Center-Pivot-Irrigated Wheat Cost-Return Budget in Western Kansas

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K-STATE Research and Extension

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The following budget provides cost and return estimates for center-pivot-irrigated wheat in western Kansas. Although irrigated wheat can be an important component of an irrigated crop rotation, it often is not as economically viable under full irrigation as some crops such as corn, alfalfa, and sunflower. The majority of irrigated wheat acreage is typically located in southwest Kansas, but this budget is also applicable to south central, west central, and northwest Kansas as well. This crop enterprise is particularly suited for low volume irrigation systems in these regions.

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 yield scenarios. Land values and government payments have been adjusted for alternative yield levels in this budget. In customizing a budget to your farm, attention should be given to using land values representative of your farm's productive capacity and local farmland market conditions.

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

	Yield Level (bu)			
Item	55	70	85	
Seed, lbs	75	90	120	$0.16/lb
Fertilizer:				
N (anhydrous)	82	122	148	$0.44/lb
N	0	0	0	$0.68/lb
P	28	39	48	$0.80/lb
K	0	0	0	$0.55/lb
Lime	0	0	0	$0.01/lb
Herbicide				
Ally	0.1	0.1	0.1	$13.93/oz
+ Banvel	4.0	4.0	4.0	$0.34/oz
Insecticide / Fungicide				
Tilt - Headline	4.0	4.0	4.0	$2.95/oz
Irrigation water, in	8	10	12	$3.00/in

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

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

	Yield Level (bu)			Custom
Item	55	70	85	Rate
Tillage/Planting/Chemical Applications:				
Chisel	0	0	0	$11.56/a
Disk	2	2	2	$9.89/a
Field cultivate	1	1	1	$9.49/a
Drill	1	1	1	$12.36/a
Anhydrous application	1	1	1	$10.89/a
Fertilizer application	0	0	0	$5.36/a
Herbicide application	1	1	1	$5.47/a
Insecticide / fungicide application	1	1	1	$5.54/a
Harvest				
Base charge	1	1	1	$20.63/a
Extra charge for yields exceeding	22	22	22	$0.200/bu
Hauling	55	70	85	$0.191/bu
Non-machinery labor	0.88	0.93	0.98	$13.00/hr
Irrigation labor	0.50	0.50	0.50	$13.00/hr
Land charge/rent	$121.60	$152.00	$182.40	
Interest on capital				6.5%
Irrigation Equipment	Investment, $/a		Years	Salvage value
Well, pump and gearhead value	$476.00		25	0%
Power unit and meter	$131.00		7	0%
Irrigation system	$575.00		25	25%

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. Historically, crop insurance indemnity payments have exceeded premiums due to government subsidies.

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 wheat. 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 wheat. Each tillage, planting, and harvest operation is identified.

COST-RETURN PROJECTION — CENTER-PIVOT-IRRIGATED WHEAT

	Yield Level (bu)			Your
	55	70	85	Farm
INCOME PER ACRE				
A. Yield per acre	55	70	85	
B. Price per bushel	$ 6.37	$ 6.37	$ 6.37	
C. Net government payment	$ 29.92	$ 32.53	$ 35.13	
D. Indemnity payments	$	$	$	
E. Miscellaneous income	$	$	$	
F. Returns/acre ((A × B) + C + D + E)	$ 380.27	$ 478.43	$ 576.58	
COSTS PER ACRE				
1. Seed	$ 12.00	$ 14.40	$ 19.20	
2. Herbicide	2.75	2.75	2.75	
3. Insecticide / Fungicide	11.80	11.80	11.80	
4. Fertilizer and Lime	58.48	84.88	103.52	
5. Crop Consulting	6.00	6.00	6.00	
6. Crop Insurance				
7. Drying				
8. Miscellaneous	10.00	10.00	10.00	
9. Custom Hire / Machinery Expense	101.27	107.13	113.00	
10. Non-machinery Labor	11.44	12.11	12.77	
11. Irrigation				
a. Labor	6.50	6.50	6.50	
b. Fuel and Oil	24.00	30.00	36.00	
c. Repairs and Maintenance	2.64	3.30	3.96	
d. Depreciation on Equipment and Well	55.00	55.00	55.00	
e. Interest on Equipment and Well	43.09	43.09	43.09	
12. Land Charge / Rent	121.60	152.00	182.40	
G. SUB TOTAL	$ 466.57	$ 538.96	$ 605.99	
13. Interest on ½ Nonland Costs	8.02	9.39	10.58	
H. TOTAL COSTS	$ 474.60	$ 548.35	$ 616.57	
I. RETURNS OVER COSTS (F - H)	$ -94.32	$ -69.92	$ -39.99	
J. TOTAL COSTS/BUSHEL (H ÷ A)	$ 8.63	$ 7.83	$ 7.25	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	-18.50%	-11.23%	-4.85%	

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