

## FIELD EXPERIMENT HISTORY

**Title:** Corn - Soybean - Wheat Response to Rotation: Cover Crops  
**Experiment:** 09CSW **Trial ID** 6676 **Year** 2022  
**Personnel:** Joe Lauer, Thierno Diallo, Kent Kohn  
**Location:** Arlington, WI **County:** Columbia  
**Supported By:** HATCH

### Site Information

**Field:** 335 **Previous Crop:** See factors **Soil Type:** Plano Silt  
**Soil Test: Date** 12/7 /22 **pH** 6.3 **OM (%)** 3.4 **P (ppm)** 12 **K (ppm)** 88

### Plot Management

#### **Tillage Operations:**

	<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: 32-0-0 W: 46-0-0	C: 593 S: 0 lb/A W: 163 lb/A	6//2022  4/11/22
<b>Manure:</b>	N/A	N/A	N/A

**Herbicide** C,S: 22-Jun-22 Roundup PowerMAX @ 30 oz/acre  
 W: 18-Aug-22 Roundup PowerMAX @ 30 oz/acre  
**Hybrid:** C: Jung 53DP511  
 S: NK14-W6E3  
 W: FS624

**Planting Date:** C: 5/17/22 **Planting Depth:** C: 1.5" **Planting Method:** C,S: JD1700 with RTK  
 S: 5/162/22 S,W: 1" **Harvest Method:** C:MF 8XP combine  
 W: 09/30 & 10/07/21 CS: NH 707

**Target Plant Density:** 35000  
**Harvest Date:** C: 10/20/22, CS: 09/20/22  
 S: 09/28/22, W: 7/22/21  
**Row Width:** C,S: 30"  
 W: 0.5"

**Fungicide:** N/A

**Notes:** 2020 Even out year, no cover crop/N treatment. Rotation and Density for corn. First year for continuous Wheat after 5-year-break.

### Experimental Design

**Design:** RCB split-split-block **Replications:** 3  
**Plot Size Seeded:** MP: 60' x 60'; SP: 10' x 30'  
**Harvest Plot Size:** 5' x 26' **Experiment Size:** 3.47 A  
**Factors/Treatments:**

<u>Rotation:</u>	<u>Plant Density:</u>
1)CC	1) 25000 ppa
2) SS	2) 30000 ppa
3)WW	3) 35000 ppa
4)CS-C	4) 40000 ppa
5)CS-S	5) 45000 ppa
6)GS1: CSW-W	6) 50000 ppa
7)GS1: CSW-C	
8)GS1: CSW-S(e)	
9)GS2: CWS-S	
10)GS2: CWS-C(e)	
11)GS2: CWS-W	
12)Flex: CWS-S	
13)Flex: CWS-C(s)	
14)Flex: CWS-W(s)	

**Results: Table 2209-09 to 2209-12**

**Table: 2209 - 09 . Corn, Soybean and Wheat Rotation - Corn  
Arlington, WI - 2022.**

Rotation	Density	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest plants plants/A	AGI \$5.22/bu \$/A
					Total %	Stalk %	Root %		
CC-C		184	30.8	52.5	0.7	0.2	0.5	30722	1023
CS-C		217	28.8	52.5	0.4	0.1	0.3	35417	1211
CSW-C		243	28.2	52.8	0.1	0.1	0.0	34278	1361
CWS-C(e)		228	27.0	52.2	0.0	0.0	0.0	36583	1283
	25K	204	28.4	52.9	0.8	0.4	0.5	24417	1145
	30K	217	28.6	53.1	0.1	0.1	0.0	27667	1216
	35K	215	28.7	52.7	0.0	0.0	0.0	32917	1206
	40K	223	28.6	52.7	0.6	0.0	0.6	36750	1251
	45K	222	29.1	51.2	0.0	0.0	0.0	39125	1241
	50K	225	28.7	52.3	0.2	0.2	0.0	44625	1258
CC-C	25K	177	29.8	53.0	2.2	1.4	0.7	23333	989
CC-C	30K	181	30.9	52.9	0.0	0.0	0.0	28333	1005
CC-C	35K	184	30.9	52.4	0.0	0.0	0.0	27667	1020
CC-C	40K	184	31.4	52.6	2.0	0.0	2.0	30167	1018
CC-C	45K	181	30.3	51.5	0.0	0.0	0.0	33833	1009
CC-C	50K	198	31.4	52.5	0.0	0.0	0.0	41000	1099
CS-C	25K	208	28.5	52.5	1.1	0.0	1.1	25333	1162
CS-C	30K	212	28.9	52.7	0.5	0.5	0.0	29167	1185
CS-C	35K	216	28.8	53.2	0.0	0.0	0.0	35000	1206
CS-C	40K	222	28.2	53.0	0.4	0.0	0.4	37500	1247
CS-C	45K	220	30.2	52.0	0.0	0.0	0.0	39833	1226
CS-C	50K	222	28.4	51.6	0.4	0.4	0.0	45667	1242
CSW-C	25K	225	28.2	52.5	0.0	0.0	0.0	24500	1264
CSW-C	30K	246	27.9	53.8	0.0	0.0	0.0	24500	1382
CSW-C	35K	235	28.0	52.6	0.0	0.0	0.0	34333	1317
CSW-C	40K	249	28.2	52.2	0.0	0.0	0.0	39500	1397
CSW-C	45K	251	28.6	52.6	0.0	0.0	0.0	39500	1403
CSW-C	50K	251	28.2	52.8	0.4	0.4	0.0	43333	1405
CWS-C(e)	25K	207	27.3	53.5	0.0	0.0	0.0	24500	1166
CWS-C(e)	30K	230	26.9	52.9	0.0	0.0	0.0	28667	1294
CWS-C(e)	35K	228	27.1	52.8	0.0	0.0	0.0	34667	1282
CWS-C(e)	40K	238	26.7	53.0	0.0	0.0	0.0	39833	1343
CWS-C(e)	45K	236	27.1	48.8	0.0	0.0	0.0	43333	1327
CWS-C(e)	50K	228	26.8	52.3	0.0	0.0	0.0	48500	1284

continue

**Table: 2209 - 09 . Corn, Soybean and Wheat Rotation - Corn****(continued) Arlington, WI - 2022.**

Rotation	Density	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest plants plants/A	AGI \$5.22/bu \$/A
					Total %	Stalk %	Root %		
Mean		218	28.7	52.5	0.3	0.1	0.2	34250	1220
<b><u>Probability(%)</u></b>									
Rotation (R)		0.1	0.0	78.1	54.5	65.8	52.7	13.5	0.1
Density (D)		0.0	76.2	4.5	36.5	57.3	28.0	0.0	0.0
R x D		69.5	50.2	52.4	78.2	43.3	71.9	5.5	71.3
<b><u>LSD(0.10)</u></b>									
Rotation (R)		15	1	NS	NS	NS	NS	NS	79
Density (D)		7	NS	1	NS	NS	NS	2001	42
R x D		NS	NS	NS	NS	NS	NS	4874	NS

AGI\*: Adjusted Gross Income.



**Table: 2209 - 11 . Corn, Soybean and Wheat Rotation - Soybean  
Arlington, WI - 2022.**

Rotation	Yield bu/A	Moisture %	AGI \$13.85/bu \$/A
CS-S	60.2	14.8	818
CSW-S(e)	72.0	15.4	977
CWS(L)-S	70.8	14.7	962
CWS-S	71.5	15.1	971
SS-S	58.0	14.5	788
Mean	66.5	14.9	903
<b><u>Probability(%)</u></b>			
Rotation (R)	0.3	18.3	0.3
<b><u>LSD(0.10)</u></b>			
Rotation (R)	5.5	NS	75

AGI\*: Adjusted Gross Income.

**Table: 2209 - 12 . Corn, Soybean and Wheat Rotation -Wheat.  
Arlington, WI - 2022.**

Rotation	Yield bu/A	Moisture %	Test weight lbs/bu	AGI \$8.02/bu \$/A
CSW-W	33	13.6	50.6	260
CWS(L)-W(s)	55	13.9	55.7	426
CWS-W	56	13.9	54.2	437
WW-1W*	89	14	58	689
Mean	58	13.8	54.7	453
<b><u>Probability(%)</u></b>				
Rotation (R)	1.6	20.5	10.6	1.6
<b><u>LSD(0.10)</u></b>				
Rotation (R)	22	NS	NS	171

AGI\*: Adjusted Gross Income.

WW-1W\*: First year Wheat after a 5- year-break

## FIELD EXPERIMENT HISTORY

**Title:** Corn - Soybean - Wheat Response to Rotation  
**Experiment:** 09CSW **Trial ID** 6677 **Year** 2022  
**Personnel:** Joe Lauer, Thierno Diallo, Kent Kohn, Jason Cavadini  
**Location:** Marshfield, WI **County:** Marathon  
**Supported By:** HATCH

### Site Information

**Field:** 405 **Previous Crop:** See factors **Soil Type:** Withee Sil  
**Soil Test: Date** 20/19/ **pH** 7.2 **OM (%)** 3.1 **P (ppm)** 54 **K (ppm)** 126

### Plot Management

#### **Tillage Operations:**

<b>Fertilizer:</b>	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
<b>Preplant :</b>	C,S: 18-10-21-6s	100 lbs	6/3/22 ; 6/7/22
<b>Starter :</b>	W: 0-0-60	300 lbs	5/18/22
<b>Post plant :</b>	C:46-0-0	225 lbs	NA
	W: 46-0-0	50 lbs	5/18/22
<b>Manure:</b>	N/A	N/A	N/A

**Herbicide** C: Roundup Ultra 1qt/a 6/9/22  
 Verdict 1pt/a 6/9/22  
 S: Roundup Ultra 1qt/a 6/9/22  
 Pursuit 4 oz/a 6/9/22  
 W: Affinity 1 oz/a 6/17/22  
 Roundup Ultra 1qt/a 8/10/22

**Hybrid:** C: Pioneer 9188  
 S: Stine 09EA02  
 W: PIP 721 (SRW)

#### **Planting Method:**

**Planting Date:** C: 6/3/22 **Planting Depth:** C: 1.5" C: JD 1750 planter  
 S: 5/30/22 S,W: 1"  
 W: 5/18/22

**Harvest Method:** CS: Hand Harvest  
 C,S,W: Almaco plot combine

**Target Plant Density:** 35000  
**Harvest Date:** C: 11/22/22, CS: 9/21/22  
 S: 10/20/22, W: 8/24/22

**Row Width:** C: 30"  
 S: 15"

**Fungicide:** N/A

#### **Notes:**

### Experimental Design

**Design:** RCB split-split-block **Replications:** 3  
**Plot Size Seeded:** 60' x 60'  
**Harvest Plot Size:** C: 60' x 5'; S,W: 60' x 5'; CS: 10' x 2.5' **Experiment Size:** 3.09 A  
**Factors/Treatments:**

#### Rotation: 2021Treatments

- 1) CC
- 2) SS
- 3) WW
- 4) CS- C
- 5) SC- S
- 6) GS1: CSW- S
- 7) GS1: CSW- W
- 8) GS1: CSW- C

**Results: Table 2109-13 to 2109-16**

**Table: 2209-13 Corn, Soybean, and Wheat Rotation- Corn  
Marshfield, WI - 2022.**

Rotation	Yield bu/A	Moisture %	Test Weight in.	Harvest Population ppa	Stalk Lodging %	AGI \$6.09/bu \$/A
Continuous	121	19.2	51.2	32,525	1.9	701
Alternating	133	19.8	52.2	36,010	0.0	766
Grain System I	99	23.6	50.2	33,686	0.0	566
Mean	118	20.9	51.2	34,074	0.6	678
<u>Probability (%)</u>						
Treatment	37.6	34.1	32.2	9.0	44.4	38.4
<u>LSD 10%</u>						
Treatment	NS	NS	NS	2476	NS	NS





**Table: 2209 - 15 . Corn, Soybean and Wheat Rotation -Soybean  
Marshfield, WI - 2022.**

Rotation	Yield bu/A	Moisture %	Test Weight lb/bu	AGI \$13.85/bu \$/A
Continuous	39	11.5	57.7	528
Alternating	47	11.2	58.2	642
Grain System I	47	11.1	57.8	635
Mean	44	11.3	57.9	602
<u>Probability (%)</u>				
Treatment LSD 10%	9.8	67.2	34.4	9.8
Treatment	6.7	NS	NS	92

AGI\*: Adjusted Gross Income.

**Table: 2209 - 16 . Corn, Soybean and Wheat Rotation -Wheat.  
Marshfield, WI - 2022.**

Rotation	Yield bu/A	Moisture %	Test Weight lb/bu	Height in.	Lodging 1 to 5	AGI \$8.02/bu \$/A
Continuous	-	-	-	-	-	-
Grain System I	25	11.3	50.3	24	1.0	201
Mean	25	11.3	50.3	24	1.0	201
<u>Probability (%)</u>						
Treatment	-	-	-	-	-	-
<u>LSD 10%</u>						
Treatment	-	-	-	-	-	-

AGI\*: Adjusted Gross Income.

- Not enough harvest data for continuous wheat plots.