

FIELD EXPERIMENT HISTORY

Title: 17 Tillage in Corn and Soybean Production Systems
Experiment: 17 Tillage **Trial ID** 2499 **Year:** 2003
Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: ARS396 **Previous Crop:** Corn/Soybean **Soil Type:** Plano Silt Loam
Soil Test: **Date:**10/15/03 **pH** 6.2 **OM (%)** 3.1 **P (ppm)** 28 **K (ppm)** 107

Plot Management

Tillage Operations: See Factors

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Fertilizer:	Preplant : 34-0-0	CC - 906 lbs/A CS - 815 lbs/A	5 /13/03
	Starter : N/A	N/A	N/A
	Post plant : N/A	N/A	N/A
	Manure: N/A	N/A	N/A
Herbicide:	Gramox 2 pt/A 4/23 - All Roundup 1.5 qt/A 6/12/03 - All	Insecticide: Force @ 5.0 lb/A	
Irrigation:	None	Hybrid/Variety: Dekalb DKC5073 Dekalb DKB2351RR	
Planting Date: C: 5/13/03 S: 5/20/03		Row Width: 30"	
Planting Method: Kinze Inter-Row Planter		Planting Depth: C: 1.5" S: 0.75"	
Harvest Date: C: 10/2/03 S: 10/20/03		Harvest Method: C: Kincaid Plot Combine S: Almaco Plot Combine	

Experimental Design

Design: RCB Split Plot **Replications:** 4
Plot Size Seeded: 20' x 100' **Experiment Size:** 4.5 A
Harvest Plot Size: 5' x 100'

Factors/Treatments:

Rotation

Continuous Corn
 Corn / Soybean
 Soybean / Corn

Tillage for All Rotations

CP = Fall chisel plow and 2 spring field cultivator
 T1 = NT- Planter unit equipped with 1 13-wave coultter with trash whippers
 T2 = NT- Planter unit equipped with 1 13-wave coultter with trash whippers
 T3 = NT- Planter unit equipped with 1 13-wave coultter with trash whippers
 T4 = Spring chisel plow and 2 spring field cultivator
 NT = Planter unit equipped with 1 13-wave coultter with trash whippers

Results: Tables C-84 and C-85.

**Table C-84. Tillage in Corn and Soybean Production Systems - Corn.
Arlington, WI - 2003.**

Rotation	Tillage treatment	Residue cover	Yield	Moisture	Test weight	Lodged	Harvest population	Grower return
		%	bu/A	%	lbs/bu	%	plants/A	\$/A
	CP	14	141	23.1	52	1	32063	261
	NT	51	146	24.8	50	8	32875	265
	T1	55	138	23.5	51	4	32500	256
	T2	54	148	24.4	51	5	30813	271
	T3	52	153	25.2	51	4	31875	277
	T4	12	149	24.1	52	1	30188	273
CC		49	140	26.3	50	8	31063	251
CS		30	151	22.0	52	0	32375	283
CC	CP	20	139	24.5	52	2	31125	253
CC	NT	65	133	26.5	49	16	32500	237
CC	T1	68	133	26.8	49	7	31625	237
CC	T2	65	142	26.5	49	9	28750	253
CC	T3	61	155	28.0	50	9	31250	271
CC	T4	17	142	25.8	51	2	31125	255
CS	CP	8	144	21.6	53	0	33000	269
CS	NT	37	159	23.2	52	0	33250	293
CS	T1	42	143	20.3	52	0	33375	275
CS	T2	44	154	22.3	52	1	32875	288
CS	T3	44	151	22.3	52	0	32500	283
CS	T4	7	156	22.5	52	0	29250	292
Mean		40	146	24.2	51	4	31719	267
Probability(%)								
Rotation (R)		0.4	36.4	1.4	1.0	17.2	2.5	15.0
Tillage (T)		0.0	62.0	29.9	0.1	2.6	1.7	70.7
R x T		13.2	66.8	35.3	5.8	4.4	2.7	69.0
LSD (0.10)								
Rotation (R)		6	NS	1.9	1	NS	744	NS
Tillage (T)		7	NS	NS	1	4	1355	NS
R x T		NS	NS	NS	1	5	1916	NS
CV(%)								
		20	12	8	2	4	5	11

**Table C-85. Tillage in Corn and Soybean Production Systems - Soybean.
Arlington, WI - 2003.**

Rotation	Tillage treatment	Residue cover	Yield	Moisture	Grower return	Seed Composition		
						Oil	Protein	Fiber
		%	bu/A	%	\$/A	%	%	%
SC	CP	28	27	12.2	183	18.0	39.0	4.6
SC	NT	80	28	12.1	192	18.2	38.6	4.7
SC	T1	58	28	12.0	193	18.4	38.6	4.6
SC	T2	64	28	12.2	189	18.7	37.9	4.7
SC	T3	58	28	12.1	192	18.3	38.6	4.6
SC	T4	21	28	12.1	190	18.3	38.4	4.6
Mean		51	28	12.1	190	18.3	38.5	4.7
<u>Probability(%)</u>								
Tillage (T)		0.0	99.2	93.5	99.2	37.6	39.9	35.6
<u>LSD (0.10)</u>								
Tillage (T)		13	NS	NS	NS	NS	NS	NS
<u>CV(%)</u>								
		20	12	3	12	3	2	1