

MISSOURI 2005 IRRIGATION SURVEY

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This is the 28th year the University of Missouri has collected data from Missouri farmers on irrigation performance. The data presented here are the average values for 31 irrigation systems that responded to our December 2005 survey. Individual farms may report more than 1 system. Irrigation systems located in central Missouri (Audrain, Boone, Callaway, Monroe, Montgomery and Pike counties) are included in this report.

The number of surveys returned this year was up. Survey respondents included 24 irrigation systems watering corn and 21 systems watering single-crop soybeans in Central Missouri in 2005.

Respondents reported that corn yields from land irrigated with an average of 5.89 inches of water produced 157 bushels/acre compared to dryland corn yields of 51.8 bushels/acre. Irrigated single-crop soybean yields exceeded dryland yields by 16.6 bushels (49.5 bu/ac irrigated land vs. 32.9 bu/ac dryland), with 3.0 inches of water being applied.

Sixty-nine percent of the systems were fixed center pivots; 29% were towable center pivots and 2% were traveling guns. Electricity, at 43% of the systems, was the most prevalent source of pumping power. Diesel powered 37% of the systems; propane 5% and a combination of diesel and electricity, 15%.

The water source was as follows: reservoirs were seventy-six percent, wells 12% and a combination of reservoirs and wells 12%. Of those watering out of reservoirs, seventy percent **did not** have adequate water. Sixteen percent with reservoirs reported that their lakes were not full in June.

Page 4 of this report contains crop budgets using this survey data, University of Missouri crop budgets and 2005 harvest time prices. Other government payments are not included. This year the net return to land and management for corn was negative \$82.79/acre; single crop soybeans resulted in \$55.75/acre. Returns to land & management for corn was negative due to the lower yield and increased input prices. The returns to land & management for soybeans in 2005 was positive due to higher price. The income change due to irrigation was \$94.93 for corn and \$24.41 for soybeans ([see bottom table of page 4](#)).

2005 Irrigation Survey Crop Details

	Corn	Single-crop Soybeans
Number reporting	24	21
Average acres irrigated	125	113
Irrigated yield/acre (bushels)	157	49.5
Dryland yield/acre (bushels)	<u>51.8</u>	<u>32.9</u>
Increase (bushels/acre)	105.2	16.6
Inches/application	0.88	0.88
Times irrigated	6.7	3.4
Total inches applied	5.89	3.0

Missouri 2005 Irrigation Survey (Central Missouri)

Types of Systems

Fixed Center Pivot	69%
Towable Center Pivot	29%
Traveling gun	2%

Types of Water Supplies

Reservoir	76%
Well	12%
Lagoon	0%
Stream	0%
Combination, reservoir/well	12%

Types of Pumping Power

Electricity	47%
Diesel	37%
Combination diesel/electricity	11%
Propane	5%

2005 Average Fuel Cost per Acre Inch:

Electricity (17 systems)	\$2.32
Diesel (13 systems)	\$5.66
Propane (2 systems)	\$5.61
Combination- elec & diesel (6 systems)	\$3.10
Average (19 systems)	\$3.76

2005 Repair Costs:

Average per farm (31 farms)	\$1,237
Average per acre (130 acres/farm)	\$9.15

Water Supply Adequate? 30% yes

Reservoir full in June? 84% yes

1996-2005 Survey *Corn* Yields, 10-year average:

Irrigated	161 bushels/acre
Dryland	116.2 bushels/acre
Difference	44.8 bushels/acre

2005 Average *Corn* Planting Rate:

Irrigated	28,270 stalks/acre
Dryland	24,854 stalks/acre

1996-2005 Survey *Soybean* Yields, 10-year average:

Irrigated	51.1 bushels/acre
Dryland	40.8 bushels/acre

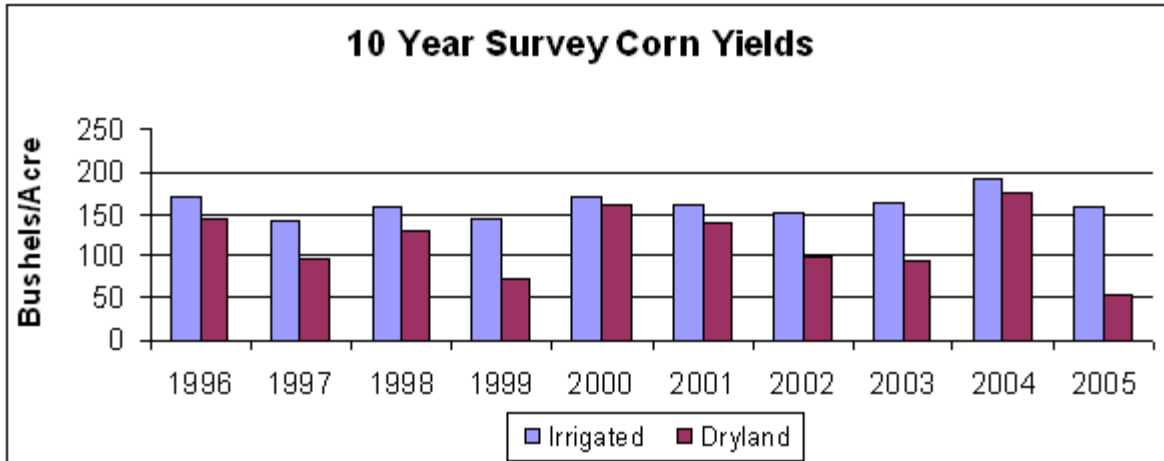
Difference

10.3 bushels/acre

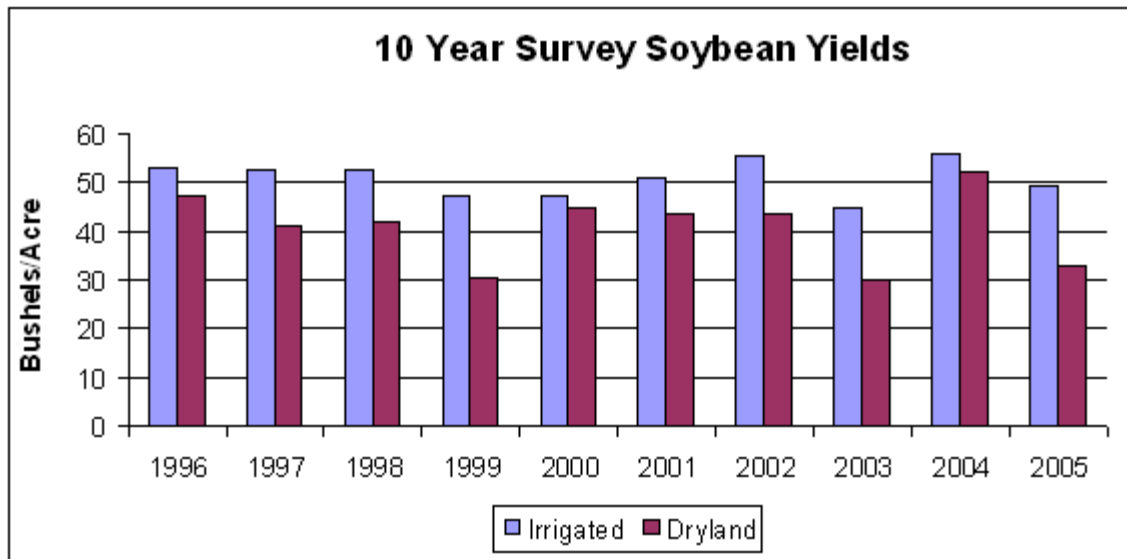
2005 Irrigated Crop Budgets (per acre)		
	Corn	Single-crop Soybeans
Income		
Yield/acre (bushels)	157	49.50
Price/bushel	\$1.90	\$5.67
Gross income/acre	\$298.30	\$280.67
Operating Costs:		
Seed	\$44.17	\$30.60
Fertilizer and lime	88.75	28.55
Chemicals	24.00	10.29
Machinery, fuel, repair etc.	97.48	62.08
Labor and Miscellaneous	25.00	25.00
Drying @10¢/bushel	15.70	
Irrigation fuel (\$3.76/acre inch)	22.15	11.28
Irrigation repairs	9.15	9.15
Irrigation Equipment	40.00	40.00
Interest (9% x ½ operating costs)	\$14.69	\$7.96
Total Non-Land Costs/Acre	\$381.09	\$224.91
Return to Land and Management/Acre	(\$82.79)	\$55.75

2005 Income Change Due to Irrigation (per acre)		
	Corn	Single-crop Soybeans
Added Income		
Yield/acre (bushels)	105.2	16.60
Price/bushel	\$1.90	\$5.67
Gross income/acre	\$199.88	\$94.12
Operating Costs:		
Seed	\$5.34	0.00
Fertilizer and lime	10.00	3.00
Labor	5.00	5.00
Drying @10¢/bushel	10.52	-
Irrigation fuel (\$3.76/acre inch)	22.15	11.28
Irrigation repairs	9.15	9.15
Interest (9% x ½ operating costs)	\$2.80	\$1.28
Added operating costs/acre	\$64.95	\$29.71
Added Income over Added Cost	\$134.93	\$64.41
Ownership Costs:		

Irrigation Equipment	\$40.00	40.00
Added Return to Land and Management/Acre	\$94.93	\$24.41



Corn	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Irrigated	171.2	142.6	157.5	145.4	170	160	152	163	191	157
Dryland	144.2	97.3	129.2	72.2	160	139	98	95	175	51.8
Increase	27	45.3	28.3	73.2	10	21	54	68	16	105.2



Soybeans	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Irrigated	53.2	52.9	52.8	47.3	47.5	51.4	55.5	44.7	55.7	49.5
Dryland	47.6	40.9	42	30.2	44.9	43.6	43.6	30	52.3	32.9
Increase	5.6	12	10.8	17.1	2.6	7.8	11.9	14.7	3.4	16.6