



Sub-Irrigated Alfalfa Cost-Return Budget in Western Kansas

Department of Agricultural Economics



Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Daniel M. O'Brien

Extension Agricultural Economist
NW

Troy J. Dumler

Extension Agricultural Economist
SW

Curtis R. Thompson

Extension Specialist, Crops and Soils
SW

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, subirrigated 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 Level

Cost per ton and net returns in sub-irrigated alfalfa production are highly dependent on yields. The three yield levels represent expected yields associated with variations in land quality, weather, input levels, and management. Budgeting for alternative expected yields can help producers compare the profitability of crop enterprises on farmland tracts with varying yield potentials. Crop insurance was not included in the budget as an input expense because alfalfa is typically not insured.

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 levels 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

Item	Yield Level (ton)			
	3	3.5	4	
Fertilizer:*				
N (Anhy.)	0	0	0	\$0.11/lb
N (Dry)	0	0	0	\$0.20/lb
P	20	40	60	\$0.22/lb
K	0	0	0	\$0.14/lb
Lime	0	0	0	\$0.01/lb
Seed, lbs.**	12.0	12.0	12.0	
Seed price, \$/lb.	\$2.82	\$2.82	\$2.82	
Labor hours	2.67	2.80	2.93	
Labor price/hour				\$10.80
Land value/acre	\$393	\$492	\$590	
Land interest rate				6.00%
Land real estate tax rate				0.50%
Machinery investment				\$191
Machinery life				10 yrs
Salvage value				35%
Interest rate on machinery				9.00%
Insurance rate on machinery				0.25%
Interest on variable costs				9.00%

*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)			Your Farm
	3.0	3.5	4.0	
VARIABLE COSTS PER ACRE: ¹				
1. Labor	\$ 28.88	\$ 30.24	\$ 31.60	
2. Seed	8.46	8.46	8.46	
3. Herbicide	0.00	0.00	13.16	
4. Insecticide	12.47	12.47	12.47	
5. Fertilizer and Lime	7.60	12.00	16.40	
6. Fuel and Oil	9.59	10.05	10.50	
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	4.55	4.89	5.82	
A. TOTAL VARIABLE COSTS	\$ 105.63	\$ 113.56	\$ 135.23	
FIXED COSTS PER ACRE: ¹				
16. Real Estate Taxes	1.97	2.46	2.95	
17 Interest on Land ²	23.58	29.52	35.40	
18. Rent for Rented Land				
19. Depreciation on Crop Machinery	12.42	12.42	12.42	
20. Interest on Crop Machinery ³	11.60	11.60	11.60	
21.				
22.				
23. Insurance on Machinery	0.48	0.48	0.48	
B. TOTAL FIXED COSTS	\$ 50.04	\$ 56.48	\$ 62.85	
C. TOTAL COSTS (A + B)	\$ 155.67	\$ 170.03	\$ 198.08	
D. YIELD PER ACRE	3.0	3.5	4.0	
E. PRICE PER TON ⁴	\$ 71.00	\$ 71.00	\$ 71.00	
F. NET GOVERNMENT PAYMENT ⁴	\$ 10.72	\$ 11.65	\$ 12.58	
G. INDEMNITY PAYMENTS	\$	\$	\$	
H. MISCELLANEOUS INCOME	\$	\$	\$	
I. RETURNS PER ACRE [(D × E) + F + G + H]	\$ 223.72	\$ 260.15	\$ 296.58	
J. RETURNS OVER VARIABLE COSTS (I – A)	\$ 118.09	\$ 146.59	\$ 161.35	
K. RETURNS OVER TOTAL COSTS (I – C)	\$ 68.05	\$ 90.12	\$ 98.50	
L. VARIABLE COSTS PER TON (A ÷ D)	\$ 35.21	\$ 32.44	\$ 33.81	
M. TOTAL COSTS PER TON (C ÷ D)	\$ 51.89	\$ 48.58	\$ 49.52	
N. NET RETURN ON INVESTMENT				
[(K+15+17+20) ÷ INVESTMENT] ⁵	18.46%	19.93%	19.38%	

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

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

Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit Daniel M. O'Brien, Troy L. Dumler, and Curtis R. Thompson, *Sub-Irrigated Alfalfa Cost-Return Budget in Western Kansas*, Kansas State University, October 1999.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-2367

October 1999

It is the policy of Kansas State University Agricultural Experiment Station and Cooperative Extension Service that all persons shall have equal opportunity and access to its educational programs, services, activities, and materials without regard to race, color, religion, national origin, sex, age or disability. Kansas State University is an equal opportunity organization. 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, Marc A. Johnson, Director.

File code: Farm Management 3-1