KANSAS FARM MANAGEMENT & MARKETING HANDBOOK

KSU Farm Management Guide MF-363

Alfalfa Cost-Return Budget in Central and Eastern Kansas

Department of Agricultural Economics

K-STATE Kansas State University

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Marvin R. Fausett
Extension Agricultural Economist, SE

Gerald W. Warmann
Extension Agricultural Economist, SC

Resources and Returns

Labor needed to produce a ton of alfalfa hay ranges from 30 minutes 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, heavy-duty baler, and an automatic bale wagon.

Yield Level

Cost per ton and net returns in crop production are highly dependent on yields. The following estimated budget includes three different yield levels. The three yield levels are intended to represent expected yields of varying land quality for a given level of management. Land values, government payments, and various inputs vary as yield levels vary. Crop insurance was not included in the budget as an input expense because yields reflect an average of all years (good and bad). If crop insurance is included as an input expense, then an expected value for indemnity payments should be included in the returns section. Historically, MPCI indemnity payments have exceeded premiums due to government subsidies.

Variable and Fixed Costs

Table 1 shows some of the assumptions used to develop this budget. Note the lime amount assumes that 1 ton of ECC is applied every 4 years. See MF-942, *Cost-Return Budgets—Nonirrigated Crops*, for herbicide and insecticide usage.

Variable costs, such as labor, fertilizer, repairs, and fuel-oil, are costs that vary with the level of production. Labor requirements include time for management and marketing, whether operator or hired labor. Interest on variable costs is estimated by using one-half of the accumulated variable costs for the year.

Fixed costs do not vary with the level of production and are incurred by virtue of owning assets such as land and machinery. Machinery investment was estimated for an average-sized farm to meet tillage, planting, and harvest requirements. Salvage value of machinery was assumed to be 20 percent of the initial investment. Interest on machinery was calculated on one-half the average investment [(initial investment + salvage value)÷2]. Land costs are based on owned land. If the land is cash rented, the cost of rent per acre should be listed on line 18 and no taxes or interest shown on lines 16 and 17. If land is rented on a cropshare basis, rent is reflected in the yield.

Profit and Return Factors

Net return on investment is the percentage return on investment. This measure enables comparisons to be made among other enterprises and investment alternatives. If the land market is efficient, the return on investment for land of varying qualities should be approximately equal. If the return on investment from lower quality land is low relative to the returns on investment from land of higher quality, it is a signal that the land is overpriced relative to better quality land.

Table 1. Factors Used for Cost-Return Budget

	Yield Level (ton)			
Item	**2.5**	**3.5**	**4.5**	
Fertilizer*:				
N (Anhy.)	0	0	0	$0.17/lb
N (Dry)	0	0	0	$0.31/lb
P	0	20	40	$0.28/lb
K	0	20	40	$0.13/lb
Lime	500	500	500	$0.005/lb
Seed, lbs**	8	8	8	
Seed price, $/lb	$2.85	$2.85	$2.85	
Labor hours	5.00	5.40	5.80	
Labor price/hour				$10.80
Land value/acre*	$530	$663	$795	
Land interest rate				6.00%
Land real estate tax rate				0.50%
Machinery investment**				$200
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 of phospate applied at seeding time prorated over 4 years.*
***Prorated over 4 years.*

COST-RETURN PROJECTION — ALFALFA — CENTRAL AND EASTERN KANSAS

	Yield Level (ton) 2.5	3.5	4.5	Your Farm
VARIABLE COSTS PER ACRE:[1]				
1. Labor	$ 54.00	$ 58.32	$ 62.64	
2. Seed	5.70	5.70	5.70	
3. Herbicide	0.00	0.00	13.15	
4. Insecticide	12.19	12.19	12.19	
5. Fertilizer and Lime	6.85	15.05	23.25	
6. Fuel and Oil	16.00	18.00	20.00	
7.				
8. Machinery and Equipment Repairs	19.99	26.65	33.31	
9.				
10. Crop Insurance				
11. Drying				
12. Custom Hire				
13. Crop Consulting				
14. Miscellaneous	5.25	5.25	5.25	
15. Interest on ½ Variable Costs	6.00	7.06	8.77	
A. TOTAL VARIABLE COSTS	$ 125.98	$ 148.22	$ 184.27	
FIXED COSTS PER ACRE:[1]				
16. Real Estate Taxes	2.65	3.31	3.98	
17 Interest on Land[2]	31.80	39.75	47.70	
18. Rent for Rented Land				
19. Depreciation on Crop Machinery	16.00	16.00	16.00	
20. Interest on Crop Machinery[3]	12.00	12.00	12.00	
21.				
22.				
23. Insurance on Machinery	0.50	0.50	0.50	
B. TOTAL FIXED COSTS	$ 62.95	$ 71.56	$ 80.18	
C. TOTAL COSTS (A + B)	$ 188.93	$ 219.78	$ 264.44	
D. YIELD PER ACRE	2.5	3.5	4.5	
E. PRICE PER TON[4]	$ 75.00	$ 75.00	$ 75.00	
F. NET GOVERNMENT PAYMENT[4]	$ 10.58	$ 11.50	$ 12.41	
G. INDEMNITY PAYMENTS	$	$	$	
H. MISCELLANEOUS INCOME	$	$	$	
I. RETURNS PER ACRE [(D × E) + F + G + H]	$ 198.08	$ 274.00	$ 349.91	
J. RETURNS OVER VARIABLE COSTS (I – A)	$ 72.10	$ 125.78	$ 165.65	
K. RETURNS OVER TOTAL COSTS (I – C)	$ 9.15	$ 54.21	$ 85.47	
L. VARIABLE COSTS PER BUSHEL (A ÷ D)	$ 50.39	$ 42.35	$ 40.95	
M. TOTAL COSTS PER BUSHEL (C ÷ D)	$ 75.57	$ 62.79	$ 58.76	
N. NET RETURN ON INVESTMENT [(K+15+17+20) ÷ INVESTMENT][5]	8.08%	13.10%	15.47%	

[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.*

Kansas State University Agricultural Experiment Station and Cooperative Extension Service, Manhattan, Kansas

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