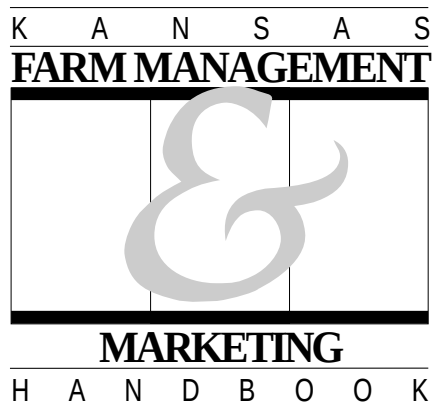




Center-Pivot-Irrigated Corn

Cost-Return Budget

Department of Agricultural Economics

Manhattan, Kansas

James D. Sartwelle, III

Extension Agricultural Economist, SW

Daniel M. O'Brien

Extension Agricultural Economist, NW

This budget provides cost and return estimates for center pivot irrigated corn in western Kansas. Feed demand from the area's cattle feeding complex and developing hog industry make irrigated corn an important crop. Kansas ranked ninth in the nation in corn production during 1995. The vast majority of Kansas irrigated corn production is located in Western Kansas.

Cost-Return Projections

Land preparation costs are included in land value. Other investments are shown in Table 1. Price of the energy source and total dynamic head are the important factors affecting pumping costs. For instance, a \$1 change in natural gas price causes a \$2.97 increase with 100 feet TDH. However, with 500 feet TDH, a \$1 change in gas price causes a \$14.83 change in costs for each acre foot of water pumped.

The choice of a flood or center pivot system depends on: (1) available capital; (2) labor availability during the growing season; (3) the terrain, which may require a center pivot system; and (4) soil type. Capital outlays will be \$20,000 to \$40,000 higher with a center pivot system, but labor requirements could be reduced by as much as 1 hour/acre compared to flood irrigation. MF-836, *Irrigation Capital Requirements and Energy Costs*, shows the irrigation costs and energy input amounts used in this budget.

Yield Goals

Cost per bushel and net returns in crop production are highly dependent on yields. The following estimated budget includes three different yield levels. Yield goals vary for a number of reasons such as soil type or land quality, historical weather patterns, input levels, and management. Budgeting for alternative yield goals can help producers compare the profitability of crop enterprises on farmland tracts with varying yield potentials. Multi-peril crop insurance expenses are included in western Kansas crop budgets as a cost of managing crop production risk in an area prone to great yield variability. Land values are not

adjusted for alternative yield goals in this budget. In customizing this budget to fit your farm, attention should be given to using land values representative of your farm's productive capacity.

Profit and Return Factors

Projections of net percentage return on investment permit comparisons to be made among alternative enterprises and other investments. Asset turnover is the ratio of gross revenue to total investment in fixed assets. This financial measure represents the efficiency of capital use.

Table 1. Factors Used for Cost-Return Budget

Item	Yield Level (bu)			
	160	190	220	
Water, 325 TDH	20 in	22 in	24 in	\$2.71/inch
Fertilizer:				
N (Anhy.)	180	180	210	\$0.17/lb
N (Dry)	10	10	10	\$0.30/lb
P	45	45	45	\$0.28/lb
K	0	0	0	\$0.13/lb
Lime	0	0	0	\$0.005/lb
Seed,				
(seeds/acre)	28,000	32,000	36,000	
Seed price, \$/lb	\$1.05	\$1.05	\$1.05	
Labor hours	2.35	2.35	2.35	
Labor price/hour				\$9.00
Land value/acre				\$575
Land interest rate				6.00%
Land real estate tax rate				0.50%
Machinery investment				\$236
Machinery life				10 yrs
Salvage value				35.00%
Interest rate on machinery				10.00%
Well, pump and gearhead value				\$290
Well, pump and gearhead life				15 yrs
Power unit and meter value				\$50
Power unit and meter life				7 yrs
Irrigation system value				\$385
Irrigation system life				10 yrs
Insurance rate on machinery				0.25%
Interest on variable costs				10.00%

COST-RETURN PROJECTION — CENTER-PIVOT-IRRIGATED CORN

	Yield Level (bu)			Your Farm
	160	190	220	
VARIABLE COSTS PER ACRE: ¹				
1. Labor	\$ 21.15	\$ 21.15	\$ 21.15	
2. Seed	29.40	33.60	37.80	
3. Herbicide	33.12	33.12	33.12	
4. Insecticide	41.57	41.57	41.57	
5. Fertilizer and Lime	46.20	46.20	51.30	
6. Fuel and Oil — Crop	10.45	10.45	10.45	
7. Fuel and Oil — Pumping ²	54.20	59.62	65.04	
8. Machinery and Equipment Repairs	23.20	23.20	23.20	
9. Irrigation Repairs and Maintenance	6.00	6.60	7.20	
10. Crop Insurance	6.27	6.75	6.98	
11. Drying	16.00	19.00	22.00	
12. Custom Hire ³				
13. Crop Consulting	6.50	6.50	6.50	
14. Miscellaneous	7.00	7.00	7.00	
15. Interest on 1/2 Variable Costs	15.05	15.74	16.67	
A. TOTAL VARIABLE COSTS	\$ 316.11	\$ 330.50	\$ 349.97	
FIXED COSTS PER ACRE: ¹				
16. Real Estate Taxes (including well)	4.33	4.33	4.33	
17. Interest on Land and Well ⁴	51.90	51.90	51.90	
18. Rent for Rented Land ⁵				
19. Depreciation on Crop Machinery	15.34	15.34	15.34	
20. Interest on Crop Machinery ⁶	15.93	15.93	15.93	
21. Depreciation on Irrigation Equipment and Well	64.98	64.98	64.98	
22. Interest on Irrigation Equipment ⁶	21.75	21.75	21.75	
23. Insurance on Machinery and Equipment	1.68	1.68	1.68	
B. TOTAL FIXED COSTS	\$ 175.90	\$ 175.90	\$ 175.90	
C. TOTAL COSTS (A + B)	\$ 492.01	\$ 506.39	\$ 525.87	
D. YIELD PER ACRE	160	190	220	
E. PRICE PER BUSHEL ⁷	\$ 3.38	\$ 3.38	\$ 3.38	
F. NET GOVERNMENT PAYMENT ⁷	\$ 13.96	\$ 13.96	\$ 13.96	
G. RETURNS PER ACRE [(D × E) + F]	\$ 554.76	\$ 656.16	\$ 757.56	
H. RETURNS OVER VARIABLE COSTS (G-A)	\$ 238.65	\$ 325.66	\$ 407.59	
I. RETURNS OVER TOTAL COSTS (G-C)	\$ 62.75	\$ 149.77	\$ 231.69	
J. VARIABLE COSTS PER BUSHEL (A ÷ D)	\$ 1.98	\$ 1.74	\$ 1.59	
K. FIXED COSTS PER BUSHEL (B ÷ D)	\$ 1.10	\$ 0.93	\$ 0.80	
L. TOTAL COSTS PER BUSHEL (C ÷ D)	\$ 3.08	\$ 2.67	\$ 2.39	
M. ASSET TURNOVER (G ÷ INVESTMENT) ⁸	36.12%	42.72%	49.32%	
N. NET RETURN ON INVESTMENT [(I+15+17+20+22) ÷ INVESTMENT] ⁸	10.90%	16.61%	22.00%	

¹Totals were derived using information listed in Table 1.²See MF-836, "Irrigation Capital Requirements and Energy Costs."³If using custom hire, adjust lines 6, 8, 19, and 20.⁴Assumes interest rate shown in Table 1.⁵If cash rented, insert zero in lines 16 and 17.⁶Assumes one-half the average investment [(initial investment + salvage value) ÷ 2] at the interest rate shown in Table 1.⁷See MF-1013 "Prices for Crop and Livestock Cost-Return Budgets" and MF-2236 "Government Program Payments for Crop Cost Return Budgets" for additional information on crop prices and program payments.⁸Investment equals total value of all fixed assets shown in Table 1.**COOPERATIVE EXTENSION SERVICE, MANHATTAN, KANSAS**

MF-585 Revised

October 1996

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, Richard D. Wootton, Associate Director. All educational programs and materials available without discrimination on the basis of race, color, national origin, sex, age, or disability.

File Code: Farm Management 3-1

10-96—1.5M