

FIELD EXPERIMENT HISTORY

Title: Corn - Soybean Response to Tillage and Rotation - Seed Treatments
Experiment: 09Rotation **Trial ID:** 5752 **Year:** 2013
Personnel: J.G. Lauer, S. Conley, T. Diallo, K.D. Kohn,
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: 334 **Previous Crop:** See factors **Soil Type:** Silt Loam
Soil Test Date: 11/4 /13 **pH** 6.7 **OM (%)** 3.2 **P (ppm)** 16 **K (ppm)** 102

Plot Management

Tillage Operations: Field Cultivator Soil Finisher

	<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	190	6 /20/13
Manure:	N/A	N/A	N/A
Herbicide: Dual II-Magnum 24 oz/A on 4/29/13 Roundup Pmax 28 oz/A on 7/02/13		Insecticide: See Seed Treatments	
Irrigation: None		Hybrid: Corn: Syngenta N61P-3000GT Soybean: Syngenta S20Y2	
Planting Date: Corn: 5/2/13 Soybean: 5/4/13		Row Width: 30"	
Target Plant Density: Corn: 32500 Plants/A Soybean: 150000 Plants/A		Planting Depth: C: 1.5" S: 1"	
Harvest Date: Corn: 10/29/13 Soybean: 10/06/13		Planting Method: JD 1700 Planter w/ RTK	
Notes:		Harvest Method: C: Kincaid plot combine S: Almaco plot combine #2	

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:

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

Seed Treatments

- Corn & Soybean:
 1- UTC
 2- Avicta
 3-Poncho+Votivo

Results: Tables 1309-09 & 1309-10

**Table 1309-09. Corn/Soybean Rotation and Tillage Study - Corn.
Arlington, WI - 2013.**

Tillage	Rotation	Seed		Yield	Moisture	Test	Lodged			Harvest	Return
		Treatment					bu/A	%	lbs/bu		
							%	%	%	plants/A	\$/A
Conv				198	25.2	46.9	0.4	0.2	0.2	33730	714
Notill				190	31.0	46.8	0.2	0.1	0.1	32391	664
	1C			206	27.1	47.4	0.5	0.5	0.0	32091	737
	1CC			181	26.6	46.8	0.0	0.0	0.0	32749	649
	1CS			211	26.6	47.1	0.2	0.0	0.2	32458	757
	2C			209	29.9	47.2	0.4	0.2	0.1	33917	736
	3C			180	28.0	46.8	0.1	0.0	0.1	33333	639
	4C			187	30.6	46.8	0.3	0.3	0.0	33625	656
	5C			182	27.9	45.6	0.5	0.0	0.5	33250	650
		Avicta		196	27.8	46.8	0.4	0.2	0.2	33242	699
		Poncho+Votivo		192	28.2	47.1	0.4	0.3	0.1	33749	682
		UTC		193	28.3	46.7	0.1	0.0	0.1	32191	686
Conv	1C			201	24.8	47.3	0.8	0.8	0.0	33822	727
Conv	1CC			183	23.5	46.7	0.0	0.0	0.0	33290	669
Conv	1CS			210	24.6	47.4	0.0	0.0	0.0	34500	760
Conv	2C			223	28.2	47.5	0.5	0.2	0.3	34250	794
Conv	3C			179	23.6	47.0	0.0	0.0	0.0	33583	653
Conv	4C			190	26.1	46.9	0.5	0.5	0.0	33500	682
Conv	5C			198	25.3	45.7	1.0	0.0	1.0	33167	715
Notill	1C			211	29.4	47.5	0.2	0.2	0.0	30359	746
Notill	1CC			179	29.7	47.0	0.0	0.0	0.0	32208	629
Notill	1CS			212	28.5	46.9	0.5	0.0	0.5	30417	754
Notill	2C			194	31.7	46.9	0.2	0.2	0.0	33583	677
Notill	3C			180	32.4	46.7	0.2	0.0	0.2	33083	626
Notill	4C			185	35.2	46.8	0.0	0.0	0.0	33750	631
Notill	5C			167	30.5	45.6	0.0	0.0	0.0	33333	584
Conv		Avicta		200	25.0	46.8	0.7	0.3	0.4	34065	723
Conv		Poncho+Votivo		193	25.1	47.2	0.3	0.3	0.0	33858	699
Conv		UTC		200	25.3	46.8	0.1	0.0	0.1	33268	721
Notill		Avicta		192	30.7	46.7	0.0	0.0	0.0	32418	675
Notill		Poncho+Votivo		190	31.2	47.0	0.4	0.2	0.2	33640	665
Notill		UTC		187	31.3	46.5	0.1	0.0	0.1	31114	652
	1C	Avicta		204	27.0	47.4	0.3	0.3	0.0	32457	731
	1C	Poncho+Votivo		206	27.0	47.6	1.2	1.2	0.0	31757	736
	1C	UTC		208	27.4	47.3	0.0	0.0	0.0	32057	743

continue

Table 1309-09. Corn/Soybean Rotation and Tillage Study - Corn.(continued) **Arlington, WI - 2013.**

Tillage	Rotation	Seed	Yield	Moisture	Test	Lodged			Harvest	Return
		Treatment				weight	Total	Stalk		
			bu/A	%	lbs/bu	%	%	%	plants/A	\$/A
	1CC	Avicta	177	26.3	46.0	0.0	0.0	0.0	32360	636
	1CC	Poncho+Votivo	186	26.2	48.1	0.0	0.0	0.0	33860	667
	1CC	UTC	180	27.1	46.4	0.0	0.0	0.0	32027	645
	1CS	Avicta	217	26.7	47.2	0.0	0.0	0.0	32500	777
	1CS	Poncho+Votivo	208	26.6	47.4	0.7	0.0	0.7	33125	747
	1CS	UTC	208	26.5	46.8	0.0	0.0	0.0	31750	747
	2C	Avicta	209	29.1	47.2	0.0	0.0	0.0	33500	739
	2C	Poncho+Votivo	206	30.7	47.1	0.7	0.7	0.0	35500	722
	2C	UTC	212	30.0	47.2	0.4	0.0	0.4	32750	746
	3C	Avicta	186	28.1	46.5	0.0	0.0	0.0	34375	660
	3C	Poncho+Votivo	174	28.4	47.3	0.0	0.0	0.0	34750	617
	3C	UTC	180	27.5	46.7	0.3	0.0	0.3	30875	642
	4C	Avicta	194	29.8	47.2	0.8	0.8	0.0	33625	683
	4C	Poncho+Votivo	184	30.8	46.9	0.0	0.0	0.0	33625	643
	4C	UTC	184	31.2	46.4	0.0	0.0	0.0	33625	643
	5C	Avicta	187	27.8	45.8	1.5	0.0	1.5	33875	668
	5C	Poncho+Votivo	180	27.4	45.2	0.0	0.0	0.0	33625	644
	5C	UTC	179	28.6	45.8	0.0	0.0	0.0	32250	637
Conv	1C	Avicta	199	25.3	47.2	0.6	0.6	0.0	34222	716
Conv	1C	Poncho+Votivo	201	24.5	47.3	1.7	1.7	0.0	34022	730
Conv	1C	UTC	203	24.7	47.3	0.0	0.0	0.0	33222	735
Conv	1CC	Avicta	179	23.4	45.7	0.0	0.0	0.0	32734	655
Conv	1CC	Poncho+Votivo	182	23.3	48.2	0.0	0.0	0.0	32734	667
Conv	1CC	UTC	188	23.7	46.3	0.0	0.0	0.0	34401	685
Conv	1CS	Avicta	219	24.3	47.6	0.0	0.0	0.0	35250	797
Conv	1CS	Poncho+Votivo	203	25.8	47.8	0.0	0.0	0.0	33000	731
Conv	1CS	UTC	206	23.8	46.8	0.0	0.0	0.0	35250	751
Conv	2C	Avicta	220	27.2	47.5	0.0	0.0	0.0	34250	788
Conv	2C	Poncho+Votivo	215	28.7	47.3	0.7	0.7	0.0	35500	763
Conv	2C	UTC	234	28.6	47.6	0.8	0.0	0.8	33000	830
Conv	3C	Avicta	186	23.6	46.4	0.0	0.0	0.0	34500	677
Conv	3C	Poncho+Votivo	169	23.5	47.8	0.0	0.0	0.0	34500	615
Conv	3C	UTC	183	23.7	46.8	0.0	0.0	0.0	31750	668
Conv	4C	Avicta	195	25.2	47.2	1.5	1.5	0.0	33500	705
Conv	4C	Poncho+Votivo	188	26.2	46.9	0.0	0.0	0.0	34000	673
Conv	4C	UTC	186	26.7	46.5	0.0	0.0	0.0	33000	667
Conv	5C	Avicta	201	25.9	46.0	2.9	0.0	2.9	34000	723
Conv	5C	Poncho+Votivo	196	23.9	44.9	0.0	0.0	0.0	33250	713
Conv	5C	UTC	197	26.1	46.2	0.0	0.0	0.0	32250	710

continue

Table 1309-09. Corn/Soybean Rotation and Tillage Study - Corn.(continued) **Arlington, WI - 2013.**

Tillage	Rotation	Seed Treatment	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest density plants/A	Return \$4.04/bu \$/A
						Total %	Stalk %	Root %		
Notill	1C	Avicta	210	28.7	47.7	0.0	0.0	0.0	30692	745
Notill	1C	Poncho+Votivo	210	29.6	47.8	0.7	0.7	0.0	29492	741
Notill	1C	UTC	214	30.0	47.2	0.0	0.0	0.0	30892	752
Notill	1CC	Avicta	175	29.2	46.3	0.0	0.0	0.0	31986	616
Notill	1CC	Poncho+Votivo	189	29.2	48.1	0.0	0.0	0.0	34986	667
Notill	1CC	UTC	173	30.5	46.5	0.0	0.0	0.0	29653	605
Notill	1CS	Avicta	214	29.0	46.8	0.0	0.0	0.0	29750	756
Notill	1CS	Poncho+Votivo	213	27.3	46.9	1.4	0.0	1.4	33250	762
Notill	1CS	UTC	210	29.2	46.8	0.0	0.0	0.0	28250	743
Notill	2C	Avicta	197	31.0	47.0	0.0	0.0	0.0	32750	689
Notill	2C	Poncho+Votivo	196	32.6	47.0	0.7	0.7	0.0	35500	681
Notill	2C	UTC	190	31.4	46.8	0.0	0.0	0.0	32500	662
Notill	3C	Avicta	186	32.5	46.7	0.0	0.0	0.0	34250	644
Notill	3C	Poncho+Votivo	179	33.3	46.8	0.0	0.0	0.0	35000	618
Notill	3C	UTC	176	31.2	46.6	0.7	0.0	0.7	30000	615
Notill	4C	Avicta	192	34.4	47.1	0.0	0.0	0.0	33750	661
Notill	4C	Poncho+Votivo	179	35.4	46.9	0.0	0.0	0.0	33250	613
Notill	4C	UTC	182	35.8	46.4	0.0	0.0	0.0	34250	620
Notill	5C	Avicta	174	29.7	45.6	0.0	0.0	0.0	33750	613
Notill	5C	Poncho+Votivo	165	30.8	45.6	0.0	0.0	0.0	34000	575
Notill	5C	UTC	162	31.1	45.5	0.0	0.0	0.0	32250	564
Mean	Mean		194	28.1	46.8	0.3	0.1	0.1	33060	689
Probability(%)										
Tillage (T)			16.6	0.5	45.4	33.1	26.2	67.8	39.6	4.3
Rotation (R)			0.0	6.3	0.0	81.3	9.6	66.9	94.9	0.0
Seed Treatment(ST)			12	35.8	8.0	46.1	15.3	82.5	4	10.1
T x R			7.4	34.9	85.2	48.5	54.3	37.5	82.5	3.3
T x ST			7.4	86.9	91.0	21.7	54.0	29.2	26.1	9.3
T x R x ST			66.8	56.4	92.5	69.0	83.6	48.7	67.6	70.9
R x ST			41.7	86.6	12.3	27.0	8.2	33.5	83.0	45.4
LSD(0.10)										
Tillage (T)			NS	1.9	NS	NS	NS	NS	NS	35
Rotation (R)			13	2.6	0.6	NS	0.4	NS	NS	42
Seed Treatment(ST)			NS	NS	0.3	NS	NS	NS	1010	NS
T x R			19	NS	NS	NS	NS	NS	NS	60
T x ST			7	NS	NS	NS	NS	NS	NS	25
T x R x ST			NS	NS	NS	NS	NS	NS	NS	NS
R x ST			NS	NS	NS	NS	0.6	NS	NS	NS

**Table 1309-10. Corn and Soybean Rotation Study - Soybean
Arlington, WI-2013**

Tillage	Rotation		Seed Treatment	Grain Yield bu/a
	Name	#		
			CMA,VIB	60.2
			CMA,VIB,AV	59.7
			APR,MAX,VIB,P/V	57.7
	5th year SB	2		55.3
	4th year SB	3		58.5
	3rd year SB	4		53.9
	2nd year SB	5		63.1
	1st year SB	6		67.7
	S/C rotation	13		64.4
	Continuous SB	14		51.3
	5th year SB	2	CMA,VIB	57.6
	5th year SB	2	CMA,VIB,AV	54.8
	5th year SB	2	APR,MAX,VIB,P/V	53.4
	4th year SB	3	CMA,VIB	60.7
	4th year SB	3	CMA,VIB,AV	58.9
	4th year SB	3	APR,MAX,VIB,P/V	56.0
	3rd year SB	4	CMA,VIB	54.3
	3rd year SB	4	CMA,VIB,AV	54.4
	3rd year SB	4	APR,MAX,VIB,P/V	53.1
	2nd year SB	5	CMA,VIB	63.0
	2nd year SB	5	CMA,VIB,AV	64.4
	2nd year SB	5	APR,MAX,VIB,P/V	61.9
	1st year SB	6	CMA,VIB	67.3
	1st year SB	6	CMA,VIB,AV	70.1
	1st year SB	6	APR,MAX,VIB,P/V	65.6
	S/C rotation	13	CMA,VIB	66.8
	S/C rotation	13	CMA,VIB,AV	64.3
	S/C rotation	13	APR,MAX,VIB,P/V	62.1
	Continuous SB	14	CMA,VIB	51.6
	Continuous SB	14	CMA,VIB,AV	50.6
	Continuous SB	14	APR,MAX,VIB,P/V	51.6
Notill				58.8
Conventional				59.6
Notill			CMA,VIB	59.6
Notill			CMA,VIB,AV	59.5
Notill			APR,MAX,VIB,P/V	57.3
Conventional			CMA,VIB	60.8
Conventional			CMA,VIB,AV	59.8
Conventional			APR,MAX,VIB,P/V	58.1
Notill	5th year SB	2		56.6
Notill	4th year SB	3		55.9
Notill	3rd year SB	4		52.3
Notill	2nd year SB	5		62.8

continued

**Table 1309-10. Corn and Soybean Rotation Study - Soybean
Arlington, WI-2013**

Tillage	Rotation		Seed Treatment	Grain Yield bu/a
	Name	#		
Notill	1st year SB	6		67.2
Notill	S/C rotation	13		64.3
Notill	Continuous SB	14		52.4
Conventional	5th year SB	2		53.9
Conventional	4th year SB	3		61.1
Conventional	3rd year SB	4		55.6
Conventional	2nd year SB	5		63.4
Conventional	1st year SB	6		68.1
Conventional	S/C rotation	13		64.6
Conventional	Continuous SB	14		50.2
Notill	5th year SB	2	CMA,VIB	57.8
Notill	5th year SB	2	CMA,VIB,AV	55.3
Notill	5th year SB	2	APR,MAX,VIB,P/V	56.7
Notill	4th year SB	3	CMA,VIB	58.3
Notill	4th year SB	3	CMA,VIB,AV	56.9
Notill	4th year SB	3	APR,MAX,VIB,P/V	52.7
Notill	3rd year SB	4	CMA,VIB	52.3
Notill	3rd year SB	4	CMA,VIB,AV	54.7
Notill	3rd year SB	4	APR,MAX,VIB,P/V	49.7
Notill	2nd year SB	5	CMA,VIB	62.0
Notill	2nd year SB	5	CMA,VIB,AV	64.7
Notill	2nd year SB	5	APR,MAX,VIB,P/V	61.9
Notill	1st year SB	6	CMA,VIB	66.9
Notill	1st year SB	6	CMA,VIB,AV	70.1
Notill	1st year SB	6	APR,MAX,VIB,P/V	64.7
Notill	S/C rotation	13	CMA,VIB	67.2
Notill	S/C rotation	13	CMA,VIB,AV	63.5
Notill	S/C rotation	13	APR,MAX,VIB,P/V	62.0
Notill	Continuous SB	14	CMA,VIB	52.7
Notill	Continuous SB	14	CMA,VIB,AV	51.5
Notill	Continuous SB	14	APR,MAX,VIB,P/V	53.1
Conventional	5th year SB	2	CMA,VIB	57.5
Conventional	5th year SB	2	CMA,VIB,AV	54.2
Conventional	5th year SB	2	APR,MAX,VIB,P/V	50.1
Conventional	4th year SB	3	CMA,VIB	63.1
Conventional	4th year SB	3	CMA,VIB,AV	60.9
Conventional	4th year SB	3	APR,MAX,VIB,P/V	59.3
Conventional	3rd year SB	4	CMA,VIB	56.2
Conventional	3rd year SB	4	CMA,VIB,AV	54.0
Conventional	3rd year SB	4	APR,MAX,VIB,P/V	56.5
Conventional	2nd year SB	5	CMA,VIB	64.1
Conventional	2nd year SB	5	CMA,VIB,AV	64.2
Conventional	2nd year SB	5	APR,MAX,VIB,P/V	61.8
Conventional	1st year SB	6	CMA,VIB	67.7
Conventional	1st year SB	6	CMA,VIB,AV	70.2
Conventional	1st year SB	6	APR,MAX,VIB,P/V	66.5

continued

**Table 1309-10. Corn and Soybean Rotation Study - Soybean
Arlington, WI-2013**

Tillage	Rotation		Seed Treatment	Grain Yield bu/a
	Name	#		
Conventional	S/C rotation	13	CMA,VIB	66.3
Conventional	S/C rotation	13	CMA,VIB,AV	65.2
Conventional	S/C rotation	13	APR,MAX,VIB,P/V	62.2
Conventional	Continuous SB	14	CMA,VIB	50.6
Conventional	Continuous SB	14	CMA,VIB,AV	49.8
Conventional	Continuous SB	14	APR,MAX,VIB,P/V	50.2
Means				59.2
Probability (Pr>F) %				
Tillage (T)				0.1102
Rotation (R)				<0.0001
T x R				0.8122
Seed Treatment (ST)				0.0032
T x ST				0.8136
R x ST				0.5160
T x R x ST				0.7896
LSD 10%				
Tillage (T)				NS
Rotation (R)				4.8
T x R				NS
Seed Treatment (ST)				1.3
T x ST				NS
R x ST				NS
CV %				7
CMA - Cruiser Maxx Advanced			APR - Apron XL	
VIB - Vibrance			MAX - Maxim	
AV - Avicta 500			P/V - Poncho/Votivo	