Center-Pivot-Irrigated Grain Sorghum Cost-Return Budget

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This budget provides cost and return estimates for center-pivot-irrigated grain sorghum in western Kansas. Kansas led the nation in grain sorghum production during 2001 with 232,500,000 bushels produced, amounting to 45 percent of the U.S. total. In 2001, 49 percent of harvested irrigated grain sorghum acreage in Kansas was in the southwest area (91,000 acres), with 29,000 acres, 19,000 acres, and 16,000 acres in south central, west central, and northwest Kansas, respectively. Western Kansas is home to the state's large cattle feeding complex and a developing hog industry, ensuring a continued high level of demand for irrigated and nonirrigated feedgrain production.

Income Per Acre

Crop production costs per unit and net returns are highly dependent on yields. The following estimated budgets include three different yield levels, which are intended to represent expected yields for land of varying quality for a given level of management. Producers can compare the profitability of crop enterprises on farmland tracts with varying yield potential by considering alternative expected

Table 1. *Production Inputs — Center-Pivot-Irrigated Sorghum*

	Yield Level (bu)			
Item	90	105	120	
Seed, lbs/ac*	6.0	6.5	6.5	$1.32/lb
Fertilizer:				
N (anhydrous)	113	131	150	$0.13/lb
N	0	0	0	$0.22/lb
P	40	42	53	$0.22/lb
K	0	0	0	$0.14/lb
Lime	0	0	0	$0.01/lb
Herbicide				
Bicep II Magnum	2.0	2.0	2.0	$9.90/qt
Marksman	2.0	2.0	2.0	$3.73/pt
Insecticide / Fungicide				
Lorsban 4E	0.25	0.25	0.25	$10.51/lb
Irrigation water, in	10	14	16	$3.34/in

** Concep treated*

Table 2. *Machinery and Land Resources — Center-Pivot-Irrigated Sorghum*

	Yield Level (bu)			
ITEM	90	105	120	
Tillage/Planting/Chemical Applications:				
Chisel	1	1	1	$6.41/ac
Disk	1	1	1	$5.74/ac
Field cultivate	1	1	1	$5.49/ac
Plant	1	1	1	$7.63/ac
Anhydrous application	1	1	1	$5.58/ac
Fertilizer application	0	0	0	$3.66/ac
Herbicide application	2	2	2	$3.66/ac
Insecticide / fungicide application	0.5	0.5	0.5	$3.74/ac
Harvest				
Base charge	1	1	1	$13.27/ac
Extra charge for yields exceeding	34	34	34	$0.130/bu
Hauling	90	105	120	$0.127/bu
Non-machinery labor	0.50	0.50	0.50	$10.00/hr
Irrigation labor	0.50	0.50	0.50	$10.00/hr
Land value/acre	$553	$692	$830	5.75%
Interest on capital				8.0%
Irrigation Equipment	Investment, $/ac		Years	Salvage value
Well, pump and gearhead value	$377.00		15	0%
Power unit and meter	$63.00		7	0%
Irrigation system	$387.00		15	0%

yield scenarios. Land values and government payments have been adjusted for alternative yield levels in this budget.

Price per bushel represents an expected harvest price in Scott City, Kan., accounting for government marketing loan price support levels. Grain sorghum producers in other regions of western Kansas should use an expected price that is representative for their location.

Crop insurance was not included as an input expense in this budget because yields reflect an average of all years (good and bad). If crop insurance is included as an input expense, then an expected value for indemnity payments should be included in the returns section.

Costs Per Acre

Production costs at the three production levels are shown on lines 1 through 13. Kansas Custom Rates for specific field operations are used to represent fuel and labor costs as well as machinery repair, depreciation, and interest expenses in these budgets. Table 1 identifies the typical seed, fertilizer, herbicide, insecticide, and irrigation water requirements (rate and cost/unit) for center-pivot-irrigated grain sorghum. Herbicide requirements include both pre-crop and in-crop treatments. Table 2 outlines the machinery, irrigation equipment, and land resources used for center-pivot-irrigated grain sorghum. Each tillage, planting, and harvest operation is identified.

COST-RETURN PROJECTION — CENTER-PIVOT-IRRIGATED GRAIN SORGHUM

	Yield Level (bu)			Your
	90	105	120	Farm
INCOME PER ACRE				
A. Yield per acre	90	105	120	
B. Price per bushel	$ 2.08	$ 2.08	$ 2.08	
C. Net government payment	$ 30.04	$ 32.65	$ 35.26	
D. Indemnity payments	$	$	$	
E. Miscellaneous income	$	$	$	
F. Returns/acre ((A × B) + C + D + E)	$ 217.24	$ 251.05	$ 284.86	
COSTS PER ACRE				
1. Seed	$ 7.92	$ 8.58	$ 8.58	
2. Herbicide	27.26	27.26	27.26	
3. Insecticide / Fungicide	2.63	2.63	2.63	
4. Fertilizer and Lime	23.49	26.27	31.16	
5. Crop Consulting	6.25	6.25	6.25	
6. Crop Insurance				
7. Drying				
8. Miscellaneous	10.00	10.00	10.00	
9. Custom Hire / Machinery Expense	72.02	75.88	79.73	
10. Non-machinery Labor	5.00	5.00	5.00	
11. Irrigation				
a. Labor	5.00	5.00	5.00	
b. Fuel and Oil	33.40	46.76	53.44	
c. Repairs and Maintenance	3.30	4.62	5.28	
d. Depreciation on Equipment and Well	59.93	59.93	59.93	
e. Interest on Equipment	33.08	33.08	33.08	
12. Land Charge / Rent	31.80	39.76	47.73	
G. SUB TOTAL	$ 321.07	$ 351.01	$ 375.06	
13. Interest on 1/2 Nonland Costs	7.85	8.73	9.37	
H. TOTAL COSTS	$ 328.92	$ 359.74	$ 384.43	
I. RETURNS OVER COSTS (F - H)	$–111.68	$–108.69	$ –99.57	
J. TOTAL COSTS/BUSHEL (H ÷ A)	$ 3.65	$ 3.43	$ 3.20	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	-32.34%	-28.48%	-24.05%	

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