

MISSOURI 1987 IRRIGATION SURVEY

<u>TYPES OF SYSTEMS</u>	PERCENT	<u>BOOTHEEL PERCENT</u>
Center Pivot	73.1	81.5
Traveling Gun	22.4	0
Gated Pipe	4.5	18.5
<u>TYPES OF WATER SUPPLIES</u>		
Reservoir	64.2	0
Well	22.6	100
Stream	5.7	0
Stream-reservoir	7.5	0
<u>TYPES OF PUMPING POWER</u>		
Diesel	54.7	80.0
Electricity	32.1	15.0
Propane	1.9	5.0
Natural Gas	3.8	0
Combination	7.5	0

1987 MISSOURI IRRIGATION RESULTS
(without Bootheel)

	Corn	Single crop soybeans	Db1-crop soybeans	Milo	Alfalfa
Number reporting	57	52	13	2	4
Acres irrigated	115	104	29	146	93
Inches/application	1.0	1.0	1.1	1.9	1.1
Times irrigated	3.7	3.0	2.8	1.5	2.7
Total inches/acre	3.9	3.2	3.2	2.8	3.1
Irrigated yield/ac. (bu.)	162.3	48.5	31.5	118.9	4.5
Dryland yield/ac. (bu.)	121.9	37.0	18.0	108.7	3.7
Difference (bu.)	40.4	11.5	13.5	10.2	.8

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1987 MISSOURI BOOTHEEL IRRIGATION RESULTS

	Corn	Single-crop soybeans	Dbl-crop soybeans	Milo
Number reporting	17	12	19	8
Acres irrigated	195	72	127	126
Inches/application	1.5	1.1	1.2	1.1
Times irrigated	4.8	4.8	5.0	3.9
Total inches/acre	<u>7.2</u>	<u>5.4</u>	<u>6.1</u>	<u>4.3</u>
Irrigated yield/ac. (bu.)	148.8	44.2	32.9	110.0
Dryland yield/ac. (bu.)	120.7	31.8	18.8	101.3
Difference (bu.)	<u>28.1</u>	<u>12.4</u>	<u>14.1</u>	<u>8.7</u>

1987 AVERAGE PLANTING RATE:
STALKS PER ACRE REPORTED

		<u>Bootheel</u>
Irrigated acres	24,200	26,900
Dryland acres	19,500	24,200

1987 AVERAGE FUEL COST PER ACRE-INCH

		<u>Bootheel</u>
Gas	\$2.19	--
Diesel	2.54	\$1.30
L.P.	2.50	--
Electricity	2.53	1.09
Combination (diesel & elec.) .	3.05	--
Average (53 farms)	\$2.56/ac./in.	
Average (19 farms)	\$1.28/ac./in.	

1987 AVERAGE REPAIR COSTS

		<u>Bootheel</u>
Average/farm	\$427	\$541
Average/acre	\$2.40	\$3.42

ESTIMATED COSTS AND RETURNS PER ACRE
FOR IRRIGATED CROPS IN MISSOURI, 1987

	CORN	SINGLE-CROP SOYBEANS
Yield/acre (bu.)	162.3	48.5
Price/bushel	\$1.85	\$5.96
Gross income	\$300.25	\$289.05
<u>Operating Costs</u>		
Seed	\$ 18.00	\$ 8.00
Fertilizer and lime	50.00	19.00
Chemicals	20.00	18.00
Machinery fuel, etc.	28.00	25.00
Drying @ 10¢	16.25	--
Irrigation fuel (\$2.56/ac.-in.)	10.00	8.20
Irrigation repairs	2.40	2.40
Interest (11% one-half op. costs)	<u>7.95</u>	<u>4.45</u>
	\$152.60	\$ 85.05
<u>Ownership Costs</u>		
Machinery	\$ 28.00	\$ 22.00
Irrigation equipment ¹	60.00	60.00
Labor	<u>30.00</u>	<u>25.00</u>
	\$118.00	\$107.00
TOTAL NON-LAND COSTS	\$270.60	\$192.05
RETURN TO LAND AND MANAGEMENT	\$ 29.65	\$ 97.00
RETURN TO LAND AND MANAGEMENT ²	\$151.40	

¹ Estimate \$400 new investment at 15% for annual depreciation and interest.

² After deficiency payments price per bushel estimated at \$2.60/bu.

ESTIMATED ADDED COSTS AND RETURNS PER ACRE
FOR IRRIGATED CROPS IN MISSOURI, 1987

	CORN	SINGLE-CROP SOYBEANS
Yield/acre (bu.)	40.4	11.5
Price/bushel	\$1.85	\$5.96
Added gross income	\$ 74.75	\$ 68.55
<u>Added Operating Costs</u>		
Seed	\$ 3.00	--
Fertilizer and lime	12.00	\$ 3.00
Drying @ 10¢	4.00	--
Irrigation fuel (\$2.39/ac.-in.)	10.00	8.20
Irrigation repairs	2.40	2.40
Interest (11% one-half op. costs)	<u>1.75</u>	<u>.75</u>
	\$ 33.15	\$ 14.35
<u>Added Ownership Costs</u>		
Irrigation equip. and water ¹	\$ 60.00	\$ 60.00
Irrigation labor	<u>5.00</u>	<u>5.00</u>
	\$ 65.00	\$ 65.00
TOTAL ADDED NON-LAND COSTS	\$ 98.15	\$ 79.35
ADDED RETURN TO LAND AND MANAGEMENT	-\$23.40	-\$10.80
ADDED RETURN TO LAND AND MANAGEMENT ²	\$ 6.90	

¹ Estimate \$400 new investment @ 15% for annual depreciation and interest.

² After deficiency payments price per bushel estimated at \$2.60/bu.

TEN-YEAR SURVEY CORN YIELDS
(BU./ACRE)

YEAR	IRRIGATED	DRYLAND	DIFFERENCE
1978	121	86	35
1979	149	92	57
1980	84	34	50
1981	146	127	19
1982	138	116	22
1983	103	38	65
1984	143	72	71
1985	153	115	38
1986	156	122	34
1987	162	122	40
Average	135.5 bu.	92.4 bu.	43.1 bu.

TEN-YEAR SURVEY SOYBEAN YIELDS
(BU./ACRE)

YEAR	IRRIGATED	DRYLAND	DIFFERENCE
1978	42	32	10
1979	47	30	17
1980	37	22	15
1981	43	36	7
1982	45	39	6
1983	35	16	19
1984	41	18	23
1985	50	46	4
1986	49	37	12
1987	48	37	11
Average	43.7 bu.	31.3 bu.	12.4 bu.

MISSOURI IRRIGATORS COMMENTS 1987

West and Southwest

1. If every year was this good, I'd forget about irrigating. (Cass)
2. I just about doubled my corn yield by irrigating. (Webster)
3. There was no real cost -- I installed a new system.
4. An alfalfa irrigator reported a problem with rocks wearing out the traveling gun hose.
5. Why can't we get 150-160 bushels of corn?
6. It was the easiest year of irrigating that I have had -- no problems with pollination. (Vernon)
7. Did not irrigate -- land in CRP.

West Central and Northwest

1. Was a little late in using because weatherman kept calling for rain tomorrow. (Johnson)
2. Should have watered but was not sure it would pay expenses. (Henry)
3. Did not irrigate -- price of corn and beans prohibits use. (Davies)

East and East Central

1. Should have irrigated double-crop beans one more time. (Audrain)
2. Planted corn at rate of 33,000 kernels per acre -- will cut back next year.
3. My corn yields averaged: irrigated - 187 bu./acre and dryland - 140 bu./acre.
4. Should have irrigated two more times but was busy with other things.
5. We didn't irrigate just before an incoming front -- as a result, we had decreased yields. (Audrain)
6. Only a 20-22 percent increase in irrigated beans seemed low.
7. Had to irrigate in May to bring corn and beans up.
8. Should have started to water sooner.

Bootheel

1. Had a very dry year -- irrigated corn yielded 145 bushels/acre compared to 57 bushels/acre dryland on same soil (sandy, Miss.).
2. Best corn yield: 190 bushels/acre compared to 140 bu./acre dryland.
3. Double-crop beans averaged 35 bushels compared to 20 bushels dryland. (Miss.)
4. By the end of July, our subsoil was so dry that we could hardly pump water fast enough. (Miss.)