



Alfalfa Costs and Returns in Central and Eastern Kansas

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Resources and Returns

Labor needed to produce a ton of alfalfa hay ranges from one-half hour for a fully automated system to 1.6 hours per ton for a conventional baling system. Capital needed for alfalfa production also varies widely depending on the system used. High labor, low investment systems require a tractor, mower, rake, baler and wagons. High capital, low labor systems use a self-propelled swather, tractor and heavy duty baler, and an automatic bale wagon.

Yield Levels

Cost per bushel and net returns in crop production are highly dependent on yields. The following estimated budget includes three different yield levels. Yield levels vary for a number of reasons, such as soil type, land quality, weather, input levels, and management. The three yield levels included in this estimated budget reflect yield variability due to input levels and management as opposed to land quality since land values are held constant. Budgeting at multiple yield levels can help producers examine the financial risk of a crop enterprise that is directly related to production risk.

Variable and Fixed Costs

Variable costs are costs that vary with level of production such as fertilizer, repairs, and fuel-oil. Interest was computed on one-half the variable costs.

Fixed costs do not vary by level of production and are incurred by virtue of owning assets such as land and machinery. If the land is rented, the rent per acre should be listed on Line 17, and no taxes or interest should be shown on Lines 15 and 16. Interest was calculated on one-half the original cost plus salvage value of machinery.

Profit and Return Factors

Net return on investment is the percentage return on investment. This measure enables comparisons to be made between other enterprises as well as other investment alternatives. Asset turnover is the percentage of investment recovered by total returns. Inverting this measure allows different enterprises to be compared on the basis of capital required to generate a dollar of gross income.

Table 1. Factors Used for Cost-Return Budget

Item	Yield Level (ton)			
	2.50	3.50	4.50	
Fertilizer*:				
N. (Anhy.)	0	0	0	\$0.19/lb
N. (Dry)	0	0	0	\$0.29/lb
P.	0	20	40	\$0.27/lb
K.	0	20	40	\$0.13/lb
Lime	500	500	500	\$0.01/lb
Seed, lbs**	8	8	8	
Seed cost, \$/lb.	\$2.75	\$2.75	\$2.75	
Labor Hours	5.00	5.40	5.80	
Labor Price/Hour				9.00
Land Value/Acre				\$610.00
Land Interest Rate				6.00%
Machinery Investment				\$182.00
Machinery Life				10 yrs
Salvage value				20.00%
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 phosphate applied at seeding time prorated over 4 years.

**Prorated over 4 years.

COST-RETURN PROJECTION—ALFALFA HAY—CENTRAL AND EASTERN KANSAS

	Yield Level (ton)			Your Farm
	2.5	3.5	4.5	
VARIABLE COSTS PER ACRE:				
1. Labor (____ hrs × \$9.00/hr)	\$45.00	\$48.60	\$52.20	
2. Seed (8 lbs × \$2.75 ÷ 4 yrs)	5.50	5.50	5.50	
3. Herbicide (\$16.48) and Insecticide (\$11.01)	11.25	11.25	25.25	
4. Fertilizer and Lime	6.65	14.65	22.65	
5. Fuel and Oil	15.65	17.65	19.65	
6.				
7. Machinery & Equipment Repairs	26.65	26.65	26.65	
8.				
9. Crop Insurance				
10. Drying				
11. Custom Hire				
12. Crop Consulting				
13. Miscellaneous	6.25	6.25	6.25	
14. Interest on ½ Variable Costs @ 10%	5.85	6.53	7.91	
A. TOTAL VARIABLE COSTS	\$122.80	\$137.08	\$166.06	
FIXED COSTS PER ACRE:				
15. Real Estate Taxes @ .5%	\$3.05	\$3.05	\$3.05	
16. Interest on Land ¹ (\$610/A @ 6%)	36.60	36.60	36.60	
17. Rent for Rented Land				
18. Depreciation on Crop Machinery	14.56	14.56	14.56	
19. Interest on Crop Machinery ² @ 10%	10.92	10.92	10.92	
20.				
21.				
22. Insurance on Machinery @ .25%	0.46	0.46	0.46	
B. TOTAL FIXED COSTS	\$65.59	\$65.59	\$65.59	
C. TOTAL COSTS (A + B)	\$188.38	\$202.66	\$231.64	
D. YIELD PER ACRE	2.5	3.5	4.5	
E. PRICE PER TON	\$70.00	\$70.00	\$70.00	
F. NET GOVERNMENT PAYMENT ³				
G. RETURNS PER ACRE ((D × E) + F)	\$175.00	\$245.00	\$315.00	
H. RETURNS OVER VARIABLE COSTS (G-A)	\$52.20	\$107.92	\$148.94	
I. RETURNS OVER TOTAL COSTS (G-C)	\$ -13.38	\$42.34	\$83.36	
J. VARIABLE COSTS PER TON (A ÷ D)	\$49.12	\$39.17	\$36.90	
K. FIXED COSTS PER TON (B ÷ D)	\$26.23	\$18.74	\$14.57	
L. TOTAL COSTS PER TON (C ÷ D)	\$75.35	\$57.90	\$51.48	
M. ASSET TURNOVER (G ÷ INVESTMENT) ⁴	22.10%	30.93%	39.77%	
N. NET RETURN ON INVESTMENT ((I+14+16+19) ÷ INVESTMENT) ⁴	5.05%	12.17%	17.52%	

¹Assumes interest rate shown in Table 1.

²Assumes one-half the (original cost plus salvage value) at the interest rate shown in Table 1.

³Net government payment equals yield per acre (D) times expected deficiency payment minus prorated cost of set-aside acres. Based on 15% flex acres and 5% ARP. The price used was a five-year average price. The twelve month national average price for the crop year. The 1995 farm program may have major changes.

⁴Investment equals total value of all fixed assets shown in Table 1.



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