

MISSOURI 2003 IRRIGATION SURVEY

Presented at the Irrigation Conference, Columbia, MO. February 2004
 University of Missouri Outreach and Extension and Commercial Agriculture Program
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This is the 26th year the University of Missouri has collected data from Missouri farmers on irrigation performance. The data presented here are the average values for 25 irrigation systems that responded to our December 2003 survey. Individual farms may report more than 1 system. Irrigation systems located in the southeast region of Missouri are not included in this report.

The number of surveys returned was down from last year. All of the respondents indicated that they used their irrigation system this year. Survey respondents included 18 irrigation systems irrigating corn and 22 systems irrigating single-crop soybeans in Missouri in 2003.

Respondents reported that corn yields from land irrigated with an average of 5 inches of water exceeded dryland corn yields by 68 bushels. Irrigated single-crop soybean yields exceeded dryland yields by 15 bushels, with 3.8 inches of water being applied.

Eighty percent of the systems were fixed center pivots; 9% were towable center pivots and 11% were traveling gun. Pumping power was evenly split between diesel and electricity (45% each of the systems); the remaining 10% was combination diesel/electricity. Seventy-five percent of the respondents reported that their irrigation water supply was adequate. Eighty-three percent of those that used reservoirs reported that their reservoirs were full in June.

Page 4 of this report contains crop budgets using this survey data, University of Missouri crop budgets and 2003 harvest time prices. Other government payments are not included. This year the net return to land and management for corn was 36.70/acre; single crop soybeans resulted in \$112.92/acre. Returns to land and management were profitable for both corn and soybeans in 2003. The income change due to irrigation was positive \$73.33 for corn and \$43.31 for soybeans (see bottom table of page 4).

2003 Irrigation Survey Crop Details		
	Corn	Single-crop Soybeans
Number reporting	18	22
Average acres irrigated	118	107
Irrigated yield/acre (bushels)	163	44.7
Dryland yield/acre (bushels)	95	30.0
Increase (bushels/acre)	68	14.7
Inches/application	0.9	1.0
Times irrigated	5.6	3.8
Total inches applied	5.0	3.8

Missouri 2003 Irrigation Survey (excluding Bootheel)

Types of Systems

Fixed Center Pivot	80%
Towable Center Pivot	9%
Traveling gun	11%

Types of Water Supplies

Reservoir	50%
Well	38%
Lagoon	12%
Stream	0%
Combination, reservoir/stream/well	0%

Types of Pumping Power

Electricity	45%
Diesel	45%
Combination diesel/electricity	10%

2003 Average Fuel Cost per Acre Inch:

Electricity (8 systems)	\$2.23
Diesel (8 systems)	\$2.66
Average (18 systems)	\$2.33

2003 Repair Costs:

Average per farm (25 farms)	\$443
Average per acre (107 acres/farm)	\$4.14

Water Supply Adequate?	75% yes
Reservoir full in June?	83% yes

1994-2003 Survey *Corn* Yields, 10-year average:

Irrigated	156.6 bushels/acre
Dryland	114.6 bushels/acre
Difference	42.0 bushels/acre

2003 Average *Corn* Planting Rate:

Irrigated	28,646 stalks/acre
Dryland	25,960 stalks/acre

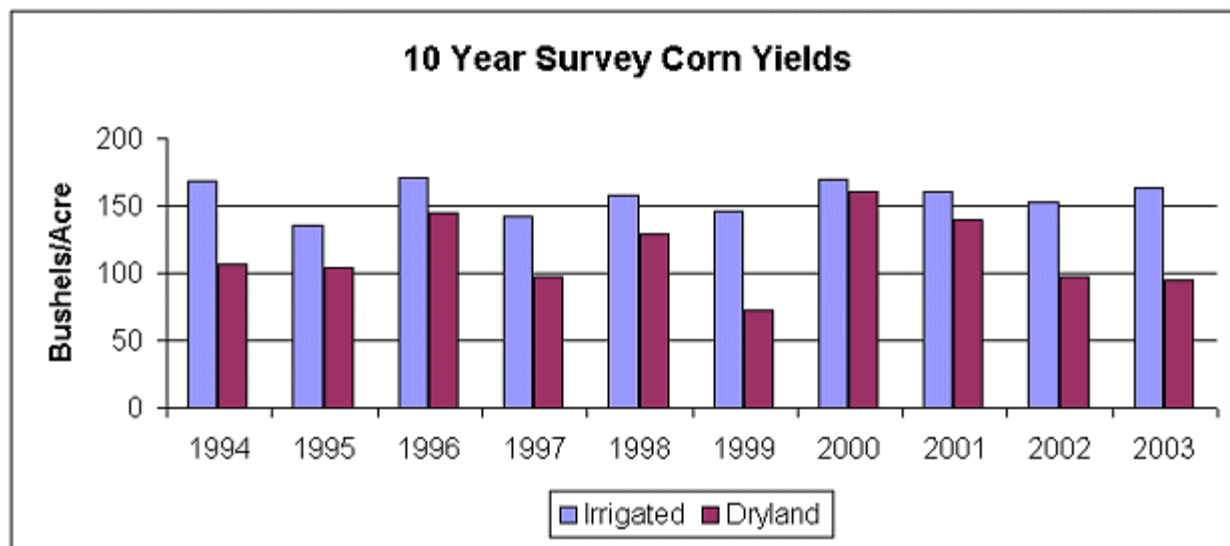
1994-2003 Survey *Soybean* Yields, 10-year average:

Irrigated	49.8 bushels/acre
Dryland	39.4 bushels/acre
Difference	10.5 bushels/acre

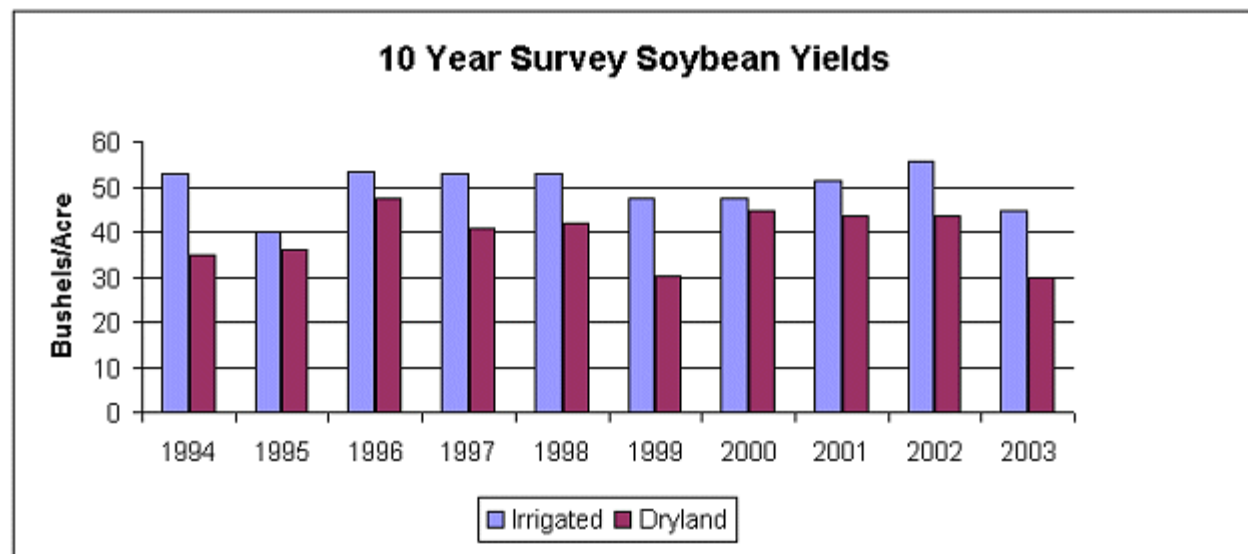
2003 Irrigated Crop Budgets (per acre)	
	Single-crop

	Corn	Soybeans
Income		
Yield/acre (bushels)	163	44.70
Price/bushel	\$2.30	\$7.16
Gross income/acre	\$374.90	\$320.05
Operating Costs:		
Seed	\$38.67	\$30.00
Fertilizer and lime	80.60	25.81
Chemicals	24.00	7.04
Machinery fuel, repair etc.	85.00	59.09
Labor and Miscellaneous	25.00	25.00
Drying @10¢/bushel	16.30	0.00
Irrigation fuel (\$2.33/acre inch)	11.65	8.85
Irrigation repairs	4.14	4.14
Irrigation Equipment	40.00	40.00
Interest (9% x ½ operating costs)	\$12.84	\$7.20
Total Non-Land Costs/Acre	\$338.20	\$207.13
Return to Land and Management/Acre	\$36.70	\$112.92

2003 Income Change Due to Irrigation (per acre)		
	Corn	Single-crop Soybeans
Added Income		
Yield/acre (bushels)	68.0	14.70
Price/bushel	\$2.30	\$7.16
Gross income/acre	\$156.40	105.25
Operating Costs:		
Seed	\$3.63	0.00
Fertilizer and lime	10.00	3.00
Labor	5.00	5.00
Drying @10¢/bushel	5.40	-
Irrigation fuel (\$2.33/acre inch)	11.65	8.85
Irrigation repairs	4.14	4.14
Interest (9% x ½ operating costs)	\$1.85	\$0.94
Added operating costs/acre	\$43.07	\$21.94
Added Income over Added Costs	\$113.33	\$83.31
Ownership Costs:		
Irrigation Equipment	\$40.00	40.00
Added Return to Land and Management/Acre	\$73.33	\$43.31



Com	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
Irrigated	168	136	171.2	142.6	157.5	145.4	170	160	152	163
Dryland	107	104	144.2	97.3	129.2	72.2	160	139	98	95
Increase	61	32	27	45.3	28.3	73.2	10	21	54	68



Soybeans	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
Irrigated	53	40	53.2	52.9	52.8	47.3	47.5	51.4	55.5	44.7
Dryland	35	36	47.6	40.9	42	30.2	44.9	43.6	43.6	30
Increase	18	4	5.6	12	10.8	17.1	2.6	7.8	11.9	14.7