

FIELD EXPERIMENT HISTORY

Title: Corn - Soybean Response to Tillage and Rotation
Experiment: 09CS **Trial ID:** 6265 **Year:** 2018
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>Fiel cultivator</u> x 2	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Fertilizer:	Preplant :	N/A	N/A	N/A
	Starter :	N/A	N/A	N/A
	Post plant :	28-0-0	CC: 678 CS: 571	6 /8 /18
	Manure:	N/A	N/A	N/A
Herbicide:	Tomahawk 5 22 oz/A 4/27/18 Medal II EC 24 oz/A 4/27/18 Tomahawk5 22 oz/A 6/7/18		Insecticide: See Seed Treatments	
			Hybrid: C: DKC57-97 RIB S: NK S21-M7 Brand	
Irrigation:	No		Row Width: 30"	
Planting Date:	C: 4/30/18 S: 4/30/18		Planting Depth: 1.5"	
Target Plant Density:	Corn: 32500 Plants/A Soybean: 150000 Plants/A		Planting Method: JD 1700 with RTK	
Harvest Date:	C: 10/22/18 S: 10/16/18		Harvest Method: MF 8XP plot combine	

Notes:

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:

Tillage:

- 1) NT
- 2) CT

Rotation: 2018 Treatments

- 1) CCCCCSSSSS-5C
- 2) CCCCCSSSSS-4C
- 3) CCCCCSSSSS-3C
- 4) CCCCCSSSSS-2C
- 5) CCCCCSSSSS-1C
- 6) CCCCCSSSSS-5S
- 7) CCCCCSSSSS-4S
- 8) CCCCCSSSSS-3S
- 9) CCCCCSSSSS-2S
- 10) CCCCCSSSSS-1S
- 11) CC-1C
- 12) CS-1S
- 13) CS-1C
- 14) SS-1S

Fungicide:

- 1) UTC
- 2) Prothioconazole (Proline @ 5.7 oz/A)
- 3) Picoxystrobin (Approach @ 6 oz/A)

Results: Table 1809-07 & 1809-08

**Table 1809-07. Corn/Soybean Rotation and Tillage Study - Corn.
Arlington, WI - 2018.**

Tillage	Rotation	Fungicide	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest density plants/A	AGI \$3.40/bu \$/A
						Total %	Stalk %	Root %		
Conv			241	22.4	55.5	3.1	3.1	0.0	32786	731
Notill			226	23.4	54.7	3.5	3.4	0.0	30786	680
	1C		251	22.0	56.2	3.4	3.4	0.0	30667	763
	2C		231	23.2	54.9	3.9	3.9	0.0	31125	698
	3C		224	23.0	54.9	3.4	3.4	0.0	33042	676
	4C		225	23.3	54.4	2.9	2.9	0.0	31250	678
	5C		223	23.6	54.8	3.4	3.2	0.1	31292	670
	C		260	22.5	55.2	2.7	2.7	0.0	32625	787
	CC		221	22.9	55.4	3.2	3.2	0.0	32500	667
		Picoxystrobin	234	23.1	55.0	3.0	2.9	0.1	31518	707
		Prothioconazole	237	23.1	55.1	2.1	2.1	0.0	32268	715
		UTC	230	22.6	55.2	4.8	4.8	0.0	31571	695
Conv	1C		260	22.2	56.7	3.6	3.6	0.0	31833	789
Conv	2C		234	22.5	55.4	3.3	3.3	0.0	32750	709
Conv	3C		232	22.2	55.7	1.7	1.7	0.0	33083	703
Conv	4C		231	22.5	55.0	2.2	2.2	0.0	32750	699
Conv	5C		234	23.4	55.1	4.1	4.1	0.0	31833	705
Conv	C		265	22.3	55.3	2.6	2.6	0.0	34000	804
Conv	CC		233	22.0	55.7	3.8	3.8	0.0	33250	707
Notill	1C		243	21.9	55.7	3.3	3.3	0.0	29500	738
Notill	2C		228	24.0	54.4	4.4	4.4	0.0	29500	686
Notill	3C		216	23.7	54.1	5.2	5.2	0.0	33000	649
Notill	4C		219	24.1	53.8	3.6	3.6	0.0	29750	657
Notill	5C		211	23.7	54.5	2.7	2.4	0.3	30750	635
Notill	C		254	22.8	55.0	2.8	2.8	0.0	31250	770
Notill	CC		209	23.9	55.2	2.5	2.5	0.0	31750	628
Conv		Picoxystrobin	242	22.6	55.2	3.3	3.3	0.0	32536	732
Conv		Prothioconazole	242	22.5	55.4	1.5	1.5	0.0	33071	734
Conv		UTC	239	22.3	56.0	4.4	4.4	0.0	32750	727
Notill		Picoxystrobin	226	23.6	54.9	2.6	2.5	0.1	30500	681
Notill		Prothioconazole	231	23.7	54.8	2.6	2.6	0.0	31464	696
Notill		UTC	220	23.0	54.4	5.2	5.2	0.0	30393	664
	1C	Picoxystrobin	251	21.6	56.6	2.2	2.2	0.0	29500	764
	1C	Prothioconazole	265	22.3	56.3	1.6	1.6	0.0	33000	803
	1C	UTC	238	22.1	55.6	6.5	6.5	0.0	29500	723
	2C	Picoxystrobin	233	23.7	54.7	4.6	4.6	0.0	30375	702
	2C	Prothioconazole	233	23.3	54.9	1.1	1.1	0.0	30625	701
	2C	UTC	228	22.6	55.1	5.8	5.8	0.0	32375	690
	3C	Picoxystrobin	223	23.1	54.4	4.1	4.1	0.0	32500	674
	3C	Prothioconazole	226	23.2	55.4	2.5	2.5	0.0	32875	681
	3C	UTC	222	22.6	54.8	3.7	3.7	0.0	33750	673

continue

Table 1809-07. Corn/Soybean Rotation and Tillage Study - Corn.

(continued)

Arlington, WI - 2018.

Tillage	Rotation	Fungicide	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest density plants/A	AGI \$3.40/bu \$/A
						Total %	Stalk %	Root %		
	4C	Picoxystrobin	224	23.4	54.0	3.8	3.8	0.0	31250	675
	4C	Prothioconazole	231	23.5	54.9	0.4	0.4	0.0	32125	695
	4C	UTC	220	23.1	54.3	4.5	4.5	0.0	30375	665
	5C	Picoxystrobin	223	23.7	55.4	1.5	1.1	0.4	31125	671
	5C	Prothioconazole	222	23.4	54.7	4.1	4.1	0.0	31875	669
	5C	UTC	223	23.6	54.2	4.5	4.5	0.0	30875	670
	C	Picoxystrobin	265	22.4	55.1	2.0	2.0	0.0	32125	803
	C	Prothioconazole	258	22.9	54.2	1.8	1.8	0.0	32875	778
	C	UTC	257	22.2	56.2	4.4	4.4	0.0	32875	780
	CC	Picoxystrobin	219	23.9	54.9	2.6	2.6	0.0	33750	658
	CC	Prothioconazole	225	23.0	55.2	3.0	3.0	0.0	32500	678
	CC	UTC	219	22.0	56.1	3.9	3.9	0.0	31250	665
Conv	1C	Picoxystrobin	258	21.7	57.5	4.4	4.4	0.0	30500	787
Conv	1C	Prothioconazole	263	22.1	56.8	1.6	1.6	0.0	35000	798
Conv	1C	UTC	258	22.7	55.7	4.9	4.9	0.0	30000	782
Conv	2C	Picoxystrobin	237	22.9	54.6	4.6	4.6	0.0	32000	716
Conv	2C	Prothioconazole	237	22.4	55.5	0.0	0.0	0.0	32750	718
Conv	2C	UTC	229	22.2	56.1	5.3	5.3	0.0	33500	694
Conv	3C	Picoxystrobin	233	22.3	55.1	1.5	1.5	0.0	31750	708
Conv	3C	Prothioconazole	232	21.9	56.3	2.3	2.3	0.0	32500	704
Conv	3C	UTC	230	22.5	55.8	1.5	1.5	0.0	35000	698
Conv	4C	Picoxystrobin	226	22.3	53.8	4.4	4.4	0.0	32250	687
Conv	4C	Prothioconazole	236	22.9	55.5	0.0	0.0	0.0	33000	712
Conv	4C	UTC	231	22.5	55.6	2.1	2.1	0.0	33000	699
Conv	5C	Picoxystrobin	234	23.6	56.0	2.2	2.2	0.0	32750	703
Conv	5C	Prothioconazole	235	23.3	54.8	3.0	3.0	0.0	31750	708
Conv	5C	UTC	234	23.4	54.4	7.0	7.0	0.0	31000	704
Conv	C	Picoxystrobin	270	22.1	54.7	2.2	2.2	0.0	33250	819
Conv	C	Prothioconazole	261	23.0	53.9	1.4	1.4	0.0	34000	790
Conv	C	UTC	264	21.7	57.4	4.3	4.3	0.0	34750	803
Conv	CC	Picoxystrobin	234	23.2	54.8	3.6	3.6	0.0	35250	707
Conv	CC	Prothioconazole	233	22.1	55.2	2.3	2.3	0.0	32500	708
Conv	CC	UTC	230	20.8	57.0	5.4	5.4	0.0	32000	706
Notill	1C	Picoxystrobin	243	21.6	55.7	0.0	0.0	0.0	28500	742
Notill	1C	Prothioconazole	267	22.5	55.9	1.6	1.6	0.0	31000	808
Notill	1C	UTC	218	21.6	55.5	8.1	8.1	0.0	29000	664
Notill	2C	Picoxystrobin	230	24.6	54.8	4.6	4.6	0.0	28750	687
Notill	2C	Prothioconazole	228	24.3	54.2	2.3	2.3	0.0	28500	684
Notill	2C	UTC	227	23.1	54.1	6.3	6.3	0.0	31250	686
Notill	3C	Picoxystrobin	213	23.8	53.8	6.8	6.8	0.0	33250	641
Notill	3C	Prothioconazole	220	24.6	54.6	2.8	2.8	0.0	33250	658
Notill	3C	UTC	214	22.8	53.9	5.9	5.9	0.0	32500	648
Notill	4C	Picoxystrobin	222	24.5	54.3	3.1	3.1	0.0	30250	663
Notill	4C	Prothioconazole	226	24.1	54.3	0.8	0.8	0.0	31250	677
Notill	4C	UTC	210	23.7	52.9	6.9	6.9	0.0	27750	631

continue

**Table 1809-08. Corn/Soybean Rotation and Tillage Study - Soybean.
Arlington, WI - 2018.**

Tillage	Rotation	Fungicide	Yield bu/A	Moisture %	AGI \$8.70/bu \$/A
Conv			62.4	11.8	515
Notill			63.7	11.6	526
	1S		71.0	11.7	586
	2S		66.0	11.3	544
	3S		62.5	11.9	515
	4S		59.3	10.9	489
	5S		62.3	12.0	514
	S		63.3	11.9	522
	SS		57.0	11.9	470
		Picoxystrobin	63.5	11.6	524
		Prothioconazole	64.1	11.6	528
		UTC	61.6	11.8	508
Conv	1S		69.2	11.8	570
Conv	2S		64.7	11.4	534
Conv	3S		62.2	12.0	512
Conv	4S		59.5	10.9	491
Conv	5S		60.2	12.1	497
Conv	S		63.2	11.9	522
Conv	SS		57.7	12.3	476
Notill	1S		72.9	11.6	602
Notill	2S		67.3	11.3	555
Notill	3S		62.9	11.8	518
Notill	4S		59.1	10.9	488
Notill	5S		64.3	11.9	531
Notill	S		63.3	11.9	522
Notill	SS		56.3	11.6	464
Conv		Picoxystrobin	62.9	11.8	519
Conv		Prothioconazole	63.6	11.7	525
Conv		UTC	60.6	11.8	500
Notill		Picoxystrobin	64.1	11.5	529
Notill		Prothioconazole	64.5	11.5	532
Notill		UTC	62.6	11.7	516
	1S	Picoxystrobin	71.3	12.0	588
	1S	Prothioconazole	70.8	11.4	584
	1S	UTC	71.1	11.8	586
	2S	Picoxystrobin	65.1	11.5	537
	2S	Prothioconazole	68.0	11.1	561
	2S	UTC	64.8	11.4	535
	3S	Picoxystrobin	62.2	11.8	513
	3S	Prothioconazole	63.7	12.0	525
	3S	UTC	61.6	11.9	508

continue

Table 1809-08. Corn/Soybean Rotation and Tillage Study - Soybean.

(continued)

Arlington, WI - 2018.

Tillage	Rotation	Fungicide	Yield bu/A	Moisture %	AGI \$8.70/bu \$/A
	4S	Picoxystrobin	62.5	10.6	516
	4S	Prothioconazole	59.8	10.8	493
	4S	UTC	55.6	11.4	459
	5S	Picoxystrobin	61.5	12.2	508
	5S	Prothioconazole	63.4	12.0	523
	5S	UTC	61.9	11.8	511
	S	Picoxystrobin	63.6	12.1	525
	S	Prothioconazole	64.2	12.0	530
	S	UTC	61.9	11.6	511
	SS	Picoxystrobin	58.4	11.3	482
	SS	Prothioconazole	58.5	12.0	483
	SS	UTC	54.1	12.4	446
Conv	1S	Picoxystrobin	69.1	12.3	570
Conv	1S	Prothioconazole	69.3	11.3	572
Conv	1S	UTC	69.0	12.0	569
Conv	2S	Picoxystrobin	63.4	11.7	523
Conv	2S	Prothioconazole	67.2	11.3	554
Conv	2S	UTC	63.4	11.3	523
Conv	3S	Picoxystrobin	62.3	11.8	514
Conv	3S	Prothioconazole	63.1	11.9	520
Conv	3S	UTC	61.0	12.2	503
Conv	4S	Picoxystrobin	62.6	10.7	516
Conv	4S	Prothioconazole	59.1	10.9	488
Conv	4S	UTC	56.8	11.3	469
Conv	5S	Picoxystrobin	59.2	12.3	488
Conv	5S	Prothioconazole	62.0	12.6	511
Conv	5S	UTC	59.5	11.6	491
Conv	S	Picoxystrobin	64.7	12.1	534
Conv	S	Prothioconazole	64.6	11.9	533
Conv	S	UTC	60.4	11.6	499
Conv	SS	Picoxystrobin	59.2	11.9	488
Conv	SS	Prothioconazole	60.1	12.2	496
Conv	SS	UTC	53.9	12.7	445
Notill	1S	Picoxystrobin	73.4	11.7	605
Notill	1S	Prothioconazole	72.3	11.5	596
Notill	1S	UTC	73.2	11.7	604
Notill	2S	Picoxystrobin	66.7	11.4	551
Notill	2S	Prothioconazole	68.9	11.0	568
Notill	2S	UTC	66.2	11.5	546
Notill	3S	Picoxystrobin	62.1	11.8	512
Notill	3S	Prothioconazole	64.3	12.1	530
Notill	3S	UTC	62.2	11.6	513
Notill	4S	Picoxystrobin	62.5	10.4	516
Notill	4S	Prothioconazole	60.5	10.7	499
Notill	4S	UTC	54.4	11.5	449

continue

Table 1809-08. Corn/Soybean Rotation and Tillage Study - Soybean.(continued) **Arlington, WI - 2018.**

Tillage	Rotation	Fungicide	Yield bu/A	Moisture %	AGI \$8.70/bu \$/A
Notill	5S	Picoxystrobin	68.1	12.3	577
Notill	5S	Prothioconazole	73.0	12.3	618
Notill	5S	UTC	66.3	12.3	562
Notill	S	Picoxystrobin	72.9	12.1	618
Notill	S	Prothioconazole	68.6	12.0	581
Notill	S	UTC	72.2	12.0	612
Notill	SS	Picoxystrobin	65.0	12.2	551
Notill	SS	Prothioconazole	67.8	12.2	574
Notill	SS	UTC	64.1	12.1	543
Mean			67.0	12.1	568
<u>Probability(%)</u>					
Tillage (T)			18.5	8.7	18.5
Rotation (R)			39.7	2.2	39.6
Fungicide (F)			0.3	28.2	0.3
T x R			2.7	76.1	2.7
T x F			18.2	92.0	18.2
R x F			16.0	89.8	16.0
T x R x F			0.1	25.7	0.1
<u>LSD(0.10)</u>					
Tillage (T)			NS	0.2	NS
Rotation (R)			NS	0.2	NS
Fungicide (F)			1.3	NS	11
T x R			4.4	NS	37
T x F			NS	NS	NS
R x F			NS	NS	NS
T x R x F			5.7	NS	49