

Sub-Irrigated Alfalfa

Cost-Return Budget in Western Kansas

Department of Agricultural Economics



Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Troy J. Dumler
Agricultural Economist, SW

Roger Stockton
Crops and Soils, NW

Curtis R. Thompson
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, sub-irrigated areas of western Kansas. Markets for alfalfa hay are well established in western Kansas where sizable cattle feeding and expanding dairy operations provide a ready demand. Additionally, alfalfa hay and pellets produced in the region are routinely shipped to other areas. Perhaps with alfalfa, as with 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.

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 — Sub-irrigated Alfalfa*

Item	Yield Level (ton)			
	3.5	4.5	5.5	
Seed, lbs	3.0	3.0	3.0	\$3.32/lb
Fertilizer:				
N (anhydrous)	0	0	0	\$0.20/lb
N	4	4	4	\$0.28/lb
P	54	67	80	\$0.23/lb
K	0	0	0	\$0.15/lb
Lime	0	0	0	\$0.01/lb
Herbicide				
Karmex	0.67	0.67	0.67	\$4.67/lb
Insecticide / Fungicide				
Furadan 4F	0.5	0.5	0.5	\$19.77/lb

* Inputs represent annualized amounts over the five-year stand.

Price per ton is based on the average Kansas Agricultural Statistics prices from May through July 2002.

Sizable price premiums are typically received for premium or dairy quality as opposed to average quality alfalfa hay. Producers need to account for the quality of their alfalfa and marketing opportunities when making their own price forecasts.

Table 2. Machinery and Land Resources — Sub-irrigated Alfalfa*

Item	Yield Level (tons)			Custom Rate	Farm Rate
	3.5	4.5	5.5		
Tillage/Planting/Chemical Applications:					
Sweep	0.8	0.8	0.8	\$5.38	\$6.80/a
Disk	0	0	0	\$6.34	\$8.01/a
Field cultivate	0	0	0	\$6.16	\$7.78/a
Drill	0.2	0.2	0.2	\$9.83	\$12.42/a
Anhydrous application	0	0	0	\$5.90	\$7.45/a
Fertilizer application	1	1	1	\$3.58	\$4.52/a
Herbicide application	0.33	0.33	0.33	\$3.81	\$4.81/a
Insecticide application	1	1	1	\$3.90	\$4.93/a
Harvest					
Swathing and conditioning	3	3	3	\$8.59	\$10.85/a
Sideraking	1	1	1	\$2.95	\$3.73/a
Baling (number of bales/acre)**	4.7	6.0	7.3	\$11.24	\$14.20/bale
Non-machinery labor	1.37	1.59	1.80	\$10.00/hr	
Land value/acre	\$511	\$638	\$765		
Interest on capital					7.0%

* Machinery operations represent annualized amounts over the five-year stand.

** Assumes big round bales weighing 1500 pounds, without net — cost includes hauling to storage

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, than 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 1-13. Kansas Custom Rates for specific field opera-

tions 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, and insecticide requirements (rate and cost/unit) for sub-irrigated alfalfa. Herbicide requirements include both pre-crop and in-crop treatments. Table 2 outlines the machinery and land resources used for sub-irrigated alfalfa. Each tillage, planting, and harvest operation is identified.

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

	Yield Level (ton)			Your Farm
	3.5	4.5	5.5	
INCOME PER ACRE				
A. Yield per acre	3.5	4.5	5.5	
B. Price per ton	\$ 75.33	\$ 75.33	\$ 75.33	
C. Net government payment	\$ 9.34	\$ 10.15	\$ 10.96	
D. Indemnity payments	\$	\$	\$	
E. Miscellaneous income	\$	\$	\$	
F. Returns/acre ((A × B) + C + D + E)	\$ 272.99	\$ 349.14	\$ 425.28	
COSTS PER ACRE				
1. Seed	\$ 9.96	\$ 9.96	\$ 9.96	
2. Herbicide	3.11	3.11	3.11	
3. Insecticide / Fungicide	9.88	9.88	9.88	
4. Fertilizer and Lime	13.45	16.58	19.52	
5. Crop Consulting				
6. Crop Insurance				
7. Drying				
8. Miscellaneous	5.50	5.50	5.50	
9. Custom Hire / Machinery Expense	121.53	140.41	159.29	
10. Non-machinery Labor	13.73	15.87	18.00	
11. Irrigation				
a. Labor				
b. Fuel and Oil				
c. Repairs and Maintenance				
d. Depreciation on Equipment and Well				
e. Interest on Equipment				
12. Land Charge / Rent	29.35	36.67	43.99	
G. SUB TOTAL	\$ 206.52	\$ 237.98	\$ 269.25	
13. Interest on 1/2 Nonland Costs	6.20	7.05	7.88	
H. TOTAL COSTS	\$ 212.72	\$ 245.02	\$ 277.14	
I. RETURNS OVER COSTS (F - H)	\$ 60.28	\$ 104.11	\$ 148.14	
J. TOTAL COSTS/TON (H ÷ A)	\$ 60.78	\$ 54.45	\$ 50.39	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	32.19%	46.71%	57.95%	

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 Troy J. Dumler et al., *Sub-Irrigated Alfalfa Cost-Return Budget in Western Kansas*, Kansas State University, October 2003.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-2367

October 2003

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, George E. Ham, Interim Director.