

FIELD EXPERIMENT HISTORY

Title: Tillage in Corn and Soybean Production Systems
Experiment: 17Tillage **Trial ID:** 6055 **Year:** 2016
Personnel: J. G. Lauer, T. H. Diallo, K. D. Kohn
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: 396 **Previous Crop:** Corn / Soybean **Soil Type:** Plano Silt Loam
Soil Test: **Date:** 11/1 /16 **pH** 5.8 **OM (%)** 3.2 **P (ppm)** 9 **K (ppm)** 112

Plot Management

Tillage Operations: See Factors

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Fertilizer:			
Preplant :	0-0-60	125 lb/A	4 /19/16
Starter :	9-23-31	160 lb/A	4/22/16
	0-0-62	140 lb/A	4/22/16
Post plant :	28-0-0	CC: 190	6/8/16
		CS: 160	6/8/16
Manure:	N/A	N/A	N/A
Herbicide:	C: Radar LV 16 oz/A 4/29/16 Durango DMA 22 oz/A 4/29/16 Medal II EC 24 oz/A 4/29/16 Durango DMA 25 oz/A 6/22/16 S: Durango DMA 22 oz/A 6/22/16 Cleanse 6 oz/A 6/22/16	Hybrid/Variety: C: SS: Dekalb DKC50-82 S: RR: Syngenta NK Brand S20T6	
Irrigation:	NO	Row Width: 30"	
Planting Date:	C: 5/18/16 S: 5/17/16	Planting Depth: C: 1.5" S: 1"	
Planting Method:	JD1700 w RTK	Harvest Method: C: MF 8XP plot combine S: Almaco plot combine	
Target Plant Density:	C:35000 Plants/Acre S:140000 Plants/Acre	Harvest Date: C: 10/21/16 S: 10/20/16	
Notes:	T2 and T3 were similar as well as T4 and T5 in 2016		

Experimental Design

Design: RCB Split-plot **Replications:** 4
Plot Size Seeded: 10' x 50' **Experiment Size:** 3.6 A
Harvest Plot Size: 5' x 46'
Factors/Treatments:

<u>Rotation</u>	<u>Tillage:</u>	<u>Fungicide:</u>
1) CC	1) Rotational tillage: NT with fertilizer surface broadcast (2016)	1) S1 - UTC
2) CS	2) T1: Strip-Till with fertilizer banded. Soybean planted to 15-inch rows.	2) S2 - 6 fl oz/a Priaxor
	3) T2: Strip-Till with fertilizer banded. Soybean planted to 30-inch rows.	in-furrow at planting
	4) T3: Strip-Till with fertilizer surface broadcast. Soybean planted to 15-inch rows.	
	5) T4: Strip-Till with fertilizer surface broadcast. Soybean planted to 30-inch rows.	
	6) NT: Spring one 13-wave coulter with trash whippers on planter; with fertilizer surface broadcast	

Results: Tables 1617-01 & 1617-02

**Table:1617- 01 .Tillage in Corn and Soybean Production Systems - Corn
Arlington, WI - 2016.**

Rotation	Tillage	Fungicide	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest density plants/A	AGI \$3.44/bu \$/A
						Total %	Root %	Stalk %		
CC			216	21.8	54.1	0.0	0.0	0.0	31396	665
SC			224	21.1	53.9	0.2	0.1	0.1	32521	693
	NT		203	21.7	53.2	0.4	0.4	0.0	31125	627
	RT		208	21.6	53.4	0.2	0.0	0.2	31625	642
	T1		228	21.0	54.3	0.0	0.0	0.0	32250	708
	T2		231	21.2	54.4	0.0	0.0	0.0	32500	714
	T3		227	21.4	54.4	0.0	0.0	0.0	32938	703
	T4		221	21.5	54.1	0.0	0.0	0.0	31313	682
		Priaxor	221	21.5	54.0	0.2	0.1	0.1	31792	684
		UTC	218	21.3	53.9	0.0	0.0	0.0	32125	675
CC	NT		201	22.1	53.5	0.0	0.0	0.0	29375	618
CC	RT		207	21.9	53.4	0.0	0.0	0.0	31375	637
CC	T1		225	21.5	54.2	0.0	0.0	0.0	31750	695
CC	T2		225	21.4	54.9	0.0	0.0	0.0	32250	697
CC	T3		224	21.8	54.6	0.0	0.0	0.0	32625	690
CC	T4		213	21.9	53.9	0.0	0.0	0.0	31000	656
SC	NT		206	21.4	53.0	0.8	0.8	0.0	32875	636
SC	RT		210	21.3	53.5	0.4	0.0	0.4	31875	648
SC	T1		232	20.6	54.3	0.0	0.0	0.0	32750	721
SC	T2		236	20.9	54.0	0.0	0.0	0.0	32750	732
SC	T3		230	20.9	54.2	0.0	0.0	0.0	33250	715
SC	T4		228	21.2	54.3	0.0	0.0	0.0	31625	707
CC		Priaxor	215	21.9	54.1	0.0	0.0	0.0	31167	664
CC		UTC	216	21.6	54.1	0.0	0.0	0.0	31625	667
SC		Priaxor	227	21.1	54.0	0.4	0.3	0.1	32417	704
SC		UTC	220	21.0	53.8	0.0	0.0	0.0	32625	682
	NT	Priaxor	199	21.8	53.2	0.8	0.8	0.0	30750	613
	NT	UTC	207	21.7	53.3	0.0	0.0	0.0	31500	640
	RT	Priaxor	213	21.6	53.6	0.4	0.0	0.4	32000	657
	RT	UTC	203	21.6	53.3	0.0	0.0	0.0	31250	628
	T1	Priaxor	230	21.1	54.4	0.0	0.0	0.0	33000	712
	T1	UTC	227	21.0	54.1	0.0	0.0	0.0	31500	704
	T2	Priaxor	233	21.2	54.3	0.0	0.0	0.0	31875	720
	T2	UTC	229	21.1	54.6	0.0	0.0	0.0	33125	708
	T3	Priaxor	232	21.5	54.3	0.0	0.0	0.0	32500	719
	T3	UTC	222	21.3	54.5	0.0	0.0	0.0	33375	687
	T4	Priaxor	222	21.7	54.5	0.0	0.0	0.0	30625	684
	T4	UTC	220	21.3	53.7	0.0	0.0	0.0	32000	679

continue

Table:1617- 01 .Tillage in Corn and Soybean Production Systems - Corn
 (continued) **Arlington, WI - 2016.**

Rotation	Tillage	Fungicide	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest density plants/A	AGI \$3.44/bu \$/A
						Total %	Root %	Stalk %		
CC	NT	Priaxor	200	22.3	53.2	0.0	0.0	0.0	29000	614
CC	NT	UTC	202	22.0	53.7	0.0	0.0	0.0	29750	622
CC	RT	Priaxor	206	21.9	53.6	0.0	0.0	0.0	31750	634
CC	RT	UTC	207	21.8	53.2	0.0	0.0	0.0	31000	640
CC	T1	Priaxor	224	21.5	54.3	0.0	0.0	0.0	33000	693
CC	T1	UTC	226	21.4	54.1	0.0	0.0	0.0	30500	698
CC	T2	Priaxor	227	21.6	54.6	0.0	0.0	0.0	31750	702
CC	T2	UTC	223	21.3	55.1	0.0	0.0	0.0	32750	691
CC	T3	Priaxor	224	22.0	54.3	0.0	0.0	0.0	32000	690
CC	T3	UTC	224	21.7	54.9	0.0	0.0	0.0	33250	691
CC	T4	Priaxor	212	22.1	54.4	0.0	0.0	0.0	29500	652
CC	T4	UTC	214	21.7	53.4	0.0	0.0	0.0	32500	660
SC	NT	Priaxor	198	21.4	53.2	1.5	1.5	0.0	32500	613
SC	NT	UTC	213	21.4	52.8	0.0	0.0	0.0	33250	659
SC	RT	Priaxor	220	21.3	53.5	0.8	0.0	0.8	32250	680
SC	RT	UTC	199	21.3	53.4	0.0	0.0	0.0	31500	617
SC	T1	Priaxor	235	20.6	54.5	0.0	0.0	0.0	33000	730
SC	T1	UTC	229	20.7	54.2	0.0	0.0	0.0	32500	711
SC	T2	Priaxor	238	20.9	53.9	0.0	0.0	0.0	32000	738
SC	T2	UTC	234	21.0	54.2	0.0	0.0	0.0	33500	725
SC	T3	Priaxor	241	21.0	54.3	0.0	0.0	0.0	33000	747
SC	T3	UTC	220	20.9	54.2	0.0	0.0	0.0	33500	682
SC	T4	Priaxor	231	21.3	54.6	0.0	0.0	0.0	31750	716
SC	T4	UTC	226	21.0	53.9	0.0	0.0	0.0	31500	699
Mean			220	21.4	54.0	0.1	0.1	0.0	31958	679
Probability (%)										
Rotation (R)			59.8	6.4	72.3	14.4	18.2	39.1	14.0	55.0
Tillage (T)			0.0	0.5	0.3	14.0	2.6	43.5	27.0	0.0
Fungicide (F)			29.4	5.3	59.3	5.7	9.2	32.4	31.7	33.2
R x T			87.0	84.9	57.3	14.0	2.6	43.5	48.4	87.2
R x F			22.3	13.8	60.8	5.7	9.2	32.4	70.6	20.9
T x F			55.7	83.3	53.5	13.5	2.3	43.2	8.3	55.4
R x T x F			57.7	98.0	93.4	13.5	2.3	43.2	34.9	59.8
LSD (0.10)										
Rotation (R)			NS	0.6	NS	NS	NS	NS	NS	NS
Tillage (T)			9	0.3	0.6	NS	0.2	NS	NS	28
Fungicide (F)			NS	0	NS	0.2	0.1	NS	NS	NS
R x T			NS	NS	NS	NS	0.3	NS	NS	NS
R x F			NS	NS	NS	0	0.2	NS	NS	NS
T x F			NS	NS	NS	NS	0.3	NS	1719	NS
R x T x F			NS	NS	NS	NS	0.4	NS	NS	NS

*AGI - Adjusted Gross Income

T2 and T3 were similar as well as T4 and T5 in 2016

**Table:1617- 02 .Tillage, Rotation and Planting Density
in Corn and Soybean - Soybean Arlington, WI - 2016.**

Tillage treatment	Fungicide	Yield bu/A	Moisture %	*AGI \$8.48/bu \$/A
NT		72	13.9	589
RT		59	13.7	488
T1		72	13.8	597
T2		68	13.9	563
T3		73	13.9	597
T4		68	13.8	559
	Priaxor	70	13.8	577
	UTC	67	13.8	554
NT	Priaxor	70	13.9	578
NT	UTC	73	13.9	600
RT	Priaxor	64	13.8	524
RT	UTC	55	13.7	452
T1	Priaxor	77	13.8	631
T1	UTC	68	13.8	563
T2	Priaxor	68	13.8	557
T2	UTC	69	14.0	569
T3	Priaxor	74	13.9	605
T3	UTC	72	13.9	589
T4	Priaxor	69	13.7	568
T4	UTC	67	13.9	550
Mean		69	13.8	566
Probability(%)				
Tillage (T)		0.0	48.9	0.0
Fungicide (F)		2.7	45.2	2.7
T x F		4.9	85.4	4.9
LSD(0.10)				
Tillage (T)		4	NS	30
Fungicide (F)		2	NS	17
T x F		5	NS	42

*AGI - Adjusted Gross Income

In 2016, for Reps 1 and 3, T1/T2 was applied to T3/T4; and T3/T4 to T1/T2.