

MISSOURI 2001 IRRIGATION SURVEY

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This is the 24th year the University of Missouri has collected data from Missouri farmers on irrigation performance. The data presented here are the average values for 33 irrigation systems that responded to our December 2001 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 less than last year but the types of systems. About 1/5 of the respondents indicated that they did not irrigate this year. Survey respondents included 29 irrigation systems irrigating corn and 23 systems irrigating single-crop soybeans in Missouri in 2001.

Respondents reported that corn yields from land irrigated with an average of 4.3 inches of water exceeded dryland corn yields by only 21 bushels. Irrigated single-crop soybean yields exceeded dryland yields by 7.8 bushels, with 3.8 inches of water being applied.

Eighty four percent of the systems were fixed center pivots; 13% were towable center pivots and 3% were traveling gun. Pumping power was predominately diesel (59% of the systems), followed by 36% of the systems using electricity. Ninety four percent of the respondents reported that their irrigation water supply was adequate. Sixty five percent of those that used reservoirs reported that their reservoirs were full in June.

The bottom of this report contains crop budgets using this survey data, average Missouri production costs and loan rate crop prices. Other government payments are not included. This year the net return to land and management for corn was \$-34.94/acre; single crop soybeans resulted in \$37.59/acre. Without government program payments returns to land and management are unprofitable for the amount of investment in crop production. The income change due to irrigation was negative for both corn and soybeans (see bottom table). The additional yield attributed to irrigation was not enough to pay for the additional variable costs of irrigation.

2001 Irrigation Survey Crop Details		
	Corn	Single-crop Soybeans
Number reporting	29	23
Average acres irrigated	110	114
Irrigated yield/acre (bushels)	160	51.4
Dryland yield/acre (bushels)	139	43.6
Increase (bushels/acre)	21	7.8
Inches/application	1.0	1.1
Times irrigated	4.1	3.4
Total inches applied	4.3	3.8

Missouri 2001 Irrigation Survey (excluding Bootheel)

Types of Systems

Center Pivot fixed	84%
Center Pivot towable	13%
Traveling gun	3%

Types of Water Supplies

Reservoir	56%
Well	30%
Combination, reservoir/stream/well	10%
Lagoon	4%

Types of Pumping Power

Electricity	36%
Diesel	59%
Propane	5%

2001 Average Fuel Cost per Acre Inch:

Electricity (8 systems)	\$3.05
Diesel (8 systems)	\$2.07
Average (17 systems)	\$2.54

2001 Repair Costs:

Average per farm (23 farms)	\$1,230
Average per acre (112 acres/farm)	\$10.98

Water Supply Adequate? 94% yes

Reservoir full in June? 65% yes

1992-2001 Survey *Corn* Yields, 10-year average:

Irrigated	153.3 bushels/acre
Dryland	120.9
Difference	32.4

2001 Average *Corn* Planting Rate:

Irrigated	27983 stalks/acre
Dryland	24759 stalks/acre

1992-2001 Survey *Soybean* Yields, 10-year average:

Irrigated	49.9 bushels/acre
Dryland	40.5
Difference	9.4

2001 Irrigated Crop Budgets (per acre)		
	Corn	Single-crop Soybeans

Income		
Yield/acre (bushels)	160	51.40
Price/bushel	\$1.89	\$5.25
Gross income/acre	\$302.40	\$269.85
Operating Costs:		
Seed	\$28.50	\$20.00
Fertilizer and lime	51.50	9.50
Chemicals	28.00	23.00
Machinery fuel, repair etc.	38.00	23.00
Labor and Miscellaneous	48.00	40.00
Drying @10¢/bushel	16.00	0.00
Irrigation fuel (\$2.54/acre inch)	10.92	9.65
Irrigation repairs	10.98	10.98
Interest (9% x ½ operating costs)	\$10.44	\$6.13
Total operating costs/acre	\$242.34	\$142.26
Ownership Costs:		
Machinery	\$45.00	40.00
Irrigation Equipment	50.00	50.00
Total ownership costs/acre	95.00	90.00
Total Non-Land Costs/Acre	\$337.34	\$232.26
Return to Land and Management/Acre	(\$34.94)	\$37.59

2001 Income Change Due to Irrigation (per acre)		
	Corn	Single-crop Soybeans
Added Income		
Yield/acre (bushels)	21.0	7.80
Price/bushel	\$1.89	\$5.25
Gross income/acre	\$39.69	40.95
Operating Costs:		
Seed	\$3.00	0.00
Fertilizer and lime	10.00	3.00
Labor	5.00	5.00
Drying @10¢/bushel	2.10	-
Irrigation fuel (\$2.54/acre inch)	10.92	9.65
Irrigation repairs	10.98	10.98
Interest (9% x ½ operating costs)	\$1.89	\$1.29
Added operating costs/acre	\$43.89	\$29.92
Added Income over Added Costs	(\$4.20)	\$11.03
Ownership Costs:		
Irrigation Equipment	\$50.00	50.00

Added Return to Land and Management/Acre	(\$54.20)	(\$38.97)
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