KANSAS FARM MANAGEMENT & MARKETING HANDBOOK

KSU Farm Management Guide MF-2367

Sub-Irrigated Alfalfa Cost-Return Budget in Western Kansas

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The planting flexibility available under the 1996 Federal Agricultural Improvement and Reform Act has allowed increasing numbers of Kansas producers to consider alfalfa as a cash crop. Alfalfa can be a profitable crop enterprise in many lowland, sub-irrigated areas of Western Kansas. Markets for alfalfa hay are firmly established in Western Kansas where sizable cattle feeding and expanding dairy operations provide a ready demand, and alfalfa hay and pellets produced in Western Kansas are routinely shipped to other areas. Sizable price premiums are typically received for premium quality as opposed to average quality alfalfa hay. Perhaps in alfalfa as in no other Western Kansas crop enterprise, the timely and effective management of harvesting, handling, storage, and marketing operations is rewarded with higher hay quality and selling prices.

Yield Goals, Return Factors

Cost per ton and net returns in sub-irrigated alfalfa production are highly dependent on yields. The following estimated budget includes three different sub-irrigated alfalfa yield levels. Yield goals vary for a number of reasons such as soil type or land quality, historical weather patterns, input levels, and management, and in the case of sub-irrigated alfalfa, the availability of a shallow underground water table. Budgeting for alternative yield goals can help producers examine compare the profitability of crop enterprises on farmland tracts with varying yield potentials.

Variable and Fixed Costs, Return Factors

Variable costs such as fertilizer, repairs, and fuel oil may vary with the level of crop production. The cost columns show the interest on the variable costs (Lines 1 through 15) for one-half year. Fixed costs do not vary with level of production and are incurred by virtue of owning assets such as land and machinery. Land values have been 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. Projections of net percentage return on investment permit comparisons to be made among alternative enterprises or other investments.

Table 1. Factors Used for Cost-Return Budget

	Yield Level (ton)			
Item	**3**	**3.5**	**4**	
Fertilizer:*				
N (Anhy.)	0	0	0	$0.15/lb
N (Dry)	0	0	0	$0.23/lb
P	0	20	40	$0.27/lb
K	0	0	0	$0.14/lb
Lime	100	100	100	$0.0045/lb
Seed, lbs**	12	12	12	
Seed price, $/lb	$2.85	$2.85	$2.85	
Labor hours	2.67	2.80	2.93	
Labor price/hour				$10.80
Land value/acre*	$430	$540	$650	
Land interest rate				6.00%
Land real estate tax rate				0.50%
Machinery investment**				$191
Machinery life				10 yrs
Salvage value				35.00%
Interest rate on machinery				10.00%
Insurance rate on machinery				0.25%
Interest on variable costs				10.00%

** An additional 20 pounds of nitrogen and 40 pounds of phosphate applied at seeding time prorated over 4 years.*
*** Prorated over 4 years.*

COST-RETURN PROJECTION — SUB-IRRIGATED ALFALFA — WESTERN KANSAS

	Yield Level (ton) 3.0	3.5	4.0	Your Farm
VARIABLE COSTS PER ACRE:[1]				
1. Labor	$ 28.88	$ 30.24	$ 31.60	
2. Seed	8.55	8.55	8.55	
3. Herbicide			13.40	
4. Insecticide	12.76	12.76	12.76	
5. Fertilizer and Lime	4.30	9.70	15.10	
6. Fuel and Oil	7.41	7.76	8.11	
7.				
8. Machinery and Equipment Repairs	29.08	30.45	31.82	
9.				
10. Crop Insurance				
11. Drying				
12. Custom Hire				
13. Crop Consulting				
14. Miscellaneous	5.00	5.00	5.00	
15. Interest on 1/2 Variable Costs	4.80	5.22	6.32	
A. TOTAL VARIABLE COSTS	$ 100.78	$ 109.68	$ 132.66	
FIXED COSTS PER ACRE:[1]				
16. Real Estate Taxes	2.15	2.70	3.25	
17 Interest on Land[2]	25.80	32.40	39.00	
18. Rent for Rented Land				
19. Depreciation on Crop Machinery	12.42	12.42	12.42	
20. Interest on Crop Machinery[3]	12.89	12.89	12.89	
21.				
22.				
23. Insurance on Machinery	0.48	0.48	0.48	
B. TOTAL FIXED COSTS	$ 53.74	$ 60.89	$ 68.04	
C. TOTAL COSTS (A + B)	$ 154.52	$ 170.57	$ 200.70	
D. YIELD PER ACRE	3.0	3.5	4.0	
E. PRICE PER TON[4]	$ 79.00	$ 79.00	$ 79.00	
F. NET GOVERNMENT PAYMENT[4]	$ 11.77	$ 12.80	$ 13.82	
G. INDEMNITY PAYMENTS	$	$	$	
H. MISCELLANEOUS INCOME	$	$	$	
I. RETURNS PER ACRE [(D × E) + F + G + H]	$ 248.77	$ 289.30	$ 329.82	
J. RETURNS OVER VARIABLE COSTS (I – A)	$ 147.99	$ 179.62	$ 197.16	
K. RETURNS OVER TOTAL COSTS (I – C)	$ 94.25	$ 118.73	$ 129.12	
L. VARIABLE COSTS PER TON (A ÷ D)	$ 33.59	$ 31.34	$ 33.17	
M. TOTAL COSTS PER TON (C ÷ D)	$ 51.51	$ 48.73	$ 50.18	
N. NET RETURN ON INVESTMENT [(K+15+17+20) ÷ INVESTMENT][5]	22.18%	23.15%	22.27%	

[1]Totals were derived using information listed in Table 1. [2]Assumes interest rate shown in Table 1. [3]Assumes one-half the average investment [(initial investment + salvage value) ÷ 2] at the interest rate shown in Table 1. [4]See 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. [5]Investment equals total value of all fixed assets shown in Table 1.

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