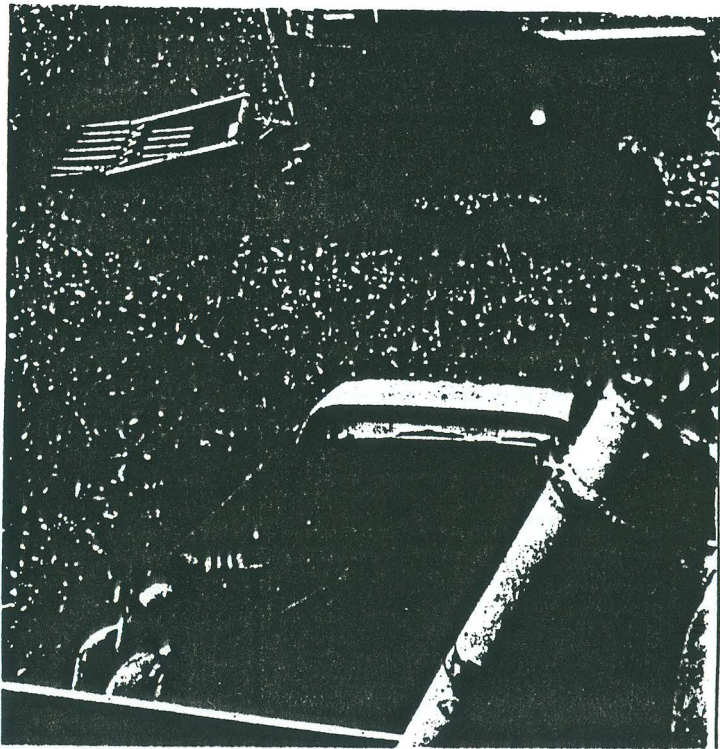


# MONTGOMERY CO. TILLAGE DEMONSTRATION PLOT REPORT 1986



PARAPLOW & PARATILLER DISTRIBUTOR  
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1986 UNIV OF MISSOURI EXTENSION SERVICE  
MONTGOMERY COUNTY  
MONTGOMERY CITY, MO

## MONTGOMERY COUNTY TILLAGE DEMONSTRATION PLOT

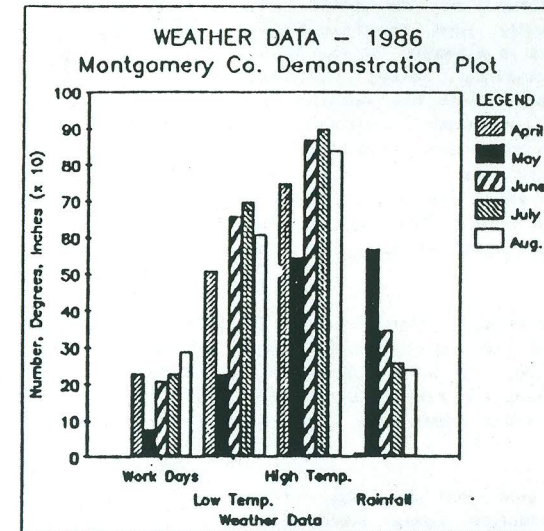
Report - 1986

This year the plot was planted to corn and soybeans. Treatments included various herbicide and short maturing corn treatments in addition to tillage. We had the worst variation between treatment replications this year than we have had in the entire history of the plot. In spite of this we hope you find the information useful.

Weather data, collected at the field by John Hoemann, is presented graphically in table 1. As you can see, May provided a problem. Work days are those in which farmers in the area were observed working the soil in their fields. The low number in May resulted from heavy rain and drizzle through most of the month. May also was cooler than normal. There were few days over 80 degrees.

The thunder storms in May also brought hail. Plant populations in those plots on the flatter parts of the field were reduced by the saturated soils and hail. Yields on these plots were reduced as much as 50%.

Figure 1 - WEATHER DATA



### RESULTS

At the first planting date the soil was extremely dry. The deep tillage treatments left the soil very coarse. We had to drag a harrow behind the Paraplow to get a suitable seedbed. Light tillage operations left the soil very loose after several passes. It did not rain until 8 days after planting. Soil conditions were much more ideal at the June planting date. Rain fell 2 days after planting.

Weed control was generally fair overall. Late season grasses appeared some of the corn. The early preplant application of herbicides in corn and soybeans, where the plot was not tilled, was generally poor. This may be a result of the extremely dry April. Weed control in the Evans soybeans was also poor. Most of that plot was located in the channel of the diversion terrace, which made wet soil conditions worse.



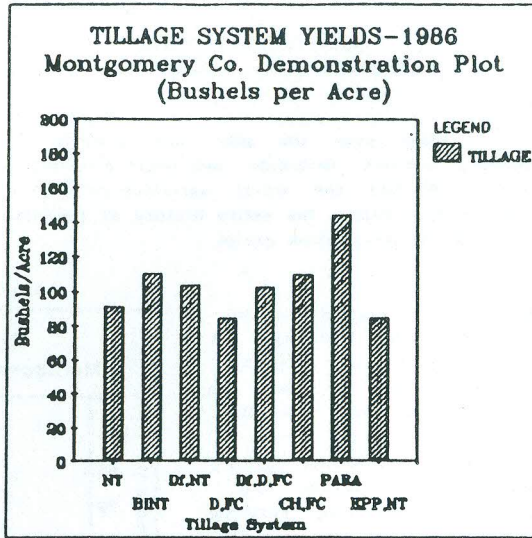


Figure 2 - TILLAGE SYSTEM YIELDS

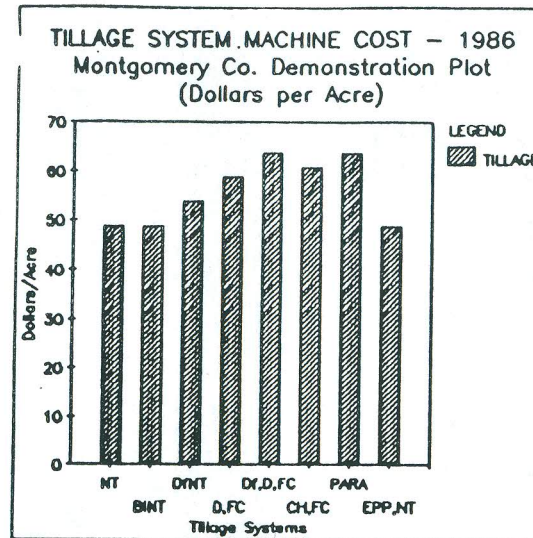


Figure 4 - MACHINE COSTS

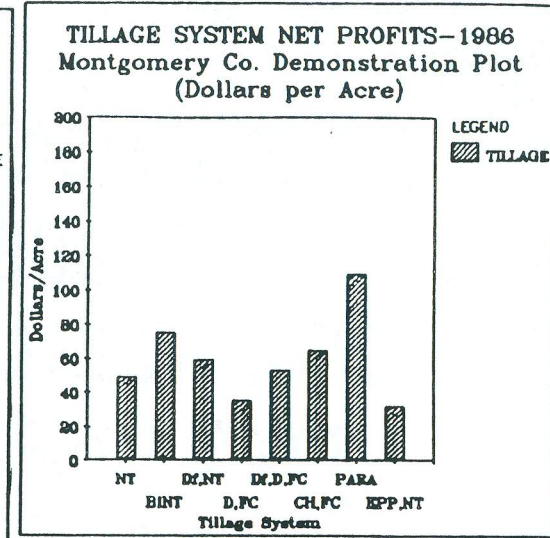


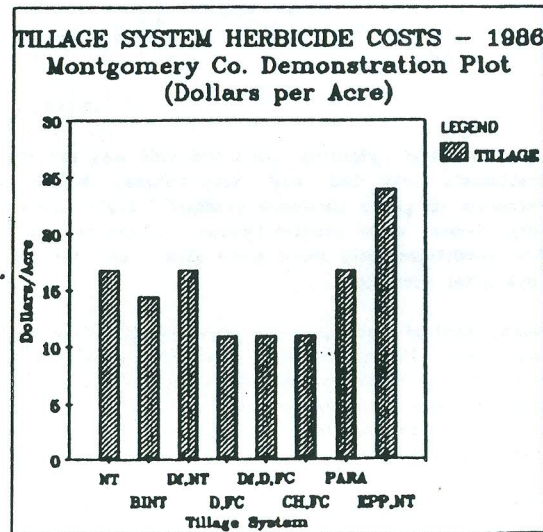
Figure 5 - NET PROFITS

The yield range between the corn replications averaged 63 Bu/Ac. This was the greatest variation we have had in the history of the plots. It usually runs about 16 Bu/Ac. This is a result of the plant population losses mentioned above. With this variation it is extremely difficult to attach much credibility to these data. The corn yields for each system are shown in figure two. The soybeans were not weighed at harvest.

The tillage systems used were: 1.) NT - No-till, 2.) BINT - No-till with Bladex used for weed burn down, 3.) Df,NT - Fall disking with No-tillage in the spring, 4.) D,FC - Disk and Field Cultivator, 5.) Df,D,FC - Fall Disking with Disking and Field Cultivator, 6.) CH,FC - Chisel plow and Field Cultivator, 7.) PARA - Paraplow, 8.) EPP,NT - Herbicides applied 21 days prior to No-till.

To give you an idea of how production costs compare for the tillage systems, we present herbicide and machine costs in figures 3 and 4. We used actual herbicide costs for each system. Machine costs were determined by adding custom charges for tillage to other none herbicide costs. The custom charges used were; No-till plant \$5, Disk \$5, Spray \$3, Chisel \$8, Field Cultivate \$5, Paraplow \$15. Each tillage system was also assessed for harvest, transportation, and drying of the crop. Figure 5 presents the net profit of each system. That is money left for land, interest, insurance, and other similar expenses.

Figure 3 - HERBICIDE COSTS



The data are presented for your review. We are in the process of evaluating the future plans for the demonstration plot. If you have any questions or suggestions, we would like to hear from you.

Tillage Demonstration Plot Committee:  
Eric & Randy Harness  
Gerry Witthaus & John Hoemann, R-II VoAg  
Larry Fischer, Soil Conservation Service  
Gary D. Hoette, Extension Agronomist

Note: A special "thank you" is extended to;

Gary & Wes River for the use of their field cultivator,  
and the companies providing materials for these plots!

They include; BASF, Garst Seed Co., Loure Valley Seeds, Jacques Seed Co.,  
Dekalb-Pfizer Seed Co., Pioneer Seed Co., UMC Agronomy Department, Ciba-Geigy,  
Mobay, Monsanto, Ortho, Shell, and Velsical Chemical Co.

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METHODS

The following is a listing of fertilizer, herbicide, and varieties used.

**Fertilizer:** 27+70+120 February - Corn & Soybeans  
125# Ammonia-N April 3 - Corn

**Herbicides:** Corn Soybeans Early Pre  
AAtrex 90 1.1# Lasso 4E 1.75 Qt. 3PtDual +  
Lasso 4E 1.75 Qt. Sencor DF .66# 1PtBanvel  
Paraquat 1 Qt. Paraquat 1 Qt.  
Banvel .5 Pt. 2,4-D LVE .5 Pt

No-Till  
AAtrex 1.1# Bronco 3.5 Qt. Plot Size  
Bladex 2 Qt. Sencor DF .66# 90 x 530  
Banvel .5Pt. 1.1 Acre

**Corn Hybrids:** GARST 8344 (Main Plot Area), 20,000 seeds/acre  
Planted: Early Corn: 29,000 seeds/acre  
April 23 Garst 8808 Garst N3909  
Pioneer 3181 Jaques JX 5  
DeKalb DK 24 Jacques JX15

**Soybean Varieties:** Williams 82 provided by - LOUTRE VALLEY SEEDS -  
Planted: June 3, Evans provided by - UMC Agronomy Dept. -  
Planted: April 23

EFFECT OF 2,4-D PLUS PARAQUAT ON SOYBEAN EMERGENCE AND WEED CONTROL

The objective here was to determine the effect of the application of 2,4-D and paraquat on weed control and soybean development. Late planting dates encounter wide spectrum weed development. The broadleaf weeds and some foxtail are beyond the burndown capabilities of paraquat alone. A cost-effective method for killing existing vegetation is needed.

Application Date: June 4, Planting Date: June 3, Williams 82 Loure Valley Seeds  
Weather: 73 degrees, Cloudy, Winds 2 - 3 mph from SSW, Humidity 50-60%, .4 inches of rain 12 hours after application. Broadleaf weeds were 24 to 36 inches tall, foxtail 8 to 10 inches tall.

The use of 2,4-D at 1 Pt/Ac or less did not effect soybean stand. Unlike previous years, it did not improve the activity of the Paraquat.

Treatment Number	Paraquat Pt/Ac	2,4-D Pt/Ac	Weed Escapes Kind & Cover
1	1.0	0	6-3
2	2.0	0	2-3, 6-3, 12-2
3	2.0	1 Qt COC	2-1, 6-2
4	1.0	.5	6-2.
5	2.0	.5	6-2.
6	1.0	1.0	6-2.
7	2.0	1.0	6-3.
8	1.0	1.5	6-3, -30SR
9	2.0	1.5	6-3, -30SR

Weeds rated June 17. Number shown (6-3) gives weed (6) and percent

of plot surface covered by the weed (-3 = 30%)

Weed List (Weeds Present in Plot at Treatment Application):  
1 - Carpetweed 6 - Foxtail 11 - Redrt Pigweed  
2 - Common Lambsquarter 7 - Marestail 12 - Smartweed  
3 - Common Milkweed 8 - Prickly Lettuce 13 - Va. Pepperwd  
4 - Curly Dock 9 - Ragweed  
5 - Daisy Fleabane SR - Percent Stand Reduction

EARLY PREPLANT APPLICATION OF HERBICIDES FOR WEED CONTROL IN SOYBEANS

The objective was to determine the effect of the early application of residual herbicides on weed control and soybean development. Late planting dates encounter wide spectrum weed development. The broadleaf weeds are beyond the burndown capabilities of paraquat alone. A cost-effective method for limiting the development of weedy vegetation is needed.

Application Date: May 1  
Planting Date: June 3, Williams 82 - by Loure Valley Seeds  
Weather: One inch of rail fell May 1 am, 1.3 inches May 8. May 1, 65 degrees and clear, wind 5-10mph from NW.

Surflan and Dual did a good job of controlling weeds for the season. The few weeds that escaped from the other treatments did become a problem later in the season as no postemergence herbicide was applied.

Treatment Number	Herbicide Rates Qt/Ac	Weeds
1	2.5 Bladex	6-2, 14-4
2	2.0 Bladex	6-1, 14-3
3	2.0 Lasso	6-3
4	3.0 Lasso	6-1, 14-2
5	1.0 Prowl	6-1, 14-1
6	1.0 Surflan	0-0
7	2.0 Dual	0-0
8	Check	6-4, 14-5, 12-2

Weed List (Those Expected in the Plot):  
1 - Carpetweed 6 - Foxtail 11 - Redrt Pigweed  
2 - Common Lambsquarter 7 - Marestail 12 - Smartweed  
3 - Common Milkweed 8 - Prickly Lettuce 13 - Va. Pepperwd  
4 - Curly Dock 9 - Ragweed 14 - Tall Waterhemp  
5 - Daisy Fleabane SR - Percent Stand Reduction

NEW HERBICIDES FOR WEED CONTROL IN NO-TILL SOYBEANS

The objective was to look at the weed control and burn down characteristics offered by various herbicides in no-till systems.

Application Date: June 5, Broadleaf weeds were 24 to 36 inches tall, foxtail 8 to 10 inches tall. Post treatments, June 25.  
Planting Date: June 3, Williams 82 - by Loure Valley Seeds  
Weather: June 5, 86 degrees, Mostly Cloudy, Winds from SW 2-3 mph, Humidity 65-75%, .4 inches of rain 6 Hrs after application. June 25, 85 degrees, Sunny.

Winds from SE 10 mph., soil dry.

In this evaluation, the newer herbicides did not show any significant advantage over the old standbys. The height of the vegetation to be burnt back was quite large and a real test for all treatments.

MONTGOMERY COUNTY TILLAGE DEMONSTRATION PLOT

1986

Treatment #	Herbicide Rates	Ot/Ac	Weeds
Grass Control + .5 Qt Sencor Pre.			
1	2.0	Lasso	: 6-2, 9-2 ;
2	.52	Command	: 6-1, 9-1 ;
3	.325	Assure	: 2-1, 6-1 ;
4	.75	Poast+COC	: 2-1, 6-1 ;
Broadleaf Control - Pre. + 2 Qt Lasso Pre.			
5	8 Oz.	Canopy	: 2-3, 6-3 ;
6	.33	Scepter	: 2-2, 6-3 ;
7	.5	Sencor	: 2-1, 6-1 ;
Broadleaf Control - Post + 2 Qt Lasso Pre.			
8	.75	Basagran	: 2-3, 6-4, 12-3 ;
9	.5 Oz.	Classic	: 2-3, 6-4, 12-3 ;
10	.33	Scepter	: 2-3, 6-4, 12-4 ;

Plot #	Treatment	Treatment Number	Moisture %	Plot Wt. #	Yield Dry Bu
1	DISK-F, DISK, FLD. CULT.	5	16.1	1194	105
2	CHISEL, FLD. CULT.	6	15.9	1388	103
3	DISK-F, DISK, FLD. CULT.	5	16	1801	133
4	CHISEL, FLD. CULT.	6	16	1601	118
5	DISK-F, NO-TILL	3	16	1470	109
6	DISK, FLD. CULT.	6	16	1150	85
7	DISK-F, NO-TILL	3	16.1	1470	109
8	NO-TILL	1	15.9	725	54
9	DISK-F, NO-TILL	3	16.2	717	53
10	NO-TILL	1	16.1	1101	81
15	PARAPLOW, NO-TILL	7	15.8	2274	168
16	NO-TILL BLADEx	2	16	1874	139
17	NO-TILL	1	16	1921	142
18	DISK-F, NO-TILL	3	16	1820	135
19	DISK-F, DISK, FLD. CULT.	5	16.1	2030	150
20	DISK-F, NO-TILL	3	16	1610	119
21	NO-TILL BLADEx	2	16	1130	84
22	PARAPLOW, NO-TILL	7	16.1	1610	119
23	NO-TILL EPP	8	15.9	717	53
24	DISK-F, DISK, FLD. CULT.	5	16.1	1937	143

Note: All plots sprayed with 1 Qt Paraquat. Ratings are for weeds that escape the burndown, or post emergence applications. Preemergence control was excellent in all plots.

Weed List (Weeds Present in Plot at Treatment Application):

1 - Carpetweed	6 - Foxtail	11 - Redrt Pigweed
2 - Common Lambsquarter	7 - Marestail	12 - Smartweed
3 - Common Milkweed	8 - Prickly Lettuce	13 - Va. Pepperwd
4 - Curly Dock	9 - Ragweed	
5 - Daisy Fleabane	SR - Percent Stand Reduction	

Plot Size 0.24 Ac Average 110

DISK-F = This plot was disked in the EPP = Early Preplant  
 FLD. CULT. = Field Cultivator Herbicides

TILLAGE SYSTEM AVERAGES

Treatment	Number	Yield Bu/Ac	Replication Variation
No-Till	1	92	63 Bu/Ac
No-Till Bladex	2	111	
Disk-F, No-Till	3	104	
Disk, Fld. Cult.	4	85	
Disk-F, Disk, Fld. Cult.	5	103	
Chisel, Fld. Cult.	6	110	
Paraplow, No-Till	7	144	
No-Till EPP	8	85	

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SHORT SEASON CORN HYBRIDS

Hybrid	Moisture %	Dry Yield Bu/Ac
Garst 8808	14.5	93
Jacques JX 5	15.1	92
Jacques JX 15	17.7	133
DeKalb DK 24	12.4	83
Garst N3909	15.4	117
Pioneer 3181	17.7	121
Garst 8344	24.3	156

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