS10.5.1	59.9
Livestock System	S-C _{silage} -W		UTC	70.5
Livestock System	S-C _{silage} -W		Prosaro @ GS10.5.1	75.2
Grain system I	C-S-W	RR:IL01-11934		55.6
Grain system I	C-S-W	SS:P25R47		74.4
Grain system I	C-S-W	RS:P25R47		74.2
Grain system I	C-S-W	SR:IL01-11934		62.5
Grain system II	S-C-W	RR:IL01-11934		58.9
Grain system II	S-C-W	SS:P25R47		61.8
Grain system II	S-C-W	RS:P25R47		59.6
Grain system II	S-C-W	SR:IL01-11934		50.9
Livestock System	S-C _{silage} -W	RR:IL01-11934		60.9
Livestock System	S-C _{silage} -W	SS:P25R47		82.1
Livestock System	S-C _{silage} -W	RS:P25R47		84.4
Livestock System	S-C _{silage} -W	SR:IL01-11934		64.2
Grain system I	C-S-W	RR:IL01-11934	UTC	57.4
Grain system I	C-S-W	RR:IL01-11934	Prosaro @ GS10.5.1	53.9
Grain system I	C-S-W	SS:P25R47	UTC	75.9
Grain system I	C-S-W	SS:P25R47	Prosaro @ GS10.5.1	72.9
Grain system I	C-S-W	RS:P25R47	UTC	69.1
Grain system I	C-S-W	RS:P25R47	Prosaro @ GS10.5.1	79.3
Grain system I	C-S-W	SR:IL01-11934	UTC	67.3
Grain system I	C-S-W	SR:IL01-11934	Prosaro @ GS10.5.1	59.3
Grain system II	S-C-W	RR:IL01-11934	UTC	55.1
Grain system II	S-C-W	RR:IL01-11934	Prosaro @ GS10.5.1	62.7
Grain system II	S-C-W	SS:P25R47	UTC	58.0
Grain system II	S-C-W	SS:P25R47	Prosaro @ GS10.5.1	65.5
Grain system II	S-C-W	RS:P25R47	UTC	56.3
Grain system II	S-C-W	RS:P25R47	Prosaro @ GS10.5.1	63.0
Grain system II	S-C-W	SR:IL01-11934	UTC	53.6
Grain system II	S-C-W	SR:IL01-11934	Prosaro @ GS10.5.1	48.3

Continued

**Table C-53. Corn/Soybean/Wheat Rotation - Wheat
Expt. 1091 - Arlington, WI**

Rotation		Variety	Fungicide	Yield bu/A
Name	Sequence			
Livestock System	S-C _{silage} -W	RR:IL01-11934	UTC	57.2
Livestock System	S-C _{silage} -W	RR:IL01-11934	Prosaro @ GS10.5.1	64.7
Livestock System	S-C _{silage} -W	SS:P25R47	UTC	81.8
Livestock System	S-C _{silage} -W	SS:P25R47	Prosaro @ GS10.5.1	82.4
Livestock System	S-C _{silage} -W	RS:P25R47	UTC	79.4
Livestock System	S-C _{silage} -W	RS:P25R47	Prosaro @ GS10.5.1	89.3
Livestock System	S-C _{silage} -W	SR:IL01-11934	UTC	63.7
Livestock System	S-C _{silage} -W	SR:IL01-11934	Prosaro @ GS10.5.1	64.6
Means				65.8
<u>Probability</u>				
Rotation (R)				37.2
Variety (V)				<0.1
R x V				9.6
Fungicide (F)				2.8
R x V				30.5
V x F				3.3
R x F x V				43.8
<u>LSD (0.10)</u>				
Rotation (R)				NS
Variety (V)				4.5
R x V				18.7
Fungicide (F)				1.9
R x V				NS
V x F				5.2
CV %				8

RS= Resistant planted in odd years; SR= Resistant planted in even years.
Fusarium resistant variety = IL01-11934
Fusarium suseptible variety = P25R47

FIELD EXPERIMENT HISTORY

Title: Corn/Soybean/Wheat Rotation Study
Experiment: Trial ID: 10V90 Year: 2010
Personnel: M.G. Bertram
Location: Stratford, WI County: Marathon
Supported by: Marshfield Ag. Research Station

Site Information

Field: 405 **Previous Crop:** C/S/W **Soil Type:** Withee silt loam

Soil Test : **Date:** 11/1/07 **pH** 6.6 **SOM (%)** 3.4 **P (ppm)** 60 **K (ppm)** 174

Plot Management

Tillage Operations: C,S,W: Spring chisel plow, Field cultivator C: Cultivated

Fertilizer:	<u>Analysis</u>	<u>Rate</u>	<u>Date</u>	<u>Crop</u>
Starter	9-11-30	150 lb/A	Planting	Corn
Pre Plant	9-11-30	150 lb/A	4/26/2010	Soybean and Wheat
Post plant	28-0-0	27 gal/A	6/22/2010	Corn- Alternating
Post plant	28-0-0	40 gal/A	6/22/2010	Corn- Continuous & GSI
Post plant	46-0-0	65 lb/A	5/25/2010	Wheat- GSI
Post plant	46-0-0	152 lb/A	5/25/2010	Wheat- Continuous
Manure	none	N/A	N/A	

Herbicide:	S	Dual II Magnum 1.33 pt	Insecticide:	None
	C	G-Max Lite 2.33 pt, Hornet WDG 2.4 oz		
	C,S	Roundup PowerMax 32 oz		
	W	2,4-D Amine 1 pt		

Irrigation: None **Hybrid:** Corn: Croplan 2905VT3 (89 TS)
Soybean: Asgrow AG1102 (1.1)
Wheat: SD Cert. Briggs HRS

Planting Date: C,S,W: 4/27/2010 **Planting Depth:** C: 1.5"
S,W: 1" **Row Width:** C: 30"
S,W: 6"

Target Plant Density: C: 35,000 P /A **Planting Method:** C: J Deere 1750 planter
S: 225,000 P/A S,W: John Deere 450 Drill
W: 2,200,000 P/A

Harvest Date: C:10/14/2010 CS: 10/5/2010 **Harvest Method:**
S:9/3/2010 CS: hand harvested
W: 8/17/2010 C: MF plot combine
S,W: J D plot combine

Notes: Fifth year of establishing Rotation Study

Experimental Design

Design: RCB **Replications:** 3
Plot Size Seeded: 60' x 60' **Experiment Size:** 1.98 A
Harvest Plot size: C: 60' x 5'; S: 60' x 13'; W: 60' x 13'; CS: 10' x 2.5'

Factors/Treatments:

Rotation

Continuous- Corn, Soybean, or Winter Wheat
 Rotation- Corn/Soybean
 Grain System I- Corn/Soybean/Winter Wheat

Results: Tables C-54, C-55, C-56 and C-57 .

**Table C-54. Corn, Soybean, and Wheat Rotation- Corn
Marshfield, WI - 2010.**

Rotation	Yield bu/A	Moisture %	Test Weight in.	Harvest Population ppa	Stalk Lodging %
Continuous	177.8	16.9	54.1	29,330	1.1
Alternating	196.3	17.3	54.4	29,298	0.7
Grain System I	195.6	17.8	53.8	30,492	0.7
Mean	189.9	17.3	54.1	29,707	0.8
<u>Probability (%)</u>					
Treatment	0.3	<0.1	3.1	24.7	>50
<u>LSD 10%</u>					
Treatment	9.1	0.3	0.3	NS	NS
CV (%)	6	2	1	6	118

**Table C-55 Corn, Soybean, and Wheat Rotation- Corn Silage
Marshfield, WI - 2010.**

Rotation	Yield tn dm/A	Moisture %	Kernel milk %	Harvest Population ppa	CP %	ADF %	NDF %	NDFD %	NFC %	Starch %	TDN %	Milk per	
												Ton lb	Acre lb
Continuous	7.9	69.8	66	32,331	8.6	20.3	40.0	65.6	47.0	37.7	76.7	3981	31,653
Alternating	8.7	71.6	48	32,331	8.7	20.6	40.9	65.7	45.9	36.7	76.4	3960	34,422
Grain System I	7.8	72.5	61	31,750	8.7	20.6	40.0	66.2	46.7	37.5	76.8	3994	31,135
Mean	8.1	71.3	58	32,138	8.7	20.5	40.3	65.8	46.5	37.3	76.6	3978	32,403
<u>Probability (%)</u>													
Treatment	4.5	1.9	<0.1	>50	46.9	>50	>50	5.4	>50	>50	>50	>50	33.3
<u>LSD 10%</u>													
Treatment	0.6	1.5	5	NS	NS	NS	NS	0.4	NS	NS	NS	NS	NS
CV (%)	9	3	11	8	2	7	5	0	4	6	1	2	8

**Table C-56 Corn, Soybean, and Wheat Rotation- Soybean
Marshfield, WI - 2010.**

Rotation	Yield bu/A	Moisture %	Test		
			Weight lb/bu	Height in.	Lodging 1 to 5
Continuous	47.5	13.5	56.7	35.0	1.1
Alternating	44.1	13.5	56.6	34.9	2.2
Grain System I	44.8	13.7	56.4	36.3	4.2
Mean	45.5	13.6	56.6	35.4	2.5
<u>Probability (%)</u>					
Treatment	0.2	4.0	0.7	15.2	<0.1
<u>LSD 10%</u>					
Treatment	1.5	0.2	0.2	1	0.4
CV (%)	4	2	0	5	20

**Table C-57 Corn, Soybean, and Wheat Rotation- Wheat
Marshfield, WI - 2010.**

Rotation	Yield bu/A	Moisture %	Test Weight lb/bu	Height in.	Lodging 1 to 5
Continuous	13.3	15.1	50.5	32.3	3.8
Grain System I	25.6	14.0	53.6	32.6	3.2
Mean	19.4	14.6	52.1	32.4	3.5
<u>Probability (%)</u>					
Treatment	<0.1	<0.1	<0.1	>50	4.0
<u>LSD 10%</u>					
Treatment	1.5	0.3	0.6	NS	0.4
CV (%)	9	3	1	3	15