

## FIELD EXPERIMENT HISTORY

**Title:** Corn - Soybean Response to Tillage and Rotation  
**Experiment:** 09CS **Trial ID:** 6491 **Year:** 2020  
**Personnel:** Joe Lauer, Thierno Diallo, Kent Kohn,  
**Location:** Arlington, WI **County:** Columbia  
**Supported By:** HATCH

### Site Information

**Field:** 334 **Previous Crop:** See factors **Soil Type:**  
**Soil Test Date:** 11/12/18 **pH** 6.5 **OM (%)** 3.1 **P (ppm)** 15 **K (ppm)** 108

### Plot Management

<u>Tillage Operations:</u>	<u>Field cultivator x 2</u>	<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>	32-0-0	CC: 593 CS: 500	6/19/20 6/19/20
	<b>Manure:</b>	N/A	N/A	N/A
<b>Herbicide:</b>	Dual II - Magnum @ 24 oz/A 4/24/20 Roundup PowerMax @ 32 oz/A 6/15/20		<b>Insecticide:</b>	See Seed Treatments
			<b>Hybrid:</b>	C: Jung 56SS538RIB S: NK Brand S24-A5X
<b>Irrigation:</b>	No		<b>Row Width:</b>	30"
<b>Planting Date:</b>	C: 5/5/20 S: 5/5/20		<b>Planting Depth:</b>	1.5"
<b>Target Plant Density:</b>	Corn: 32500 Plants/A Soybean: 160000 Plants/A		<b>Planting Method:</b>	JD 1700 with RTK
<b>Harvest Date:</b>	C: 10/22/20 S: 10/16/20		<b>Harvest Method:</b>	MF 8XP plot combine
<b>Notes:</b>				

### Experimental Design

**Design:** RCB split-split-plot **Replications:** 4  
**Plot Size Seeded:** MP: 30' x 70' **Experiment Size:** 2.7 A  
**Harvest Plot Size:** 5' x 31'

### Factors/Treatments:

<u>Tillage:</u>	<u>Rotation: 2020 Treatments</u>	<u>Density:</u>
1) NT	1) CCCCCSSSSS-3S	1) 25000
2) CT	2) CCCCCSSSSS-2S	2) 35000
	3) CCCCCSSSSS-1S	3) 45000
	4) CCCCCSSSSS-5C	
	5) CCCCCSSSSS-4C	
	6) CCCCCSSSSS-3C	
	7) CCCCCSSSSS-2C	
	8) CCCCCSSSSS-1C	
	9) CCCCCSSSSS-5S	
	10) CCCCCSSSSS-4S	
	11) CC-1C	
	12) CS-1S	
	13) CS-1C	
	14) SS-1S	

**Results: Tables 2009-07 & 2009-08**

**Table 2009-07. Corn/Soybean Rotation and Tillage Study - Corn.  
Arlington, WI - 2020.**

Tillage	Rotation	Density	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest density plants/A	AGI \$3.54/bu \$/A
						Total %	Stalk %	Root %		
Conv			229	28.9	55.2	27.4	2.8	24.6	33381	697
Notill			219	32.5	55.3	3.5	1.7	1.8	34119	653
	1C		262	26.8	55.1	18.2	1.0	17.2	34042	809
	2C		213	30.4	54.5	9.4	1.5	7.9	34042	642
	3C		204	33.0	54.9	19.0	3.3	15.7	33458	605
	4C		211	32.5	55.0	15.0	1.8	13.3	33417	628
	5C		213	31.1	54.7	10.6	2.3	8.3	33417	640
	C		252	29.4	56.6	31.3	3.8	27.4	33667	765
	CC		212	31.9	55.9	4.5	2.0	2.5	34208	634
		25K	223	30.7	55.1	18.6	3.1	15.5	33393	670
		35K	224	31.0	55.2	14.4	1.3	13.1	33929	672
		45K	226	30.3	55.4	13.3	2.3	11.0	33929	682
Conv	1C		256	25.2	55.4	27.4	2.0	25.4	33417	797
Conv	2C		221	29.1	54.8	18.1	2.5	15.6	34083	672
Conv	3C		208	31.2	55.1	34.2	3.0	31.2	33750	624
Conv	4C		215	30.3	55.2	29.4	2.8	26.6	32667	650
Conv	5C		225	29.0	54.6	19.2	2.7	16.5	33583	686
Conv	C		257	27.7	55.9	55.5	3.6	51.9	32750	788
Conv	CC		218	30.1	55.6	7.8	2.8	5.0	33417	660
Notill	1C		268	28.3	54.8	9.0	0.0	9.0	34667	820
Notill	2C		205	31.6	54.2	0.8	0.5	0.3	34000	612
Notill	3C		200	34.8	54.8	3.8	3.6	0.3	33167	586
Notill	4C		207	34.7	54.8	0.7	0.7	0.0	34167	606
Notill	5C		201	33.1	54.9	2.0	2.0	0.0	33250	595
Notill	C		247	31.1	57.3	7.0	4.1	3.0	34583	741
Notill	CC		206	33.7	56.1	1.2	1.2	0.0	35000	608
Conv		25K	227	29.0	55.5	30.9	2.4	28.5	32500	692
Conv		35K	228	29.5	55.0	26.8	1.9	24.9	33679	692
Conv		45K	231	28.3	55.1	24.3	3.9	20.4	33964	706
Notill		25K	218	32.4	54.7	6.2	3.8	2.4	34286	648
Notill		35K	219	32.6	55.4	2.0	0.6	1.4	34179	652
Notill		45K	221	32.3	55.7	2.3	0.7	1.6	33893	658
	1C	25K	263	27.0	55.2	16.8	0.0	16.8	34125	809
	1C	35K	260	26.7	55.2	12.9	0.4	12.5	33875	801
	1C	45K	264	26.6	54.9	25.0	2.6	22.4	34125	815
	2C	25K	214	30.2	54.4	11.2	2.7	8.5	33250	647
	2C	35K	211	31.2	54.7	6.0	1.5	4.6	34750	633
	2C	45K	213	29.7	54.2	11.0	0.3	10.6	34125	646
	3C	25K	204	32.1	54.8	22.7	5.7	17.0	33500	609
	3C	35K	204	33.8	54.8	22.3	2.7	19.6	32750	600
	3C	45K	204	33.1	55.1	12.0	1.4	10.6	34125	606

continue

**Table 2009-07. Corn/Soybean Rotation and Tillage Study - Corn.**

(continued)

**Arlington, WI - 2020.**

Tillage	Rotation	Density	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest density plants/A	AGI \$3.54/bu \$/A
						Total %	Stalk %	Root %		
	4C	25K	210	34.2	55.0	14.8	1.2	13.6	33125	617
	4C	35K	209	32.0	54.7	15.4	0.8	14.5	33500	624
	4C	45K	215	31.2	55.3	15.0	3.3	11.7	33625	643
	5C	25K	210	31.0	55.1	10.8	3.4	7.4	33500	631
	5C	35K	217	30.7	54.4	12.1	1.9	10.3	32875	654
	5C	45K	213	31.5	54.7	8.9	1.8	7.1	33875	636
	C	25K	242	30.1	55.6	47.3	4.6	42.6	32750	731
	C	35K	256	29.2	55.5	26.6	1.1	25.5	34750	777
	C	45K	258	28.8	58.8	19.9	5.8	14.1	33500	786
	CC	25K	215	30.4	55.6	6.5	4.2	2.3	33500	648
	CC	35K	208	33.8	57.3	5.5	0.7	4.8	35000	613
	CC	45K	215	31.4	54.7	1.5	1.1	0.4	34125	643
Conv	1C	25K	256	25.2	55.7	22.7	0.0	22.7	33000	798
Conv	1C	35K	254	25.4	55.3	19.8	0.7	19.1	33750	793
Conv	1C	45K	257	25.1	55.2	39.7	5.2	34.5	33500	801
Conv	2C	25K	224	29.1	54.5	20.2	3.9	16.3	33000	680
Conv	2C	35K	214	30.2	54.9	12.1	2.9	9.2	35250	648
Conv	2C	45K	225	28.1	54.9	21.9	0.7	21.2	34000	688
Conv	3C	25K	212	29.4	55.2	37.0	3.1	34.0	32750	644
Conv	3C	35K	201	33.2	54.8	41.4	3.0	38.4	33500	597
Conv	3C	45K	210	31.0	55.3	24.1	2.8	21.2	35000	632
Conv	4C	25K	211	32.9	54.9	29.6	2.3	27.2	32000	627
Conv	4C	35K	214	29.7	55.1	30.7	1.7	29.0	31500	648
Conv	4C	45K	221	28.3	55.5	27.8	4.3	23.4	34500	674
Conv	5C	25K	229	28.8	55.4	16.2	1.5	14.7	33250	697
Conv	5C	35K	231	28.3	53.9	23.5	3.0	20.5	33250	704
Conv	5C	45K	217	29.9	54.6	17.9	3.6	14.3	34250	656
Conv	C	25K	241	29.1	56.2	81.4	1.5	79.9	31000	732
Conv	C	35K	266	26.7	55.9	49.0	0.7	48.2	34250	820
Conv	C	45K	264	27.2	55.5	36.1	8.5	27.5	33000	813
Conv	CC	25K	219	28.8	56.5	9.2	4.7	4.6	32500	667
Conv	CC	35K	214	32.7	55.5	11.0	1.4	9.6	34250	633
Conv	CC	45K	223	28.7	54.8	3.0	2.3	0.8	33500	680
Notill	1C	25K	269	28.9	54.7	10.8	0.0	10.8	35250	819
Notill	1C	35K	265	28.0	55.2	6.0	0.0	6.0	34000	810
Notill	1C	45K	271	28.0	54.7	10.4	0.0	10.4	34750	830
Notill	2C	25K	205	31.3	54.3	2.3	1.5	0.8	33500	615
Notill	2C	35K	208	32.2	54.6	0.0	0.0	0.0	34250	618
Notill	2C	45K	202	31.4	53.6	0.0	0.0	0.0	34250	604
Notill	3C	25K	196	34.9	54.4	8.3	8.3	0.0	34250	574
Notill	3C	35K	206	34.4	54.9	3.2	2.3	0.8	32000	604
Notill	3C	45K	199	35.2	55.0	0.0	0.0	0.0	33250	581
Notill	4C	25K	209	35.6	55.1	0.0	0.0	0.0	34250	607
Notill	4C	35K	204	34.3	54.3	0.0	0.0	0.0	35500	599
Notill	4C	45K	208	34.1	55.1	2.2	2.2	0.0	32750	612

continue



**Table 2009-08. Corn/Soybean Rotation and Tillage Study - Soybean.  
Arlington, WI - 2020**

Tillage	Rotation	Yield bu/A	Moisture %	AGI \$8.21/bu \$/A
Conv		62.0	11.0	495
Notill		61.5	11.0	491
	1S	68.3	11.1	545
	2S	61.3	11.1	489
	3S	60.3	11.0	481
	4S	61.2	10.9	489
	5S	58.8	10.9	469
	S	61.8	10.9	493
	SS	60.6	11.1	484
Conv	1S	66.2	11.1	528
Conv	2S	63.0	11.2	503
Conv	3S	58.5	11.0	467
Conv	4S	62.5	10.9	498
Conv	5S	60.2	10.9	480
Conv	S	61.6	10.9	491
Conv	SS	62.3	11.1	497
Notill	1S	70.5	11.0	562
Notill	2S	59.6	11.0	476
Notill	3S	62.1	10.9	495
Notill	4S	60.0	10.9	479
Notill	5S	57.3	10.9	458
Notill	S	62.0	11.0	495
Notill	SS	59.0	11.0	471
Mean		61.8	11.0	493
<b><u>Probability(%)</u></b>				
	Tillage (T)	57.1	32.6	57.1
	Rotation (R)	0.0	23.1	0.0
	T x R	4.6	97.3	4.6
<b><u>LSD(0.10)</u></b>				
	Tillage (T)	NS	NS	NS
	Rotation (R)	2.5	NS	20
	T x R	3.6	NS	29