

FIELD EXPERIMENT HISTORY

Title: Corn - Soybean Response to Tillage and Rotation - Nematicide
Experiment: 09CS **Trial ID:** 5949 **Year:** 2015
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: 11/4 /13 **pH:** 6.7 **OM (%)** 3.2 **P (ppm)** 13 **K (ppm)** 102

Plot Management

Tillage Operations: Field Cultivator (CT) 2X

	<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: 190 CS: 160	6/17/15 6/17/15
Manure:	N/A	N/A	N/A
Herbicide:	Radar LV 16 oz/A 4/28/15 Roundup PowerMax 22 oz/A 4/28/15 Medal II EC 24 oz/A 4/28/15 Durango DMA 22 oz/A 6/17/15	Insecticide:	See Seed Treatments
Irrigation:	No	Hybrid:	C: Syngenta N61P-3000GT S: Syngenta S20Y2
Planting Date:	5/12/15	Row Width:	30"
Target Plant Density:	Corn: 32500 Plants/A Soybean: 150000 Plants/A	Planting Depth:	1.5"
Harvest Date:	10/27/15	Planting Method:	JD 1700 with RTK
Notes:		Harvest Method:	MF 8XP plot combine

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: 2015 Treatments

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

Nematicide

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

Table 1509-07. Corn/Soybean Rotation and Tillage Study - Corn.
Arlington, WI - 2015.

Tillage	Rotation	Seed Treatment	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest density plants/A	AGI \$3.44/bu \$/A
						Total %	Stalk %	Root %		
Conv			213	24.1	56.5	2	0	2	30726	646
Notill			175	27.1	54.7	0	0	0	28732	524
	1C		240	23.7	57.1	2	0	2	32604	734
	2C		184	25.6	55.2	2	2	0	28333	554
	3C		173	26.7	54.9	0	0	0	28792	518
	4C		171	26.7	54.9	1	0	1	27917	512
	5C		173	26.1	55.0	2	0	1	27917	520
	CS		231	24.2	57.1	0	0	0	32708	556
	CC		185	25.9	54.9	1	0	1	29833	701
		Avicta	193	25.8	55.6	2	0	1	29219	581
		Poncho+Votivo	196	25.4	55.7	0	0	0	30321	592
		UTC	193	25.6	55.5	1	1	1	29647	581
Conv	1C		240	23.0	57.7	5	0	5	33250	734
Conv	2C		209	24.3	56.3	3	3	0	28167	633
Conv	3C		195	24.8	55.8	0	0	0	30000	588
Conv	4C		206	24.8	55.8	2	0	2	29167	622
Conv	5C		203	24.3	55.9	3	0	3	29750	615
Conv	CS		231	23.3	58.4	0	0	0	32667	625
Conv	CC		206	24.3	55.6	1	0	1	32083	704
Notill	1C		241	24.5	56.4	0	0	0	31959	734
Notill	2C		159	27.0	54.2	1	1	0	28500	474
Notill	3C		152	28.7	53.9	0	0	0	27583	448
Notill	4C		137	28.7	53.9	0	0	0	26667	402
Notill	5C		143	28.0	54.2	0	0	0	26083	424
Notill	CS		231	25.0	55.8	0	0	0	32750	488
Notill	CC		164	27.5	54.2	0	0	0	27583	698
Conv		Avicta	214	24.3	56.7	3	0	3	30821	649
Conv		Poncho+Votivo	215	23.9	56.6	1	0	0	30500	653
Conv		UTC	209	24.2	56.1	2	1	1	30857	636
Notill		Avicta	172	27.3	54.5	0	0	0	27616	514
Notill		Poncho+Votivo	178	27.0	54.7	0	0	0	30143	532
Notill		UTC	176	27.0	54.8	0	0	0	28437	527
	1C	Avicta	235	24.1	57.2	5	0	5	31657	718
	1C	Poncho+Votivo	243	23.7	56.9	1	0	1	33000	741
	1C	UTC	243	23.4	57.1	1	0	1	33156	742

continue

Table 1509-07. Corn/Soybean Rotation and Tillage Study - Corn.

(continued)

Arlington, WI - 2015.

Tillage	Rotation	Seed Treatment	Yield bu/A	Moisture %	Test weight lbs/bu	Total %	Lodged		Harvest density plants/A	AGI \$3.44/bu \$/A
							Stalk %	Root %		
	2C	Avicta	180	25.8	54.9	1	1	0	26250	540
	2C	Poncho+Votivo	183	26.0	55.0	1	1	0	30000	551
	2C	UTC	189	25.1	55.9	4	3	0	28750	571
	3C	Avicta	171	26.7	55.1	0	0	0	27500	512
	3C	Poncho+Votivo	177	26.8	54.8	0	0	0	29250	528
	3C	UTC	172	26.8	54.7	0	0	0	29625	515
	4C	Avicta	171	26.9	54.5	1	0	1	29000	511
	4C	Poncho+Votivo	179	26.7	55.5	0	0	0	28500	538
	4C	UTC	163	26.6	54.6	1	0	1	26250	488
	5C	Avicta	177	27.1	53.9	2	0	2	28875	527
	5C	Poncho+Votivo	175	25.2	55.6	0	0	0	28375	528
	5C	UTC	168	26.1	55.6	3	1	2	26500	504
	CS	Avicta	232	23.7	58.7	0	0	0	32125	554
	CS	Poncho+Votivo	233	23.8	56.9	0	0	0	32875	551
	CS	UTC	227	24.9	55.6	0	0	0	33125	564
	CC	Avicta	184	26.0	55.1	1	0	1	29125	708
	CC	Poncho+Votivo	183	25.8	55.0	0	0	0	30250	710
	CC	UTC	188	26.0	54.7	1	0	1	30125	685
Conv	1C	Avicta	237	23.2	57.9	10	0	10	32250	724
Conv	1C	Poncho+Votivo	240	22.8	57.7	2	0	2	32750	737
Conv	1C	UTC	242	23.1	57.5	1	0	1	34750	740
Conv	2C	Avicta	210	24.4	55.9	0	0	0	27500	636
Conv	2C	Poncho+Votivo	209	24.7	55.8	1	1	0	28750	632
Conv	2C	UTC	207	23.7	57.1	8	7	1	28250	631
Conv	3C	Avicta	193	24.5	56.6	1	0	1	28250	585
Conv	3C	Poncho+Votivo	192	25.1	55.6	0	0	0	31250	578
Conv	3C	UTC	199	24.9	55.3	0	0	0	30500	602
Conv	4C	Avicta	209	25.2	55.4	3	1	2	30750	629
Conv	4C	Poncho+Votivo	219	24.2	56.7	1	0	1	28250	665
Conv	4C	UTC	189	24.9	55.5	2	0	2	28500	572
Conv	5C	Avicta	205	25.5	54.3	4	0	4	31750	617
Conv	5C	Poncho+Votivo	205	23.4	57.1	0	0	0	29250	625
Conv	5C	UTC	198	24.1	56.4	6	1	5	28250	603
Conv	CS	Avicta	235	22.9	60.9	0	0	0	32500	632
Conv	CS	Poncho+Votivo	233	23.0	58.1	0	0	0	32250	622
Conv	CS	UTC	224	24.0	56.1	0	0	0	33250	621
Conv	CC	Avicta	208	24.2	56.0	2	0	2	32750	720
Conv	CC	Poncho+Votivo	205	24.3	55.6	0	0	0	31000	712
Conv	CC	UTC	205	24.5	55.2	0	0	0	32500	681

continue

Table 1509-07. Corn/Soybean Rotation and Tillage Study - Corn.

(continued)

Arlington, WI - 2015.

Tillage	Rotation	Seed Treatment	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest density plants/A	AGI \$3.44/bu \$/A
						Total %	Stalk %	Root %		
Notill	1C	Avicta	234	24.9	56.5	0	0	0	31065	711
Notill	1C	Poncho+Votivo	246	24.7	56.2	0	0	0	33250	745
Notill	1C	UTC	243	23.8	56.7	1	0	1	31561	745
Notill	2C	Avicta	149	27.2	53.9	2	2	0	25000	444
Notill	2C	Poncho+Votivo	158	27.4	54.2	1	1	0	31250	469
Notill	2C	UTC	171	26.5	54.7	0	0	0	29250	510
Notill	3C	Avicta	149	28.9	53.6	0	0	0	26750	438
Notill	3C	Poncho+Votivo	162	28.5	54.1	0	0	0	27250	479
Notill	3C	UTC	145	28.6	54.1	0	0	0	28750	427
Notill	4C	Avicta	133	28.6	53.7	0	0	0	27250	393
Notill	4C	Poncho+Votivo	140	29.3	54.3	0	0	0	28750	410
Notill	4C	UTC	136	28.3	53.8	0	0	0	24000	403
Notill	5C	Avicta	148	28.8	53.4	0	0	0	26000	437
Notill	5C	Poncho+Votivo	145	27.1	54.1	0	0	0	27500	431
Notill	5C	UTC	137	28.1	54.9	0	0	0	24750	406
Notill	CS	Avicta	230	24.6	56.4	1	0	1	31750	476
Notill	CS	Poncho+Votivo	234	24.6	55.8	0	0	0	33500	480
Notill	CS	UTC	230	25.9	55.2	0	0	0	33000	507
Notill	CC	Avicta	161	27.8	54.1	0	0	0	25500	696
Notill	CC	Poncho+Votivo	161	27.3	54.4	0	0	0	29500	708
Notill	CC	UTC	171	27.5	54.2	1	0	1	27750	689
Mean			194	25.6	55.6	1.1	0.3	0.8	29729	585
<u>Probability(%)</u>										
Tillage (T)			0.3	0.0	0.4	12.9	39.0	17.2	7.4	0.2
Rotation (R)			0.0	0.0	0.0	23.9	12.5	11.5	0.1	0.0
Seed Treatment(ST)			21.9	27.2	70.8	7.0	50.8	1.6	23.0	21.4
T x R			0.0	0.2	76.4	27.4	77.6	11.5	53.5	0.0
T x ST			19.0	75.8	30.9	15.2	28.0	2.3	7.8	19.4
T x R x ST			39.6	88.8	71.5	3.6	33.9	4.5	91.1	43.8
R x ST			31.7	3.7	0.8	30.7	87.2	20.7	54.1	31.7
<u>LSD(0.10)</u>										
Tillage (T)			9	0.4	0.5	NS	NS	NS	1744	28
Rotation (R)			13	0.6	0.7	NS	NS	NS	2341	37
Seed Treatment(ST)			NS	NS	NS	1.0	NS	0.7	NS	NS
T x R			18	0.8	NS	NS	NS	NS	NS	53
T x ST			NS	NS	NS	NS	NS	1.3	1649	NS
T x R x ST			NS	NS	NS	3.9	NS	3.1	NS	NS
R x ST			NS	0.9	1.2	NS	NS	NS	NS	NS

**Table 1509-08. Corn/Soybean Rotation and Tillage Study - Soybean
Arlington, WI - 2015.**

Tillage	Rotation	Seed		Yield bu/A	Moisture %	AGI \$10.50/bu \$/A
		Treatment				
Conv				61	12.5	629
Notill				54	12.4	558
	1S			70	12.4	716
	2S			59	12.3	604
	3S			55	12.2	564
	4S			58	12.4	598
	5S			51	12.3	521
	SC			63	12.9	649
	SS			49	12.8	505
		Clariva		59	12.6	604
		Poncho+Votivo		57	12.6	584
		UTC		58	12.3	593
Conv	1S			71	12.4	730
Conv	2S			64	12.3	655
Conv	3S			60	12.7	612
Conv	4S			58	12.4	595
Conv	5S			53	12.2	541
Conv	SC			67	12.9	686
Conv	SS			57	12.7	587
Notill	1S			68	12.4	702
Notill	2S			54	12.3	553
Notill	3S			50	11.7	516
Notill	4S			59	12.4	602
Notill	5S			49	12.4	501
Notill	SC			60	12.9	611
Notill	SS			41	13.0	422
Conv		Clariva		63	12.5	643
Conv		Poncho+Votivo		60	12.5	612
Conv		UTC		62	12.5	634
Notill		Clariva		55	12.6	566
Notill		Poncho+Votivo		54	12.6	556
Notill		UTC		54	12.1	553
	1S	Clariva		70	12.5	720
	1S	Poncho+Votivo		68	12.3	696
	1S	UTC		71	12.3	733
	2S	Clariva		61	12.3	625
	2S	Poncho+Votivo		57	12.3	588
	2S	UTC		58	12.2	599
	3S	Clariva		59	12.6	608
	3S	Poncho+Votivo		52	12.9	538
	3S	UTC		53	11.1	546

**Table 1509-08. Corn/Soybean Rotation and Tillage Study - Soybean.
Arlington, WI - 2015.**

Tillage	Rotation	Seed	Yield bu/A	Moisture %	AGI
		Treatment			\$10.50/bu \$/A
	4S	Clariva	57	12.3	585
	4S	Poncho+Votivo	57	12.4	590
	4S	UTC	60	12.4	619
	5S	Clariva	52	12.3	536
	5S	Poncho+Votivo	52	12.3	536
	5S	UTC	48	12.2	491
	SC	Clariva	64	12.9	661
	SC	Poncho+Votivo	63	12.9	647
	SC	UTC	62	12.9	638
	SS	Clariva	48	12.9	495
	SS	Poncho+Votivo	48	12.8	492
	SS	UTC	51	12.8	527
Conv	1S	Clariva	70	12.5	723
Conv	1S	Poncho+Votivo	69	12.4	709
Conv	1S	UTC	74	12.4	760
Conv	2S	Clariva	66	12.4	679
Conv	2S	Poncho+Votivo	62	12.3	633
Conv	2S	UTC	64	12.2	653
Conv	3S	Clariva	62	12.6	639
Conv	3S	Poncho+Votivo	56	12.9	571
Conv	3S	UTC	61	12.7	625
Conv	4S	Clariva	58	12.3	597
Conv	4S	Poncho+Votivo	55	12.4	569
Conv	4S	UTC	60	12.5	618
Conv	5S	Clariva	54	12.3	557
Conv	5S	Poncho+Votivo	54	12.2	551
Conv	5S	UTC	50	12.2	515
Conv	SC	Clariva	70	12.9	717
Conv	SC	Poncho+Votivo	66	13.0	675
Conv	SC	UTC	65	12.9	666
Conv	SS	Clariva	57	12.8	588
Conv	SS	Poncho+Votivo	56	12.7	574
Conv	SS	UTC	58	12.6	601
Notill	1S	Clariva	70	12.5	718
Notill	1S	Poncho+Votivo	66	12.3	682
Notill	1S	UTC	69	12.3	706
Notill	2S	Clariva	56	12.3	571
Notill	2S	Poncho+Votivo	53	12.4	543
Notill	2S	UTC	53	12.1	545
Notill	3S	Clariva	56	12.6	576
Notill	3S	Poncho+Votivo	49	12.8	505
Notill	3S	UTC	46	9.6	467

**Table 1509-08. Corn/Soybean Rotation and Tillage Study - Soybean.
Arlington, WI - 2015.**

Tillage	Rotation	Seed		Yield bu/A	Moisture %	AGI
		Treatment				\$10.50/bu \$/A
Notill	4S	Clariva		56	12.4	573
Notill	4S	Poncho+Votivo		59	12.4	611
Notill	4S	UTC		60	12.3	621
Notill	5S	Clariva		50	12.4	515
Notill	5S	Poncho+Votivo		51	12.5	521
Notill	5S	UTC		46	12.3	467
Notill	SC	Clariva		59	12.9	606
Notill	SC	Poncho+Votivo		60	12.9	618
Notill	SC	UTC		59	12.9	610
Notill	SS	Clariva		39	13.0	402
Notill	SS	Poncho+Votivo		40	13.0	410
Notill	SS	UTC		44	13.0	453
Mean				58	12.5	594
Probability(%)						
Tillage (T)	MP			1.7	61.9	1.7
Rotation (R)	SP			0.0	20.6	0.0
Seed Treatme	SSP			14.6	30.3	14.6
T x R	MP*SP			7.1	52.3	7.1
T x ST	MP*SSP			44.2	41.4	44.2
T x R x ST	MP*SP*SSP			89.4	64.4	89.4
R x ST	SP*SSP			25.3	51.1	25.3
LSD(0.10)						
Tillage (T)	MP			3	NS	35
Rotation (R)	SP			5	NS	46
Seed Treatme	SSP			NS	NS	NS
T x R	MP*SP			6	NS	66
T x ST	MP*SSP			NS	NS	NS
T x R x ST	MP*SP*SSP			NS	NS	NS
R x ST	SP*SSP			NS	NS	NS

*AGI: Adjusted Gross Income

**Table:1509- 09 . Soil Organic and Nitrogen Total content in Corn/Soybean Rotation and Tillage Study.
Arlington, WI - 2015.**

Tillage	Rotation	Soil organic carbon @ 15 cm %	Soil organic carbon @ 30 cm %	Soil organic carbon @ 60 cm %	Soil total nitrogen @ 15 cm %	Soil total nitrogen @ 30 cm %	Soil total nitrogen @ 60 cm %
Conv		2.02	1.36	0.83	0.169	0.129	0.100
Notill		2.16	1.64	0.95	0.175	0.142	0.108
	1C	2.32	1.87	1.20	0.183	0.156	0.113
	1S	2.15	1.37	0.70	0.170	0.129	0.100
	2C	1.95	1.40	0.65	0.167	0.129	0.098
	2S	1.88	1.14	0.65	0.158	0.116	0.089
	3C	2.07	1.40	0.69	0.169	0.134	0.092
	3S	2.29	1.93	1.38	0.185	0.152	0.120
	4C	2.10	1.63	1.03	0.163	0.142	0.111
	4S	2.22	1.59	0.86	0.188	0.149	0.111
	5C	2.10	1.44	0.73	0.175	0.122	0.092
	5S	2.09	1.49	0.72	0.166	0.136	0.110
	CC	1.76	1.16	0.79	0.159	0.121	0.104
	CS	2.21	1.57	0.79	0.181	0.136	0.095
	SC	2.11	1.63	1.58	0.182	0.139	0.131
	SS	1.97	1.39	0.71	0.164	0.134	0.090
Conv	1C	2.24	1.69	1.03	0.178	0.144	0.108
Conv	1S	2.00	1.16	0.68	0.159	0.123	0.100
Conv	2C	1.95	1.39	0.63	0.161	0.128	0.090
Conv	2S	1.86	1.02	0.58	0.148	0.099	0.082
Conv	3C	1.94	1.16	0.62	0.169	0.121	0.092
Conv	3S	2.26	2.17	1.53	0.185	0.162	0.125
Conv	4C	2.07	1.59	0.99	0.155	0.145	0.098
Conv	4S	2.12	1.37	0.87	0.184	0.139	0.102
Conv	5C	1.94	1.22	0.64	0.171	0.116	0.097
Conv	5S	2.03	1.32	0.64	0.160	0.126	0.110
Conv	CC	1.77	0.92	0.58	0.164	0.108	0.095
Conv	CS	2.13	1.23	0.67	0.183	0.118	0.089
Conv	SC	1.99	1.45	1.48	0.173	0.133	0.126
Conv	SS	1.97	1.39	0.73	0.175	0.138	0.089

continue

Table:1509- 09 . Soil Organic and Nitrogen Total content in Corn/Soybean Rotation and Tillage Study.(continued) **Arlington, WI - 2015.**

Tillage	Rotation	Soil organic	Soil organic	Soil organic	Soil total	Soil total	Soil total
		carbon @ 15 cm %	carbon @ 30 cm %	carbon @ 60 cm %	nitrogen @ 15 cm %	nitrogen @ 30 cm %	nitrogen @ 60 cm %
Notill	1C	2.39	2.05	1.37	0.187	0.168	0.119
Notill	1S	2.29	1.57	0.71	0.181	0.136	0.100
Notill	2C	1.94	1.42	0.68	0.173	0.129	0.106
Notill	2S	1.91	1.27	0.71	0.168	0.134	0.095
Notill	3C	2.21	1.64	0.75	0.168	0.147	0.092
Notill	3S	2.32	1.70	1.23	0.184	0.142	0.115
Notill	4C	2.14	1.67	1.07	0.170	0.140	0.124
Notill	4S	2.32	1.82	0.84	0.191	0.158	0.120
Notill	5C	2.25	1.66	0.82	0.178	0.127	0.087
Notill	5S	2.15	1.67	0.81	0.172	0.146	0.110
Notill	CC	1.75	1.39	1.00	0.154	0.133	0.114
Notill	CS	2.30	1.91	0.90	0.178	0.154	0.101
Notill	SC	2.23	1.81	1.67	0.191	0.145	0.135
Notill	SS	1.98	1.38	0.68	0.154	0.130	0.090
Mean		2.09	1.50	0.89	0.172	0.135	0.104
Probability (%)							
Tillage (T)		12.5	7.4	40.4	45.3	17.4	44.7
Rotation (R)		1.2	5.0	5.6	1.1	15.8	34.8
T x R		98.8	71.6	100.0	59.3	74.5	99.8
LSD (0.10)							
Tillage (T)		NS	0.24	NS	NS	NS	NS
Rotation (R)		0.24	0.39	0.52	0.015	NS	NS
T x R		NS	NS	NS	NS	NS	NS