



Corn Silage Cost-Return Budget in Northeast Kansas

Department of Agricultural Economics



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Cost-Return Projections

Cost-return projections provide estimated costs and returns for forward farm planning. They are crop and region-of-Kansas specific. Production costs for individual farmers will vary considerably due to the amounts of fertilizer and chemicals applied, the type and amount of farm machinery owned, and land costs.

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. The moisture and grain content of the silage at harvest will effect yield levels. Yield levels in this budget are based on harvesting silage at 35 percent dry matter containing 47 percent grain. 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 five 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. Custom rates are included for cutting, hauling, and filling a silo and thus labor, fuel-oil, and machinery repairs represent only those costs associated with land tillage and planting.

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 and planting requirements. Salvage value of machinery was assumed to be 35 percent of the initial

investment. Interest on machinery was calculated on one-half the average investment $[(\text{initial investment} + \text{salvage value}) \div 2]$. 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, this is a signal that the land is overpriced relative to better quality land.

Table 1. Factors Used for Cost-Return Budget

Item	Yield Level (ton)			
	11.7	15.0	18.3	
Fertilizer:				
N (Anhy.)	80	110	130	\$0.15/lb
N (Dry)	10	10	10	\$0.23/lb
P	30	30	30	\$0.27/lb
K	0	20	30	\$0.14/lb
Lime	400	400	400	\$0.0045/lb
Seed, seeds/acre 25,000	25,000	25,000	25,000	
Seed price,				
\$/1,000 seeds	\$1.20	\$1.20	\$1.20	
Labor hours	1.41	1.50	1.59	
Labor price/hour				\$10.80
Land value/acre	\$660	\$825	\$990	
Land interest rate				6.00%
Land real estate tax rate				0.50%
Machinery investment				\$133
Machinery life				10 yrs
Salvage value				35.00%
Interest rate on machinery				10.00%
Insurance rate on machinery				0.25%
Interest on variable costs				10.00%

COST-RETURN PROJECTION — CORN SILAGE — NORTHEAST KANSAS

	Yield Level (ton)			Your Farm
	11.7	15.0	18.3	
VARIABLE COSTS PER ACRE: ¹				
1. Labor	\$ 15.23	\$ 16.20	\$ 17.17	
2. Seed	30.00	30.00	30.00	
3. Herbicide	21.50	21.50	21.50	
4. Insecticide	15.03	15.03	15.03	
5. Fertilizer and Lime	24.20	31.50	35.90	
6. Fuel and Oil	3.37	3.59	3.81	
7.				
8. Machinery and Equipment Repairs	9.44	10.05	10.66	
9.				
10. Crop Insurance				
11. Drying				
12. Custom Hire	58.50	75.00	91.50	
13. Crop Consulting				
14. Miscellaneous	8.00	8.00	8.00	
15. Interest on ½ Variable Costs	9.26	10.54	11.68	
A. TOTAL VARIABLE COSTS	\$ 194.53	\$ 221.42	\$ 245.26	
FIXED COSTS PER ACRE: ¹				
16. Real Estate Taxes	3.30	4.13	4.95	
17 Interest on Land ²	39.60	49.50	59.40	
18. Rent for Rented Land				
19. Depreciation on Crop Machinery	8.65	8.65	8.65	
20. Interest on Crop Machinery ³	8.98	8.98	8.98	
21.				
22.				
23. Insurance on Machinery	0.33	0.33	0.33	
B. TOTAL FIXED COSTS	\$ 60.86	\$ 71.58	\$ 82.31	
C. TOTAL COSTS (A + B)	\$ 255.39	\$ 293.00	\$ 327.56	
D. YIELD PER ACRE	11.7	15.0	18.3	
E. PRICE PER TON ⁴	\$ 18.96	\$ 18.96	\$ 18.96	
F. NET GOVERNMENT PAYMENT ⁴	\$ 8.29	\$ 9.01	\$ 9.73	
G. INDEMNITY PAYMENTS	\$	\$	\$	
H. MISCELLANEOUS INCOME	\$	\$	\$	
I. RETURNS PER ACRE [(D × E) + F + G + H]	\$ 230.12	\$ 293.41	\$ 356.70	
J. RETURNS OVER VARIABLE COSTS (I – A)	\$ 35.59	\$ 71.99	\$ 111.44	
K. RETURNS OVER TOTAL COSTS (I – C)	\$ –25.27	\$ 0.41	\$ 29.14	
L. VARIABLE COSTS PER TON (A ÷ D)	\$ 16.63	\$ 14.76	\$ 13.40	
M. TOTAL COSTS PER TON (C ÷ D)	\$ 21.83	\$ 19.53	\$ 17.90	
N. NET RETURN ON INVESTMENT				
[(K+15+17+20) ÷ INVESTMENT] ⁵	4.11%	7.25%	9.72%	

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.

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