

Corn Silage Cost-Return Budget in Northeast Kansas

Department of Agricultural Economics — www.agmanager.info

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Sarah L. Fogleman
Agricultural Economist, SE

Stewart R. Duncan
Crops and Soils, NE

Corn silage can be a very important feed ingredient in livestock rations, but there is considerable variability in different types of corn silage. There are several corn hybrids that are suited for either grain or silage production, often allowing the producer to make a decision about whether to harvest the crop as grain or silage during the season. However, there are generally tradeoffs of grain yield for silage yield depending on which hybrid is chosen. This budget is based on corn grown for corn silage in rotation using a no-till system.

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. Yield levels are based on historical data from Kansas Agricultural Statistics Service and the Northeast Kansas Farm Management Association, adjusting for trends over time. Based on K-State research findings, this budget assumes a higher yield for corn silage in rotation than would be expected for continuous corn silage production. 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 as well as government payments specific to your land.

Table 1. Production Inputs — Corn Silage

Item	Yield Level (ton)			
	12.7	15.8	19.1	
Seed, 1,000/a	28	28	28	\$1.80/1,000
Fertilizer:				
N (anhydrous)	77	103	131	\$0.29/lb
N	14	18	21	\$0.40/lb
P	48	60	72	\$0.25/lb
K	0	0	0	\$0.20/lb
Lime	500	500	500	\$0.01/lb
Herbicide				
Bicep II Magnum (PRE)	2.0	2.0	2.0	\$9.55/qt

Insecticide / Fungicide

* *Bt/Gaucha treated seed*

Price per ton is calculated using an expected harvest price for corn in Topeka, Kan. (corn price x 8.0) and reflects the price of silage in the bunker. Producers in other areas should use an expected price representative of their location. Typically, a reasonable forecast for corn price is to use the futures market adjusted by the historical basis for a particular location, where basis equals cash price minus futures price.

Table 2. Machinery and Land Resources — Corn Silage

Item	Yield Level (ton)			Custom Rate
	12.7	15.8	19.1	
Tillage/Planting/Chemical Applications:				
Chisel	0	0	0	\$8.56/a
Disk	0	0	0	\$7.36/a
Field cultivate	0	0	0	\$6.75/a
No-till plant	1	1	1	\$11.35/a
Anhydrous application	1	1	1	\$7.46/a
Fertilizer application	0	0	0	\$4.07/a
Herbicide application	1	1	1	\$4.34/a
Insecticide / fungicide application	0	0	0	\$4.33/a
Harvest				
Base charge	1	1	1	\$0.00/a
Extra charge for yields exceeding	0	0	0	\$5.720/ton
Hauling	12.7	15.8	19.1	\$0.000/ton
Non-machinery labor	1.08	1.28	1.50	\$10.00/hr
Land value/a	\$1,005	\$1,256	\$1,507	5.10%
Interest on capital				8.0%

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, then an expected value for indemnity payments should be included in the returns section.

Costs Per Acre

Production costs at the three yield levels are shown on lines 1 through 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. Table 1 identifies seed, fertilizer, herbicide, and insecticide requirements (rate and cost/unit) for corn silage. Fertilizer requirements are adjusted up for the higher yields expected under rotation, allowing for a 30-pound-per-acre nitrogen credit following soybeans. Herbicide requirements include both pre-crop and in-crop treatments. Insecticide costs are assumed to be limited to seed treatment under a rotation system. Table 2 outlines the machinery and land resources used for corn silage in a no-till system.

COST-RETURN PROJECTION — CORN SILAGE — NORTHEAST KANSAS

	Yield Level (ton)			Yield Level (ton)	Your Farm
	12.7	15.8	19.1		
INCOME PER ACRE					
A. Yield per acre	12.7	15.8	19.1		
B. Price per ton	\$ 18.48	\$ 18.48	\$ 18.48		
C. Net government payment.....	\$ 12.84	\$ 13.96	\$ 15.08		
D. Indemnity payments.....	\$	\$	\$		
E. Miscellaneous income	\$	\$	\$		
F. Returns/acre ((A × B) + C + D + E)	\$ 247.54	\$ 305.94	\$ 368.04		
COSTS PER ACRE					
1. Seed	\$ 50.40	\$ 50.40	\$ 50.40		
2. Herbicide.....	19.10	19.10	19.10		
3. Insecticide / Fungicide					
4. Fertilizer and Lime.....	44.93	57.07	69.39		
5. Crop Consulting					
6. Crop Insurance					
7. Drying					
8. Miscellaneous	8.25	8.25	8.25		
9. Custom Hire / Machinery Expense	95.79	113.53	132.40		
10. Non-machinery Labor.....	10.82	12.83	14.96		
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	51.26	64.06	76.86		
G. SUB TOTAL.....	\$ 280.55	\$ 325.23	\$ 371.36		
13. Interest on ½ Nonland Costs.....	9.17	10.45	11.78		
H. TOTAL COSTS	\$ 289.73	\$ 335.68	\$ 383.14		
I. RETURNS OVER COSTS (F - H).....	\$ -42.19	\$ -29.73	\$ -15.10		
J. TOTAL COSTS/TON (H ÷ A).....	\$ 22.81	\$ 21.25	\$ 20.06		
K. RETURN TO ANNUAL COST (I + 13) ÷ G	-11.77%	-5.93%	-0.89%		

Publications from Kansas State University are available on the World Wide Web at: www.oznet.ksu.edu.

Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit Sarah L. Fogleman and Stewart R. Duncan, *Corn Silage Cost-Return Budget in Northeast Kansas*, Kansas State University, October 2005.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-2364

October 2005

K-State Research and Extension is an equal opportunity provider and employer. 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, Fred A. Cholick, Director.