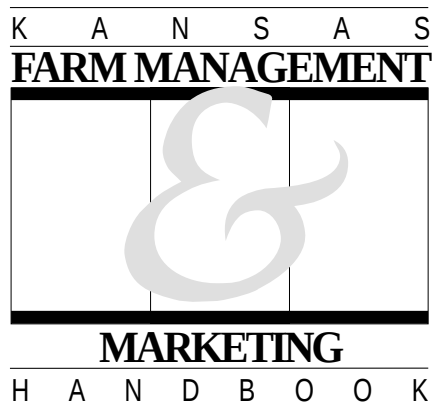




Center-Pivot-Irrigated Alfalfa Cost-Return Budget

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Alfalfa is a major irrigated cash crop in Western Kansas. Sizable cattle feeding and expanding dairy operations in the area provide a ready market for alfalfa hay. Additionally, producers and hay brokers routinely ship alfalfa hay and pellets out of state. Under good management, alfalfa can be as, or more, profitable than corn or other irrigated crops.

Cost-Return Projections

Any land preparation costs are included with the land charge. Other investments are shown in Table 1. Price of the energy source and Total Dynamic Head (TDH) are the important factors affecting pumping costs. For instance, at 300 TDH, an increase in natural gas prices from \$3 to \$4 per mcf causes pumping costs to increase from \$2.22 to \$2.97 per acre inch. At 500 TDH, the same increase in natural gas price causes pumping costs to increase from \$3.71 to \$4.94 per acre inch. See MF-836, *Irrigation Capital Requirements and Energy Costs*, for an explanation of Total Dynamic Head and other examples of pumping costs for diesel, electricity and propane.

Expected Yields and Enterprise Returns

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 potentials. Land values, government payments and some variable inputs have been adjusted for alternative yield levels in this budget. In customizing this budget to your farm, attention should be given to using land values representative of your farm's productive capacity. Projections of net percentage return on investment permit comparisons to be made among alternative enterprises or other investments. Multi-peril crop insurance is not available for this crop in this area.

Table 1. Factors Used for Cost-Return Budget

Item	Yield Level (ton)			
	4.8	6.2	7.5	
Water, 325 TDH	14 in	19 in	24 in	\$3.76/inch
Fertilizer:				
N (Anhy.)	0	0	0	\$0.15/lb
N (Dry)	0	0	0	\$0.24/lb
P	78	102	125	\$0.18/lb
K	0	0	0	\$0.14/lb
Lime	0	0	0	\$0.01/lb
Seed, lbs.	15	15	15	
Seed price, \$/lb	\$2.81	\$2.81	\$2.81	
Labor hours	3.85	3.85	3.85	
Labor price/hour				\$10.80
Land value/acre	\$558	\$697	\$836	
Land interest rate				6.00%
Land real estate tax				0.50%
Machinery investment				\$127
Machinery life				10 yrs
Salvage value				35%
Well, pump and gearhead value				\$317.42
Well, pump and gearhead life				15 yrs
Power unit and meter value				\$41.27
Power unit and meter life				7 yrs
Irrigation system value				\$360.90
Irrigation system life				10 yrs
Interest rate on machinery and equipment				10.00%
Insurance rate on machinery and equipment				0.25%
Interest on variable costs				10.00%

COST-RETURN PROJECTION — CENTER-PIVOT-IRRIGATED ALFALFA

	Yield Level (ton)			Your Farm
	4.8	6.2	7.5	
VARIABLE COSTS PER ACRE: ¹				
1. Labor	\$ 41.58	\$ 41.58	\$ 41.58	
2. Seed	8.43	8.43	8.43	
3. Herbicide	19.43	19.43	19.43	
4. Insecticide	12.57	12.57	12.57	
5. Fertilizer and Lime	14.04	18.36	22.50	
6. Fuel and Oil — Crop	33.24	34.80	36.37	
7. Fuel and Oil — Pumping ²	52.64	71.44	90.24	
8. Machinery and Equipment Repairs	43.04	45.07	47.10	
9. Irrigation Repairs and Maintenance	4.20	5.70	7.20	
10. Crop Insurance				
11. Drying				
12. Custom Hire ³				
13. Crop Consulting	6.50	6.50	6.50	
14. Miscellaneous	8.00	8.00	8.00	
15. Interest on 1/2 Variable Costs	12.18	13.59	15.00	
A. TOTAL VARIABLE COSTS	\$ 255.85	\$285.48	\$ 314.91	
FIXED COSTS PER ACRE: ¹				
16. Real Estate Taxes (including well)	4.38	5.07	5.77	
17. Interest on Land and Well ⁴	52.53	60.87	69.21	
18. Rent for Rented Land ⁵				
19. Depreciation on Crop Machinery	8.26	8.26	8.26	
20. Interest on Crop Machinery ⁶	8.57	8.57	8.57	
21. Depreciation on Irrigation Equipment and Well	63.15	63.15	63.15	
22. Interest on Irrigation Equipment ⁶	20.11	20.11	20.11	
23. Insurance on Machinery and Equipment	1.32	1.32	1.32	
B. TOTAL FIXED COSTS	\$ 158.31	\$ 167.34	\$ 176.38	
C. TOTAL COSTS (A + B)	\$ 414.16	\$452.82	\$491.29	
D. YIELD PER ACRE	4.8	6.2	7.5	
E. PRICE PER TON ⁷	\$ 70.00	\$ 70.00	\$ 70.00	
F. NET GOVERNMENT PAYMENT ⁷	\$ 8.67	\$ 9.42	\$ 10.17	
G. INDEMNITY PAYMENTS	\$	\$	\$	
H. MISCELLANEOUS INCOME	\$	\$	\$	
I. RETURNS PER ACRE [(D × E) + F + G + H]	\$ 344.67	\$443.42	\$ 535.17	
J. RETURNS OVER VARIABLE COSTS (I – A)	\$ 88.82	\$157.94	\$220.26	
K. RETURNS OVER TOTAL COSTS (I – C)	\$ -69.49	\$ -9.40	\$ 43.88	
L. VARIABLE COSTS PER TON (A ÷ D)	\$ 53.30	\$ 46.04	\$ 41.99	
M. TOTAL COSTS PER TON (C ÷ D)	\$ 86.28	\$ 73.04	\$ 65.51	
N. NET RETURN ON INVESTMENT				
[(K+15+17+20+22) ÷ INVESTMENT] ⁸	1.70%	6.07%	9.32%	

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.

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