

## FIELD EXPERIMENT HISTORY

**Title:** Corn/ Soybean/Wheat Rotation Study  
**Experiment:** 09CSW **Trial ID** 3194 **Year:** 2008  
**Personnel:** J. G. Lauer, J.M. Gaska, K. D. Kohn and T. H. Diallo  
**Location:** Arlington, WI **County:** Columbia  
**Supported By:** HATCH

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### Site Information

**Field:** ARS335 **Previous Crop:** Corn/Soybean/Wheat **Soil Type:** Plano Silt Loam  
**Soil Test:** **Date:** 10/20/08 **pH:** 6.2 **OM (%)** 3.3 **P (ppm)** 23 **K (ppm)** 127

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### Plot Management

**Tillage Operations:** See Factors

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
<b>Fertilizer:</b>	<b>Preplant :</b> N/A	N/A	N/A
	<b>Starter :</b> N/A	N/A	N/A
	<b>Post plant :</b> C:28-0-0,W:33-0-0	210/70	6 /1 /08
	<b>Manure:</b> N/A	N/A	
<b>Herbicide:</b>	Honcho plus 24 oz/A 18-Jun-08	<b>Insecticide:</b> none	
	Dual II Mag 24 oz/A 30-Apr	<b>Rodenticide:</b> Zinc phosphide 5lbs/A, 5/6/08	
<b>Irrigation:</b>	None	<b>Hybrid:</b> C: DKC5449 DKC5779	
		S: NK-S25R78	
		W: Kaskakia,Pioneer 25R78	
<b>Planting Date:</b>	C:5/6/08,S:5/6/08	<b>Planting Depth:</b> C: 1.5"	<b>Row Width:</b> 30"
	Wheat: 10/5/08	S: 1"	
<b>Target Plant Density:</b>	C: 32500,S: 150000,W: 150 lb/a	<b>Planting Method:</b> Kinze 2000 Interplant planter	
<b>Harvest Date:</b>	C: 10/14/08,Sil: 9/10/08	<b>Harvest Method:</b> C: Kincaid plot combine	
	S: 10/1/08,W: 7/24/08	S: Almaco plot combine #2	
<b>Notes:</b>			

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### Experimental Design

**Design:** RCB split-split plot **Replications:** 3  
**Plot Size Seeded** 10' x60' **Experiment Size:** 4.5 acres  
**Harvest Plot Size:** C: 5' x 56',S: 5' x 56',W: 5' x 26'  
**Factors/Treatments:**

<u>Tillage</u>	<u>Rotation</u>	<u>Fongicide</u>
No-Till	Continuous Corn- Soybean or Wheat	C:UTC,Headline SBR,Quadris,-Quilt
Conventional	Alternating Corn - Soybean-Wheat	S:UTC,Headline SBR,Quadris,Quilt
		W:UTC,Quilt @ GS 9.0,Quilt Q GS 10.51
		Proline@ GS 10.51

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**Results:Tables** C-37, C-38, C-39 and C-40.

**Table C-37. Corn, Soybean and Wheat Rotation - Corn  
Arlington, WI - 2008.**

Rotation	Variety	Fungicide	Yield bu/A	Moisture %	Test weight lbs/bu	Grower return \$/A	Lodged			Harvest plants/A	Grain Composition			Ethanol	
							Total %	Stalk %	Root %		Oil %	Starch %	Protein %	per bu gallons	per A gallons
		Headline SBR	194	27.3	54	630	1.0	0.7	0.2	31151	3.5	61.0	7.3	2.88	560
		Quadris	201	26.6	54	652	2.9	2.6	0.3	30600	3.5	61.1	7.2	2.89	579
		Quilt	199	27.5	54	643	1.2	0.9	0.3	30801	3.5	61.0	7.6	2.87	572
		UTC	191	25.6	54	626	2.9	2.7	0.2	30774	3.4	61.0	7.3	2.89	553
	DKC54-49		201	28.7	54	646	1.3	0.9	0.4	31050	3.5	61.0	7.2	2.88	578
	DKC57-79		192	24.8	54	630	2.6	2.5	0.2	30613	3.4	61.0	7.5	2.89	554
	DKC54-49	Headline SBR	198	29.7	54	632	0.3	0.0	0.3	31191	3.5	60.9	7.2	2.87	568
	DKC54-49	Quadris	207	28.7	54	665	3.4	2.8	0.6	30680	3.5	61.2	7.0	2.89	591
	DKC54-49	Quilt	203	29.0	54	651	0.5	0.3	0.3	31299	3.5	61.0	7.6	2.86	586
	DKC54-49	UTC	196	27.4	54	635	1.0	0.7	0.3	31030	3.4	61.1	7.2	2.89	567
	DKC57-79	Headline SBR	191	25.0	55	628	1.6	1.5	0.2	31110	3.5	61.1	7.4	2.89	552
	DKC57-79	Quadris	195	24.6	55	640	2.3	2.3	0.0	30519	3.4	61.0	7.5	2.89	566
	DKC57-79	Quilt	194	25.9	54	634	1.9	1.5	0.4	30304	3.4	61.0	7.6	2.88	558
	DKC57-79	UTC	187	23.8	55	617	4.8	4.7	0.1	30519	3.4	60.9	7.4	2.89	540
CC			178	29.2	53	569	0.8	0.4	0.4	30021	3.5	61.0	7.1	2.88	511
CS			197	25.4	54	645	2.7	2.2	0.5	30411	3.5	60.9	7.2	2.89	569
CSW			202	20.2	56	681	4.4	4.3	0.1	31110	3.4	61.0	7.5	2.89	585
CWS			209	32.3	53	656	0.0	0.0	0.0	31783	3.5	61.2	7.6	2.87	598
CC		Headline SBR	168	30.0	54	535	0.4	0.0	0.4	30653	3.5	60.9	7.2	2.87	480
CC		Quadris	190	28.7	54	609	0.7	0.4	0.3	30169	3.4	61.0	7.0	2.88	547
CC		Quilt	179	29.6	53	571	0.9	0.2	0.7	29739	3.4	61.2	7.2	2.87	514
CC		UTC	174	28.5	53	562	1.1	0.9	0.2	29524	3.5	60.9	6.9	2.89	503
CS		Headline SBR	198	25.7	55	646	1.8	1.4	0.4	30922	3.5	60.9	7.0	2.89	572
CS		Quadris	201	24.7	55	661	3.5	2.7	0.9	30062	3.5	61.1	7.1	2.90	582
CS		Quilt	189	25.5	54	619	2.8	2.6	0.2	30062	3.5	60.7	7.4	2.88	544
CS		UTC	200	25.6	54	655	2.6	2.1	0.5	30600	3.4	60.9	7.3	2.89	579
CSW		Headline SBR	205	20.3	57	692	1.7	1.5	0.2	31352	3.4	61.1	7.3	2.90	595
CSW		Quadris	201	21.5	56	672	7.2	7.2	0.0	30600	3.5	61.1	7.5	2.89	588
CSW		Quilt	210	19.8	55	709	1.0	0.7	0.3	31352	3.5	60.8	7.9	2.88	602
CSW		UTC	192	19.5	56	650	7.8	7.8	0.0	31137	3.4	61.1	7.3	2.91	557
CWS		Headline SBR	207	33.4	53	646	0.0	0.0	0.0	31675	3.5	61.2	7.7	2.86	592
CWS		Quadris	212	31.7	53	668	0.0	0.0	0.0	31568	3.5	61.3	7.4	2.88	598
CWS		Quilt	217	35.1	53	671	0.0	0.0	0.0	32052	3.5	61.2	7.8	2.85	628

continued

**Table C-37. Corn, Soybean and Wheat Rotation - Corn**  
(continued) **Arlington, WI - 2008.**

Rotation	Variety	Fungicide	Yield bu/A	Moisture %	Test weight lbs/bu	Grower return \$/A	Lodged			Harvest plants plants/A	Grain Composition			Ethanol	
							Total %	Stalk %	Root %		Oil %	Starch %	Protein %	per bu gallons	per A gallons
CWS		UTC	199	28.9	53	637	0.0	0.0	0.0	31836	3.4	61.0	7.6	2.88	574
CC	DKC54-49		180	31.0	53	570	0.7	0.3	0.4	30519	3.5	61.0	7.0	2.87	516
CC	DKC57-79		175	27.3	54	568	0.8	0.5	0.4	29524	3.4	61.0	7.2	2.89	506
CS	DKC54-49		203	26.9	54	658	1.8	1.0	0.9	31621	3.5	60.9	7.0	2.89	586
CS	DKC57-79		191	23.9	55	632	3.5	3.4	0.1	29201	3.5	60.9	7.3	2.89	552
CSW	DKC54-49		216	22.1	56	724	2.6	2.5	0.1	30626	3.5	61.1	7.3	2.89	626
CSW	DKC57-79		187	18.4	56	638	6.2	6.1	0.2	31594	3.4	61.0	7.7	2.90	544
CWS	DKC54-49		205	34.9	52	631	0.0	0.0	0.0	31433	3.5	61.1	7.7	2.86	584
CWS	DKC57-79		213	29.6	53	680	0.0	0.0	0.0	32132	3.5	61.2	7.6	2.88	613
CC	DKC54-49	Headline SBR	169	33.1	52	528	0.7	0.0	0.7	31191	3.6	60.7	7.2	2.85	480
CC	DKC54-49	Quadris	196	31.0	53	622	0.7	0.0	0.7	30976	3.4	61.1	6.9	2.87	563
CC	DKC54-49	Quilt	191	30.0	53	607	0.4	0.0	0.4	30761	3.4	61.1	6.9	2.87	547
CC	DKC54-49	UTC	164	30.0	52	523	1.1	1.1	0.0	29148	3.5	61.0	6.9	2.88	472
CC	DKC57-79	Headline SBR	167	26.8	55	542	0.0	0.0	0.0	30116	3.4	61.0	7.2	2.89	481
CC	DKC57-79	Quadris	183	26.3	54	596	0.8	0.8	0.0	29363	3.5	60.9	7.2	2.90	530
CC	DKC57-79	Quilt	167	29.1	53	535	1.5	0.4	1.1	28717	3.4	61.3	7.6	2.88	481
CC	DKC57-79	UTC	185	27.0	54	600	1.1	0.7	0.4	29900	3.4	60.9	7.0	2.89	534
CS	DKC54-49	Headline SBR	202	28.1	54	650	0.4	0.0	0.4	31406	3.5	60.7	6.8	2.89	584
CS	DKC54-49	Quadris	206	26.3	54	670	3.6	1.8	1.8	31191	3.5	61.1	6.8	2.90	597
CS	DKC54-49	Quilt	199	25.7	54	651	1.4	1.0	0.3	32052	3.5	60.9	7.3	2.87	573
CS	DKC54-49	UTC	204	27.4	53	660	2.1	1.1	1.0	31836	3.4	60.9	7.2	2.89	590
CS	DKC57-79	Headline SBR	193	23.2	55	641	3.2	2.8	0.4	30438	3.5	61.1	7.1	2.90	560
CS	DKC57-79	Quadris	196	23.0	55	651	3.5	3.5	0.0	28932	3.5	61.1	7.3	2.89	567
CS	DKC57-79	Quilt	179	25.3	54	586	4.2	4.2	0.0	28072	3.4	60.5	7.5	2.88	514
CS	DKC57-79	UTC	196	23.9	55	649	3.2	3.2	0.0	29363	3.5	60.9	7.5	2.89	568
CSW	DKC54-49	Headline SBR	223	22.4	56	745	0.0	0.0	0.0	30868	3.5	61.1	7.1	2.90	648
CSW	DKC54-49	Quadris	218	22.8	56	728	9.5	9.5	0.0	29685	3.5	61.2	7.2	2.89	632
CSW	DKC54-49	Quilt	208	21.9	55	696	0.3	0.0	0.3	30868	3.5	60.6	8.1	2.86	594
CSW	DKC54-49	UTC	216	21.3	57	727	0.7	0.7	0.0	31084	3.4	61.5	6.9	2.92	631

continued

**Table C-37. Corn, Soybean and Wheat Rotation - Corn**(continued) **Arlington, WI - 2008.**

Rotation	Variety	Fungicide	Yield bu/A	Moisture %	Test weight lbs/bu	Grower return \$/A	Lodged			Harvest plants/A	Grain Composition			Ethanol	
							Total %	Stalk %	Root %		Oil %	Starch %	Protein %	per bu gallons	per A gallons
CSW	DKC57-79	Headline SBR	187	18.2	57	639	3.3	3.0	0.3	31836	3.4	61.1	7.5	2.90	542
CSW	DKC57-79	Quadris	183	20.2	56	617	4.9	4.9	0.0	31514	3.4	60.9	7.8	2.90	543
CSW	DKC57-79	Quilt	211	17.7	55	723	1.7	1.4	0.3	31836	3.4	61.1	7.7	2.89	609
CSW	DKC57-79	UTC	167	17.6	56	573	15.0	15.0	0.0	31191	3.4	60.7	7.8	2.89	483
CWS	DKC54-49	Headline SBR	197	35.2	52	604	0.0	0.0	0.0	31299	3.4	61.0	7.8	2.85	561
CWS	DKC54-49	Quadris	207	34.6	53	638	0.0	0.0	0.0	30868	3.5	61.3	7.1	2.88	572
CWS	DKC54-49	Quilt	216	38.6	53	651	0.0	0.0	0.0	31514	3.5	61.2	8.0	2.82	628
CWS	DKC54-49	UTC	200	31.2	52	629	0.0	0.0	0.0	32052	3.4	61.0	7.8	2.87	574
CWS	DKC57-79	Headline SBR	218	31.6	53	688	0.0	0.0	0.0	32052	3.5	61.3	7.7	2.86	624
CWS	DKC57-79	Quadris	217	28.8	53	697	0.0	0.0	0.0	32267	3.4	61.3	7.7	2.88	624
CWS	DKC57-79	Quilt	219	31.5	53	691	0.0	0.0	0.0	32589	3.4	61.2	7.5	2.87	628
CWS	DKC57-79	UTC	198	26.6	53	646	0.0	0.0	0.0	31621	3.4	61.0	7.4	2.90	575
Mean			196	26.8	54	638	2.0	1.7	0.3	30831	3.5	61.0	7.4	2.88	566
<b>Probability (%):</b>															
Rotation (R)			15	0.1	0	8	10.5	7.7	0.3	11	95.0	40.7	3.4	1.05	15
Variety (V)			6	0.1	1	21	28.0	21.2	5.9	40	17.5	90.7	5.4	1.71	9
Fungicide (F)			14	0.7	15	23	37.7	35.7	72.8	54	32.0	73.5	0.3	0.00	20
R x V			8	77.2	39	2	68.0	66.8	1.2	10	43.5	86.2	43.3	9.74	7
R x F			21	0.8	75	23	68.5	61.2	27.2	90	24.0	65.6	16.5	10.04	18
V x F			93	55.3	33	91	40.5	47.2	8.7	62	13.8	26.1	9.9	8.64	97
R x V x F			4	26.6	48	2	47.7	45.1	10.1	46	47.0	57.7	3.2	6.59	3
<b>LSD(0.10)</b>															
Rotation (R)			NS	2.9	1	68	NS	2.9	0.2	NS	NS	NS	0.3	0.01	NS
Variety (V)			8	1.4	0	NS	NS	NS	0.2	NS	NS	NS	0.2	0.01	23
Fungicide (F)			NS	0.9	NS	NS	NS	NS	NS	NS	NS	NS	0.2	0.01	NS
R x V			23	NS	NS	67	NS	NS	0.3	NS	NS	NS	NS	0.01	66
R x F			NS	2.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
V x F			NS	NS	NS	NS	NS	NS	0.3	NS	NS	NS	0.2	0.01	NS
R x V x F			27	NS	NS	82	NS	NS	NS	NS	NS	NS	0.5	0.02	78

**Table C-38. Corn, Soybean and Wheat Rotation - Silage  
Arlington, WI - 2008.**

Variety	Fungicide	Plant population	Whole Plant										Milk per	
			Dry Matter		Kernel milk	Crude protein	<i>In Vitro</i>							
			Yield	Moisture			ADF	NDF	Digest	NDFD	Starch	Ton	Acre	
		plants/A	tons/A	%	%	%	%	%	%	%	%	lbs/T	lbs/T	
	Headline SBR	33167	6.7	63.5	75.8	6.2	24.3	47.3	80.7	59.3	27.5	3204.8	21551	
	Quadris	34000	7.1	63.3	81.7	6.2	23.2	44.8	81.8	59.5	29.3	3254.9	23346	
	Quilt	34000	6.9	65.3	86.7	6.2	24.5	46.8	80.7	58.8	26.7	3185.6	21919	
	UTC	34833	7.1	63.5	75.0	6.0	25.3	47.2	78.8	55.2	28.5	3106.8	22233	
DKC54-49		33667	7.2	63.6	82.1	6.1	23.1	44.8	81.3	58.4	29.8	3246.2	23557	
DKC57-79		34333	6.7	64.1	77.5	6.2	25.6	48.3	79.7	58.0	26.2	3129.8	20967	
DKC54-49	Headline SBR	33333	6.8	64.0	80.0	6.3	23.0	45.7	82.3	61.3	29.3	3310.6	22678	
DKC54-49	Quadris	33333	7.3	63.5	78.3	6.0	22.3	43.3	82.3	59.2	30.3	3260.2	23907	
DKC54-49	Quilt	32667	7.5	63.4	86.7	6.0	22.7	44.7	81.3	58.2	30.0	3266.7	24657	
DKC54-49	UTC	35333	7.3	63.6	83.3	6.0	24.3	45.7	79.3	54.8	29.7	3147.6	22985	
DKC57-79	Headline SBR	33000	6.6	62.9	71.7	6.0	25.7	49.0	79.0	57.2	25.7	3099.1	20423	
DKC57-79	Quadris	34667	7.0	63.1	85.0	6.3	24.0	46.3	81.3	59.7	28.3	3249.7	22786	
DKC57-79	Quilt	35333	6.2	67.1	86.7	6.3	26.3	49.0	80.0	59.4	23.3	3104.5	19181	
DKC57-79	UTC	34333	7.0	63.4	66.7	6.0	26.3	48.7	78.3	55.6	27.3	3066.1	21480	
Mean		34000	7.0	63.9	79.8	6.1	24.3	46.5	80.5	58.2	28.0	3188	22262	
<b>Probability (%):</b>														
Variety (V)		33.4	34.0	75.5	10.4	50.6	0.9	1.4	3.1	57.5	2.9	3.0	10.2	
Fungicide (F)		65.1	85.1	79.0	2.4	71.0	65.5	68.4	35.0	6.6	71.7	56.4	84.7	
V x F		14.5	75.1	37.1	3.8	21.0	78.4	96.7	54.3	8.7	63.9	43.9	72.8	
<b>LSD(0.10)</b>														
Variety (V)		NS	NS	NS	NS	NS	1.4	2.0	1.2	NS	2.6	82.189	NS	
Fungicide (F)		NS	NS	NS	6.6	NS	NS	NS	NS	2.8	NS	NS	NS	
V x F		NS	NS	NS	9.3	NS	NS	NS	NS	3.1	NS	NS	NS	

**Table C-39. Corn, Soybean and Wheat Rotation - Soybean  
Arlington, WI - 2008.**

Rotation	Fungicide	Yield bu/A	Moisture %	Grower return \$/A	Lodging 1 to 5	Seed Composition		Total		Protein + Oil lbs/A
						Protein %	Oil %	Protein lbs/A	Oil lbs/A	
	Headline SBR 7.8 fl oz/a @ R3	50	14.8	424	1	32.8	20.8	980	621	1601
	Quadris 6 fl oz/a @ R3	50	14.5	420	1	32.6	20.8	967	616	1583
	Quilt 14 fl oz/a @ R3	50	14.6	424	1	32.2	20.9	964	625	1589
	UTC	49	14.6	415	1	32.8	20.8	958	609	1567
SC		44	14.5	378	1	32.4	21.0	863	560	1423
SCeW		54	15.1	457	1	32.5	20.6	1044	667	1711
SS		40	13.9	340	1	32.5	21.2	780	509	1289
SWC		60	15.1	508	1	33.0	20.5	1182	736	1918
SC	Headline SBR 7.8 fl oz/a @ R3	44	14.8	375	1	32.6	20.8	862	553	1415
SC	Quadris 6 fl oz/a @ R3	44	14.0	373	1	32.5	21.0	853	552	1405
SC	Quilt 14 fl oz/a @ R3	43	14.7	363	1	31.9	21.1	820	543	1363
SC	UTC	47	14.4	400	1	32.5	21.0	915	592	1507
SCeW	Headline SBR 7.8 fl oz/a @ R3	55	14.9	464	1	32.7	20.5	1066	675	1742
SCeW	Quadris 6 fl oz/a @ R3	53	15.4	451	1	32.4	20.7	1031	660	1691
SCeW	Quilt 14 fl oz/a @ R3	55	15.1	468	1	32.3	20.5	1061	683	1744
SCeW	UTC	52	14.8	444	1	32.6	20.7	1019	650	1669
SS	Headline SBR 7.8 fl oz/a @ R3	40	14.0	341	1	33.0	21.1	794	509	1303
SS	Quadris 6 fl oz/a @ R3	40	13.6	344	1	32.5	21.1	788	511	1299
SS	Quilt 14 fl oz/a @ R3	42	13.8	354	1	31.8	21.4	793	536	1329
SS	UTC	38	14.1	322	1	32.8	21.1	745	479	1224
SWC	Headline SBR 7.8 fl oz/a @ R3	61	15.5	514	1	32.9	20.5	1196	747	1944
SWC	Quadris 6 fl oz/a @ R3	61	15.0	514	1	33.0	20.4	1196	742	1939
SWC	Quilt 14 fl oz/a @ R3	60	14.9	509	1	32.9	20.5	1181	738	1919
SWC	UTC	58	15.0	494	1	33.2	20.5	1153	716	1869
Mean		50	14.6	421	1	32.6	20.8	967	618	1585
<b>Probability (%):</b>										
Rotation (R)		8.4	0.0	8.6	-	90.1	6.3	4.7	12.4	6.9
Fungicide (F)		93.8	69.0	94.1	-	48.0	70.3	91.6	92.9	94.3
R x F		95.7	31.2	95.6	-	99.3	89.2	90.9	96.7	93.5
<b>LSD(0.10)</b>										
Rotation (R)		13	0.3	112	-	NS	0.4	233	NS	398
Fungicide (F)		NS	NS	NS	-	NS	NS	NS	NS	NS
R x F		NS	NS	NS	-	NS	NS	NS	NS	NS

**Table C-40. Corn, Soybean and Wheat Rotation - Wheat  
Arlington, WI - 2008.**

Rotation	Variety	Fungicide	Yield bu/A	Moisture %	Test weight lbs/bu	Grower return S/A	Height inches	Lodging 1 to 5
		Proline @ Feekes GS 10.51	77	14.2	59	345	33	1
		Proline @ Feekes GS 7.5	70	13.3	58	311	33	1
		Proline @ Feekes GS 8	71	13.3	58	315	33	1
		UTC	69	13.4	58	306	33	1
	Kaskaskia		67	13.9	60	298	34	1
	P25R47		76	13.1	57	341	31	1
	Kaskaskia	Proline @ Feekes GS 10.51	71	14.6	61	318	34	1
	Kaskaskia	Proline @ Feekes GS 7.5	65	13.6	59	289	34	1
	Kaskaskia	Proline @ Feekes GS 8	66	13.7	59	294	34	1
	Kaskaskia	UTC	65	13.7	60	290	34	1
	P25R47	Proline @ Feekes GS 10.51	84	13.7	58	373	31	1
	P25R47	Proline @ Feekes GS 7.5	74	12.9	57	333	31	1
	P25R47	Proline @ Feekes GS 8	75	12.9	57	337	32	1
	P25R47	UTC	72	13.0	57	322	31	1
WCS			87	13.9	59	387	35	1
WSC			64	13.2	58	287	32	1
WW			57	13.5	59	253	31	1
WsSCs			79	13.4	58	351	33	1
WCS		Proline @ Feekes GS 10.51	88	14.3	60	391	35	1
WCS		Proline @ Feekes GS 7.5	87	13.5	58	390	35	1
WCS		Proline @ Feekes GS 8	89	13.9	60	399	35	1
WCS		UTC	82	13.9	59	367	35	1
WSC		Proline @ Feekes GS 10.51	72	13.9	59	322	32	1
WSC		Proline @ Feekes GS 7.5	59	13.0	58	262	32	1
WSC		Proline @ Feekes GS 8	61	13.0	57	270	32	1
WSC		UTC	66	13.1	58	294	32	1
WW		Proline @ Feekes GS 10.51	58	14.1	60	257	30	1
WW		Proline @ Feekes GS 7.5	59	13.4	59	262	31	1
WW		Proline @ Feekes GS 8	56	13.4	59	250	31	1
WW		UTC	54	13.3	59	242	31	1
WsSCs		Proline @ Feekes GS 10.51	92	14.3	59	411	33	1
WsSCs		Proline @ Feekes GS 7.5	74	13.2	58	330	33	1
WsSCs		Proline @ Feekes GS 8	76	13.0	57	342	33	1
WsSCs		UTC	72	13.2	57	322	33	1
WCS	Kaskaskia		81	14.3	60	359	38	1
WCS	P25R47		93	13.5	58	415	33	1
WSC	Kaskaskia		60	13.7	59	269	33	1
WSC	P25R47		68	12.8	57	305	31	1
WW	Kaskaskia		55	14.2	61	244	32	1
WW	P25R47		58	12.9	58	261	29	1
WsSCs	Kaskaskia		71	13.5	59	319	34	1
WsSCs	P25R47		86	13.3	57	384	32	1

continued

**Table C-40. Corn, Soybean and Wheat Rotation - Wheat**  
(continued) **Arlington, WI - 2008.**

Rotation	Variety	Fungicide	Yield bu/A	Moisture %	Test	Grower	Height inches	Lodging 1 to 5
					weight lbs/bu	return S/A		
WCS	Kaskaskia	Proline @ Feekes GS 10.51	83	14.8	62	370	37	1
WCS	Kaskaskia	Proline @ Feekes GS 7.5	74	14.0	60	329	38	1
WCS	Kaskaskia	Proline @ Feekes GS 8	85	14.2	60	380	38	1
WCS	Kaskaskia	UTC	80	14.1	60	356	37	1
WCS	P25R47	Proline @ Feekes GS 10.51	92	13.7	58	412	33	1
WCS	P25R47	Proline @ Feekes GS 7.5	101	13.1	57	451	32	1
WCS	P25R47	Proline @ Feekes GS 8	94	13.5	59	419	33	1
WCS	P25R47	UTC	85	13.7	58	378	32	1
WSC	Kaskaskia	Proline @ Feekes GS 10.51	67	14.5	61	298	33	1
WSC	Kaskaskia	Proline @ Feekes GS 7.5	53	13.2	59	236	33	1
WSC	Kaskaskia	Proline @ Feekes GS 8	63	13.5	59	280	33	1
WSC	Kaskaskia	UTC	59	13.5	59	263	33	1
WSC	P25R47	Proline @ Feekes GS 10.51	78	13.4	58	347	31	1
WSC	P25R47	Proline @ Feekes GS 7.5	64	12.7	57	287	31	1
WSC	P25R47	Proline @ Feekes GS 8	58	12.5	55	261	31	1
WSC	P25R47	UTC	73	12.7	57	325	31	1
WW	Kaskaskia	Proline @ Feekes GS 10.51	54	14.7	61	241	32	1
WW	Kaskaskia	Proline @ Feekes GS 7.5	56	13.8	60	248	32	1
WW	Kaskaskia	Proline @ Feekes GS 8	53	14.0	60	237	32	1
WW	Kaskaskia	UTC	56	14.1	61	250	32	1
WW	P25R47	Proline @ Feekes GS 10.51	61	13.6	58	273	29	1
WW	P25R47	Proline @ Feekes GS 7.5	62	13.1	58	276	29	1
WW	P25R47	Proline @ Feekes GS 8	59	12.7	57	262	30	1
WW	P25R47	UTC	52	12.4	57	233	30	1
WsSCs	Kaskaskia	Proline @ Feekes GS 10.51	81	14.3	60	363	34	1
WsSCs	Kaskaskia	Proline @ Feekes GS 7.5	76	13.6	59	341	34	1
WsSCs	Kaskaskia	Proline @ Feekes GS 8	62	13.0	58	279	34	1
WsSCs	Kaskaskia	UTC	65	13.3	58	292	34	1
WsSCs	P25R47	Proline @ Feekes GS 10.51	103	14.3	58	459	32	1
WsSCs	P25R47	Proline @ Feekes GS 7.5	71	12.9	57	318	32	1
WsSCs	P25R47	Proline @ Feekes GS 8	90	13.0	56	404	32	1
WsSCs	P25R47	UTC	79	13.1	56	353	32	1
Mean			72	13.5	59	319	33	1
<b>Probability (%):</b>								
Rotation (R)			2.5	4.0	13.6	2.5	1.9	-
Variety (V)			0.3	0.0	0.0	0.3	0.0	-
Fungicide (F)			2.1	0.0	0.0	2.4	41.4	-
R x V			41.5	12.0	35.2	42.5	4.2	-
R x F			26.0	43.7	14.2	25.9	90.7	-
V x F			87.8	97.8	56.7	86.5	28.1	-
R x V x F			10.6	49.2	68.9	10.4	63.5	-
<b>LSD(0.10)</b>								
Rotation (R)			15	0.3	NS	65	2	-
Variety (V)			4	0.2	0	19	1	-
Fungicide (F)			5	0.2	0	23	NS	-
R x V			NS	NS	NS	NS	NS	-
R x F			NS	NS	NS	NS	NS	-
V x F			NS	NS	NS	NS	NS	-
R x V x F			NS	NS	NS	NS	NS	-



## FIELD EXPERIMENT HISTORY

**Title:** Corn/Soybean/Wheat Rotation Study  
**Experiment:** 09 CSW Rotation **Trial ID:** 08V90 **Year:** 2008  
**Personnel:** M.G. Bertram  
**Location:** Stratford, WI **County:** Marathon  
**Supported by:** Marshfield Ag. Research Station

### Site Information

**Field:** 405 **Previous Crop:** Corn/Soybean/Wheat **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: Spring chisel plow, Field cultivator C: Cultivated  
 W: Fall chisel plow, Field cultivator

Fertilizer:		<u>Analysis</u>	<u>Rate</u>	<u>Date</u>	<u>Crop</u>
	<b>Preplant</b>	9-11-30	150 lb/A	5/19/2008	Soybean and Wheat
	<b>Starter</b>	9-11-30	150 lb/A	Planting	Corn
	<b>Post plant</b>	28-0-0	27 gal/A	7/3/2008	Corn- Alternating
	<b>Post plant</b>	28-0-0	40 gal/A	7/3/2008	Corn- Continuous & GSI
	<b>Post plant</b>	46-0-0	100 lb/A	5/16/2008	Wheat- GSI
	<b>Post plant</b>	46-0-0	165 lb/A	5/16/2008	Wheat- Continuous
	<b>Manure</b>	none	N/A	N/A	

**Herbicide:** C,S Dual II Magnum 1.33 pt **Insecticide:** None  
 C,S Roundup WeatherMax 21 oz, 20 oz  
 S Fusilade 4 oz  
 W 2,4-D Amine 1 pt

**Irrigation:** None **Hybrid:** Corn: Croplan 364 VT3 (97 BT,RR,CR)  
 Soybean: Dahlco 6100RR (1.0)  
 Wheat: Kaltenberg KW62

**Planting Date:** C,S: 5/16/2008 **Planting Depth:** C: 1.5" **Row Width:** C: 30"  
 W: 10/30/2007 S,W: 1" S,W: 6"

**Target Plant Density:** C: 33,500 S: 200,000 **Planting Method:** C: John Deere 1750 planter  
 W: 1,330,000 S,W: John Deere 450 Drill

**Harvest Date:** C: 11/4/2008 CS: 10/2/2008 **Harvest Method:** C,CS: hand harvested  
 S: 10/9/2008 W: 8/5/2008 S,W: John Deere plot combine

**Notes:** Third 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 2.5'; 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-41, C-42, C-43 and C-44.**

**Table C-41. Corn, Soybean, and Wheat Rotation- Corn.  
Marshfield, WI - 2008.**

Rotation	Yield bu/A	Moisture %	Test weight in.	Harvest population ppa	Stalk lodging %
Continuous Corn	164.2	27.4	50.1	31,750	0.0
Alternating	169.9	26.3	50.4	32,234	0.1
Grain System I	175.6	26.8	50.0	32,815	0.0
Mean	169.9	26.8	50.2	32,267	0.0
<u>Probability (%)</u>					
Treatment	23.1	35.0	>50	17.9	38.4
<u>LSD 10%</u>					
Treatment	NS	NS	NS	948	NS
CV (%)	8	5	2	4	519

**Table C-42. Corn, Soybean, and Wheat Rotation- Corn Silage.  
Marshfield, WI - 2008.**

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	62.9	53	31,944	7.9	19.8	41.1	65.0	46.9	38.0	68.3	3378	26,829
Alternating	8.2	64.1	52	32,815	7.5	21.2	42.9	65.3	45.3	36.2	67.9	3346	27,268
Grain System I	8.2	63.8	52	31,654	7.9	19.7	40.8	65.2	47.1	38.2	68.4	3386	27,710
Mean	8.1	63.6	52	32,138	7.8	20.2	41.6	65.2	46.5	37.5	68.2	3370	27,269
<u>Probability (%)</u>													
Treatment	>50	>50	>50	>50	1.3	30.4	28.1	>50	46.6	>50	>50	>50	>50
<u>LSD 10%</u>													
Treatment	NS	NS	NS	NS	0.2	NS	NS	NS	NS	NS	NS	NS	NS
CV (%)	11	4	16	7	1	6	4	2	4	6	1	2	13

**Table C-43. Corn, Soybean, and Wheat Rotation- Soybean.  
Marshfield, WI - 2008.**

Rotation	Yield bu/A	Moisture %	Test weight lb/bu	Height in.	Lodging 1 to 5
Continuous Soybean	26.9	14.7	57.9	25	1.1
Alternating	33.4	14.8	57.4	30	1.6
Grain System I	34.3	14.9	58.3	27	1.3
Mean	31.5	14.8	57.9	27	1.3
<u>Probability (%)</u>					
Treatment	0.2	1.1	<0.1	4.1	8.6
<u>LSD 10%</u>					
Treatment	3.4	0.1	0.3	3	0.3
CV (%)	14	1	1	14	30

**Table C-44. Corn, Soybean, and Wheat Rotation- Wheat.  
Marshfield, WI - 2008.**

Rotation	Yield bu/A	Moisture %	Test weight lb/bu
Continuous Wheat	42.3	21.1	52.7
Grain System I	58.1	19.5	55.3
Mean	50.2	20.3	54.0
<u>Probability (%)</u>			
Treatment	<0.1	1.6	<0.1
<u>LSD 10%</u>			
Treatment	4.3	1.0	0.9
CV (%)	10	6	2