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 2000, producing 40 percent of the U.S. total. 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 feedgrains.

Income Per Acre

Crop production costs per unit and net returns are highly dependent on yields. The following estimated budget includes three different yield levels, which are intended to represent expected yields for land of varying quality for a given level of management. Alternative expected yields can help producers compare the profitability of crop enterprises on farmland tracts with varying yield potential. Land values and government payments have been adjusted for alternative yield levels in the budgets. In customizing a budget to your farm, attention should be given to using land values representative of your farm's productive capacity.

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

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

	Yield Level (bu)			
Item	90	105	120	
Seed, lbs/acre*	6.0	6.5	6.5	$1.27/lb
Fertilizer:				
N (anhydrous)	103	121	138	$0.16/lb
N	0	0	0	$0.23/lb
P	40	42	53	$0.21/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	$10.06/qt
Marksman	2.0	2.0	2.0	$3.67/pt
Insecticide / Fungicide				
Lorsban 4E	0.25	0.25	0.25	$10.99/lb
Irrigation water, in	10	14	16	$3.72/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	$6.58/ac
Disk	1	1	1	$5.60/ac
Field cultivate	1	1	1	$5.74/ac
Plant	1	1	1	$7.24/ac
Anhydrous application	1	1	1	$5.23/ac
Fertilizer application	0	0	0	$3.64/ac
Herbicide application	2	2	2	$3.61/ac
Insecticide / fungicide application	0.5	0.5	0.5	$3.66/ac
Harvest				
Base charge	1	1	1	$13.82/ac
Extra charge for yields exceeding	32	32	32	$0.129/bu
Hauling	90	105	120	$0.125/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	$589	$736	$883	6.00%
Interest on capital				8.0%
Irrigation Equipment	Investment, $/ac		Years	Salvage value
Well, pump and gearhead value	$317.42		15	0%
Power unit and meter	$41.27		7	0%
Irrigation system	$360.90		10	0%

regions of western Kansas should use an expected price that is representative for their location.

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.

Irrigation Costs

Any land preparation costs are included with the land charge. Capital requirements for sprinkler systems will run $20,000 to $40,000 higher than flood irrigation systems. Price of the energy source and Total Dynamic Head (TDH) are the major factors affecting pumping costs. See MF-836, *Irrigation Capital Requirements and Energy Costs,* for an explanation of differences in capital costs, TDH, and examples of pumping costs for natural gas, diesel, electricity and propane.

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	$ 1.99	$ 1.99	$ 1.99	
C. Net government payment	$ 14.76	$ 16.05	$ 17.33	
D. Indemnity payments	$	$	$	
E. Miscellaneous income	$	$	$	
F. Returns/acre ((A × B) + C + D + E)	$ 193.86	$ 225.00	$ 256.13	
COSTS PER ACRE				
1. Seed	$ 7.62	$ 8.26	$ 8.26	
2. Herbicide	27.46	27.46	27.46	
3. Insecticide / Fungicide	2.75	2.75	2.75	
4. Fertilizer and Lime	24.88	28.18	33.21	
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	71.99	75.80	79.61	
10. Non-machinery Labor	5.00	5.00	5.00	
11. Irrigation				
a. Labor	5.00	5.00	5.00	
b. Fuel and Oil	37.20	52.08	59.52	
c. Repairs and Maintenance	3.30	4.62	5.28	
d. Depreciation on Equipment and Well	63.15	63.15	63.15	
e. Interest on Equipment	16.09	16.09	16.09	
12. Land Charge / Rent	35.34	44.16	52.98	
G. SUB TOTAL	$ 316.02	$ 348.78	$ 374.54	
13. Interest on 1/2 Nonland Costs	11.23	12.18	12.86	
H. TOTAL COSTS	$ 327.25	$ 360.97	$ 387.41	
I. RETURNS OVER COSTS (F - H)	$–133.38	$–135.97	$–131.27	
J. TOTAL COSTS/BUSHEL (H ÷ A)	$ 3.64	$ 3.44	$ 3.23	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	–38.65%	–35.49%	–31.61%	

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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-582 October 2001

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