Average irrigated acreage of those surveyed in 1998: 1,149 acres

Average acreage planned for irrigation in 1999: 1,192 acres

- 3.4 % increase
    - 75% of new irrigated land will be pivots
    - 25% of new irrigated land will be flood

I. Systems Used

(by acreage used on)		Power Source	
Furrow, rigid pipe	5%	LP Gas	19% (- 28%)
Furrow, poly-pipe	25%	Diesel	47% (- 2%)
Center pivot, fixed	50%	Electric	34% (+ 30%)
Center pivot, towable	20%		

Table 1. - % of Irrigated Acreage by Fuel Type and Irrigation Method

Fuel Source	Irrigation Method			
	Fixed Pivot	Towable Pivot	Rigid Pipe	Poly-Pipe
Diesel	28%	17%	2%	10%
Electric	22%	4%	0%	3%
LP	0%	0%	3%	11%

II. Irrigation Costs

1. Fuel:

LP Gas	$7.18/acre
Diesel	$7.67/acre
Electric	$7.36/acre

2. Maintenance and Repairs:

A) Wells	($129.07/well)	$1.40/acre
B) Pumps	($117.43/pump)	$2.03/acre
	note: 89.5 acres/well site 11.8 wells per farmer	
C) System	(average all types)	$2.21/acre
TOTAL		**$5.64/acre**

3. Labor (average for all types of systems): 0.42 hrs/acre

4. Special study on land-leveling:

Initial Cost   Annual Cost

A) Cost for precision-leveling, initial job:	$198/acre	-> $21.56/ac/yr*
B) Cost for precision-leveling, touch up:	$ 69/acre	-> $12.35/ac/yr**
C) Time interval between touch-ups:	8.1 years	

* Interest = 9.0%; period = 20 years
** Interest = 9.0%; period = 8.1 years

III. Amount of Land-Forming Done by Irrigation Land Class

Table 2. - The extent of land leveling practices by irrigation method in Southeast Missouri, 1998

	Pivot Land	Flood-Irrigated Land	Dryland
Laser-leveled	34%	76%	6%
Land-planed	23%	17%	27%
No dirt Work	42%	6%	62%

IV. Chemigation Being Used

Percentage of farmers who use chemigation: 18.2%

Percentage of irrigated land being chemigated: 7.9%

V. Farmers Using Various Technology

Percentage of respondents who have:

WWW access:	42%
FAX machines:	46%
WWW or FAX:	59%
Yield monitors:	27%
Yield monitors w/ GPS:	15%
Laser leveling equipment:	15%

Percentage of irrigated land that is:

Deep-ripped:	74%	(91%, 65% & 53% for sand, silt & clay , respectively)
Limed:	64%	(81%, 58% & 33% for sand, silt & clay , respectively)
Laser-leveled:	42%	(33%, 34% & 42% for sand, silt & clay , respectively)

Table 3. - The Effect of Ripping, Liming, and Lasering on Irrigated Crop Yield in Southeast Missouri, 1998

	Ripped	Not Ripped	Limed	Not Limed	Lasered	Not Lasered
CORN						
Sand	143.2 n = 11	109.3 n = 3	136.2 n = 13	133.0 n = 1	154.0 n = 4	135.9 n = 10
Silt	156.5 n = 10	124.2 n = 5	149.3 n = 10	138.6 n = 5	146.8 n = 4	145.4 n = 11
Clay	140.0 n = 3	123.0 n = 2	140.0 n = 2	128.7 n = 3	118.7 n = 3	155.0 n = 2
All Soils	148.3 n = 24	119.5 n = 10	141.7 n = 25	134.7 n = 9	141.8 n = 11	142.1 n = 23
ALL SOYBEANS						
Sand	43.2	29.0	39.6	43.0	43.0	39.4

	n = 10	n = 3	n = 12	n = 1	n = 2	n = 11
Silt	32.3 n = 3	42.5 n = 2	44.5 n = 2	31.0 n = 3	41.0 n = 4	18.0 n = 1
Clay	38.4 n = 7	34.1 n = 7	43.2 n = 5	32.1 n = 12	42.5 n = 7	30.0 n = 7
All Soils	46.9 n = 17	34.2 n = 12	41.1 n = 19	32.6 n = 16	42.1 n = 13	34.8 n = 19
COTTON						
Sand	685.2 n = 16	680.0 n = 1	720.5 n = 10	634.0 n = 7	724.5 n = 8	649.7 n = 9
Silt	694.3 n = 9	700.0 n = 2	616.7 n = 6	774.8 n = 6	588.5 n = 4	749.4 n = 8
Clay	875.0 n = 1	650.0 n = 1	---	762.5 n = 2	762.5 n = 2	---
All Soils	695.7 n = 26	682.5 n = 4	681.6 n = 16	707.5 n = 15	691.1 n = 14	696.6 n = 17

Table 4. - 1998 Bootheel Irrigation Results

	CORN	COTTON	SC SOY	DC SOY	MILO
Number Reported	34	31	18	7	1
Acres Reported	3888	3667	2896	595	---
# of Irrigations, furrow	4.8	2.7	3.3	1.0	---
# of Irrigation, pivot	5.6	3.9	6.4	7.6	---
Irrigated Yield	140 bu	692 lbs	37 bu	40 bu	82 bu
Dryland Yield	95 bu	542 lbs	22 bu	27 bu	--- bu
Increase over Dryland	45 bu	150 lbs	15 bu	13 bu	--- bu

Table 5. - 1987-1998 Bootheel Irrigation Survey

Year	Irrig. Corn (bu)	Non-Irrig. Corn (bu)	Irrig. Soybeans (bu)	Non-Irrig. Soybeans (bu)	Irrig. DC Soybeans (bu)	Non-Irrig. DC Soybeans (bu)	Irrig. Cotton (lbs)	Non-Irrig. Cotton (lbs)	Irrig. Milo (bu)	Non-Irrig. Milo (bu)
1987	149	121	44	32	33	19	---	---	110	101
1988	148	88	39	32	36	27	877	718	108	91
1989	152	117	37	27	29	23	807	605	92	77
1990	146	86	44	29	38	31	768	528	82	32
1991	143	84	42	29	43	30	917	678	105	69
1992	189	135	48	37	44	32	1029	990	121	108
1993	137	95	44	31	41	30	722	546	113	75
1994	162	123	47	38	43	37	933	779	101	93
1995	156	124	43	29	42	31	637	422	90	66
1996	170	124	43	32	42	25	905	719	98	63
1997	155	103	41	28	42	31	865	723	110	70
1998	140 ($2.86)*	95 ($3.31)*	37 ($8.28)*	22 ($10.04)*	40 ($6.89)*	27 ($8.15)*	692 ($0.70)*	542 ($0.75)*	82 ($4.18)*	--- ----
Avg	154	108	43	31	39	29	832	658	101	77

* Break-even price; after D. Reinbott. 1999. Crop Budgets: Southeast Missouri. Un-numbered report. University of Missouri Outreach & Extension Service. Scott County.

Difference of Irrigated over Non-Irrigated:

Corn -- 46 bu

Soybeans -- 11 bu

Double-crop Soybeans -- 10 bu

Cotton -- 174 lbs

Milo -- 24 bu

Table 6. - Yield Increase of All Soybeans to Irrigation
1998 Bootheel Irrigation Survey

Soil Type	Fixed Pivot	Tow-able Pivot	Rigid Pipe	Poly-pipe	Average
Sand	17.6 n = 6	17.5 n = 2	---	0.5 n = 2	14.15 n = 10
Silt	---	17.0 n = 2	12.0 n = 2	20.0 n = 1	15.60 n = 5
Clay/Gumbo	15.4 n = 7	8.5 n = 2	15.0 n = 1	12.3 n = 3	13.61 n = 13
Average	16.43 n = 13	14.33 n = 6	13.00 n = 3	9.65 n = 6	14.16 n = 28

Table 7. - Irrigated All Soybeans Yield
1998 Bootheel Irrigation Survey
Showing # of irrigations & Average Depth Applied

Soil Type	Fixed Pivot	Tow-able Pivot	Rigid Pipe	Poly-pipe	Average
Sand	42.1 (7.8 @ 0.6") n = 9	38.5 (4.5 @ 0.8") n = 2	---	31.5 (1.0 @ 4.0") n = 2	39.94 n = 13
Silt	---	31.5 (4.0 @ 1.0") n = 2	39.5 (1.5 @ 2.0") n = 2	40.0 (3.0 @ 1.5") n = 1	36.40 n = 5
Clay/Gumbo	36.3 (3.4 @ 0.9") n = 7	43.0 (18.0 @ 0.8") n = 7	453.0 (4.0 @ 1.50") n = 1	30.8 (4.0 @ 1.4") n = 4	36.29 n = 4
Average	39.57 n = 16	37.6 n = 6	41.33 n = 3	32.30 n = 7	37.79 n = 32

Table 8. - Yield Increase of Corn Due to Irrigation
1998 Bootheel Irrigation Survey

Soil Type	Fixed Pivot	Tow-able Pivot	Rigid Pipe	Poly-pipe	Average
Sand	18.0 n = 7	0.0 n = 1	---	63.5 n = 4	31.67 n = 12
Silt	65.0 n = 5	81.0 n = 2	30.0 n = 1	56.0 n = 3	62.27 n = 11
Clay/Gumbo	25.0 n = 1	---	40.0 n = 1	48.0 n = 1	37.67 n = 3
Average	36.62 n = 13	54.00 n = 3	35.00 n = 2	58.75 n = 8	45.31 n = 26

Table 9. - Irrigated Corn Yield
1998 Bootheel Irrigation Survey
Showing # of irrigations & Average Depth Applied

Soil Type	Fixed Pivot	Tow-able Pivot	Rigid Pipe	Poly-pipe	Average
	131.3	70.0		162.7	135.80

Soil Type	Fixed Pivot	Tow-able Pivot	Rigid Pipe	Poly-pipe	Average
Sand	(7.6 @ 0.8") n = 9	(10.0 @ 0.6") n = 1	---	(5.3 @ 1.3") n = 4	n = 14
Silt	145.6 (5.0 @ 0.9") n = 7	134.0 (4.5 @ 1.1") n = 3	150.0 (3.0 @ ?) n = 1	153.8 (3.4 @ 2.0") n = 4	145.76 n = 15
Clay/Gumbo	170.0 (4.0 @ 0.8") n = 1	---	140.0 5.08 @ 1.5") n = 1	118.7 (7.0 @ 4.0") n = 3	133.22 n = 5
Average	139.47 n = 17	118.00 n = 4	145.00 n = 2	147.46 n = 11	139.85 n = 34

Table 10. - Yield Increase of Cotton Due to Irrigation
1998 Bootheel Irrigation Survey

Soil Type	Fixed Pivot	Tow-able Pivot	Rigid Pipe	Poly-pipe	Average
Sand	135.6 n = 8	136.7 n = 3	---	126.0 n = 3	133.78 n = 14
Silt	40.0 n = 1	100.0 n = 1	187.5 n = 2	239.0 n = 3	176.00 n = 7
Clay/Gumbo	---	200.0 n = 1	---	---	200.00 n = 1
Average	124.98 n = 9	142.00 n = 5	187.50 n = 2	182.50 n = 6	150.22 n = 22

Table 11. - Irrigated Cotton Yield
1998 Bootheel Irrigation Survey
Showing # of irrigations & Average Depth Applied

Soil Type	Fixed Pivot	Tow-able Pivot	Rigid Pipe	Poly-pipe	Average
Sand	677.5 (4.8 @ 0.9") n = 8	736.7 (4.3 @ 1.0") n = 3	---	668.8 (3.5 @ 1.9") n = 6	684.88 n = 17
Silt	716.7 (2.0 @ 0.8") n = 3	600.0 (3.0 @ 0.8") n = 1	750.0 (1.5 @ 2.0") n = 2	683.0 (2.0 @ 2.7") n = 6	695.68 n = 12
Clay/Gumbo	---	650.0 (2.0 @ 1.5") n = 1	---	875.0 (2.0 @ 2.0") n = 1	762.50 n = 2
Average	688.18 n = 11	692.02 n = 6	750.00 n = 1	691.22 n = 13	692.19 n = 31