

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

Department of Agricultural Economics — www.agmanager.info

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Troy J. Dumler
Agricultural Economist, SW

Curtis R. Thompson
Crops and Soils, SW

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

Item	Yield Level (bu)			
	45	60	75	
Seed, lbs	75	90	120	\$0.11/lb
Fertilizer:				
N (anhydrous)	79	105	131	\$0.26/lb
N	0	0	0	\$0.35/lb
P	25	33	42	\$0.26/lb
K	0	0	0	\$0.22/lb
Lime	0	0	0	\$0.01/lb
Herbicide				
Ally	0.1	0.1	0.1	\$25.23/oz
+ Banvel	4.0	4.0	4.0	\$0.52/oz
Insecticide / Fungicide				
Irrigation water, in	10	10	10	\$5.09/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

Item	Yield Level (bu)			Custom
	45	60	75	Rate
Tillage/Planting/Chemical Applications:				
Chisel	0	0	0	\$8.94/a
Disk	2	2	2	\$7.98/a
Field cultivate	1	1	1	\$7.54/a
Drill	1	1	1	\$8.64/a
Anhydrous application	1	1	1	\$7.53/a
Fertilizer application	0	0	0	\$4.24/a
Herbicide application	1	1	1	\$4.51/a
Insecticide / fungicide application	0	0	0	\$4.58/a
Harvest				
Base charge	1	1	1	\$16.12/a
Extra charge for yields exceeding	21	21	21	\$0.152/bu
Hauling	45	60	75	\$0.149/bu
Non-machinery labor	0.80	0.85	0.90	\$10.00/hr
Irrigation labor	0.50	0.50	0.50	\$10.00/hr
Land charge/rent	\$25.60	\$32.00	\$38.40	
Interest on capital				9.0%
Irrigation Equipment	Investment, \$/a		Years	Salvage value
Well, pump and gearhead value	\$398.00		25	0%
Power unit and meter	\$94.00		7	0%
Irrigation system	\$475.00		20	0%

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 Farm
	45	60	75	
INCOME PER ACRE				
A. Yield per acre	45	60	75	
B. Price per bushel.....	\$ 4.33	\$ 4.33	\$ 4.33	
C. Net government payment.....	\$ 29.92	\$ 32.53	\$ 35.13	
D. Indemnity payments.....	\$	\$	\$	
E. Miscellaneous income	\$	\$	\$	
F. Returns/acre ((A × B) + C + D + E)	\$ 224.77	\$ 292.33	\$ 359.88	
COSTS PER ACRE				
1. Seed	\$ 8.25	\$ 9.90	\$ 13.20	
2. Herbicide.....	4.60	4.60	4.60	
3. Insecticide / Fungicide				
4. Fertilizer and Lime.....	27.33	36.27	45.46	
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	70.65	75.17	79.68	
10. Non-machinery Labor	7.98	8.49	9.00	
11. Irrigation				
a. Labor.....	5.00	5.00	5.00	
b. Fuel and Oil	50.90	50.90	50.90	
c. Repairs and Maintenance	3.30	3.30	3.30	
d. Depreciation on Equipment and Well.....	53.10	53.10	53.10	
e. Interest on Equipment.....	43.52	43.52	43.52	
12. Land Charge / Rent	25.60	32.00	38.40	
G. SUB TOTAL	\$ 316.23	\$ 338.25	\$ 362.17	
13. Interest on ½ Nonland Costs.....	8.73	9.43	10.22	
H. TOTAL COSTS	\$ 324.97	\$ 347.68	\$ 372.39	
I. RETURNS OVER COSTS (F - H).....	\$ -100.19	\$ -55.35	\$ -12.51	
J. TOTAL COSTS/BUSHEL (H ÷ A)	\$ 7.22	\$ 5.79	\$ 4.97	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	-28.92%	-13.58%	-0.63%	

Publications from Kansas State University are available on the World Wide Web at: www.oznet.ksu.edu

Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit Troy J. Dumler and Curtis R. Thompson, *Center-Pivot-Irrigated Wheat Cost-Return Budget in Western Kansas*, Kansas State University, October 2006.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-583

October 2006

K-State Research and Extension is an equal opportunity provider and employer. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, Extension Districts, and United States Department of Agriculture Cooperating, Fred A. Cholick, Director.