Sub-Irrigated Alfalfa Cost-Return Budget in Western Kansas

Department of Agricultural Economics — *www.agmanager.info*

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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 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	3	3	$4.10/lb
Fertilizer:				
N (anhydrous)	0	0	0	$0.33/lb
N	4	4	4	$0.50/lb
P	54	67	80	$0.51/lb
K	0	0	0	$0.42/lb
Lime	0	0	0	$0.01/lb
Herbicide				
Karmex	0.67	0.67	0.67	$5.97/lb
Insecticide / Fungicide				
Furadan 4F	0.5	0.5	0.5	$23.89/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.

Crop insurance was not included as an input expense in this budget because yields reflect an average of all years (good and

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

Item	Yield Level (ton) 3.5	4.5	5.5	Custom Rate
Tillage/Planting/Chemical Applications:				
Sweep	0.8	0.8	0.8	$7.82/a
Disk	0	0	0	$9.20/a
Field cultivate	0	0	0	$9.15/a
Drill	0.2	0.2	0.2	$13.80/a
Anhydrous application	0	0	0	$10.99/a
Fertilizer application	1	1	1	$4.96/a
Herbicide application	0.33	0.33	0.33	$5.10/a
Insecticide application	1	1	1	$5.10/a
Harvest				
Swathing and conditioning	3	3	3	$12.13/a
Sideraking	1	1	1	$4.24/a
Baling (number of bales/a)**	4.67	6	7.33	$15.76/bale
Non-machinery labor	1.17	1.36	1.54	$13.00/hr
Land charge/rent	$29.60	$37.00	$44.40	
Interest on capital				7.0%

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

*** Assumes big round bales weighing 1,500 pounds, without net — cost includes hauling to storage*

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 operations 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
	3.5	4.5	5.5	Farm
INCOME PER ACRE				
A. Yield per acre	3.5	4.5	5.5	
B. Price per ton	$ 108.13	$ 108.13	$ 108.13	
C. Net government payment	$ 7.48	$ 8.13	$ 8.78	
D. Indemnity payments	$	$	$	
E. Miscellaneous income	$	$	$	
F. Returns/acre ((A × B) + C + D + E)	$ 385.94	$ 494.72	$ 603.50	
COSTS PER ACRE				
1. Seed	$ 12.30	$ 12.30	$ 12.30	
2. Herbicide	3.98	3.98	3.98	
3. Insecticide / Fungicide	11.95	11.95	11.95	
4. Fertilizer and Lime	29.05	35.92	42.38	
5. Crop Consulting				
6. Crop Insurance				
7. Drying				
8. Miscellaneous	5.50	5.50	5.50	
9. Custom Hire / Machinery Expense	134.99	155.95	176.91	
10. Non-machinery Labor	15.25	17.62	19.99	
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	29.60	37.00	44.40	
G. SUB TOTAL	$ 242.62	$ 280.21	$ 317.41	
13. Interest on ½ Nonland Costs	7.46	8.51	9.56	
H. TOTAL COSTS	$ 250.07	$ 288.73	$ 326.96	
I. RETURNS OVER COSTS (F - H)	$ 135.86	$ 205.99	$ 276.53	
J. TOTAL COSTS/TON (H ÷ A)	$ 71.45	$ 64.16	$ 59.45	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	59.07%	76.55%	90.13%	

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MF-2367 November 2010