

Center-Pivot-Irrigated Corn Silage Cost-Return Budget in Western Kansas

Department of Agricultural Economics



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This budget provides cost and return estimates for center-pivot-irrigated corn silage in western Kansas. Confinement livestock operations use most of the corn silage produced in the area. Production practices and input requirements for center-pivot-irrigated corn silage are nearly identical to those of corn for grain.

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.

Price per ton is based on the expected corn grain harvest price in Scott City, Kan., accounting for government marketing loan price support levels. Corn silage producers in

Table 1. Production Inputs — Center-Pivot-Irrigated Corn Silage

Item	Yield Level (ton)			
	21.6	25.7	29.7	
Seed, 1,000/a	28	32	36	\$1.16/1,000
Fertilizer:				
N (anhydrous)	216	257	297	\$0.20/lb
N	0	0	0	\$0.28/lb
P	69	82	94	\$0.23/lb
K	0	0	0	\$0.15/lb
Lime	0	0	0	\$0.01/lb
Herbicide				
Bicep II Magnum	2.0	2.0	2.0	\$10.24/qt
Insecticide / Fungicide				
Force 3G	5.4	5.4	5.4	\$4.38/lb
Irrigation water, in	14	19	24	\$2.85/in

other regions of western Kansas should use an expected price that is representative of local market conditions.

Table 2. Machinery and Land Resources — Center-Pivot-Irrigated Corn Silage

Item	Yield Level (ton)			Custom Rate	Farm Rate
	21.6	25.7	29.7		
Tillage/Planting/Chemical Applications:					
Chisel	1	1	1	\$7.61	\$9.61/a
Disk	1	1	1	\$6.34	\$8.01/a
Field cultivate	1	1	1	\$6.16	\$7.78/a
Plant	1	1	1	\$8.54	\$10.79/a
Anhydrous application	1	1	1	\$5.90	\$7.45/a
Fertilizer application	0	0	0	\$3.58	\$4.52/a
Herbicide application	1	1	1	\$3.81	\$4.81/a
Insecticide / fungicide application	0	0	0	\$3.90	\$4.93/a
Harvest					
Base charge	1	1	1	\$0.00	\$0.00/a
Extra charge for yields exceeding	0	0	0	\$5.680	\$7.174/ton
Hauling	21.6	25.7	29.7	\$0.000	\$0.000/ton
Non-machinery labor	2.30	2.63	2.96		\$10.00/hr
Irrigation labor	0.50	0.50	0.50		\$10.00/hr
Land value/acre	\$553	\$692	\$830		
Interest on capital					7.0%
Irrigation Equipment	Investment, \$/a		Years	Salvage value	
Well, pump and gearhead value	\$377.00		25	0%	
Power unit and meter	\$63.00		7	0%	
Irrigation system	\$387.00		20	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. 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 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 in these budgets. Table 1 identifies the typical seed, fertilizer, herbicide, insecticide, and irrigation water requirements (rate and cost/unit) for center-pivot-irrigated corn silage. Herbicide requirements include both pre-crop and in-crop treatments. Table 2 outlines the machinery, irrigation equipment, and land resources used for center-pivot-irrigated corn silage. Each tillage, planting, and harvest operation is identified.

COST-RETURN PROJECTION — CENTER-PIVOT-IRRIGATED CORN SILAGE

	Yield Level (ton)			Your
	21.6	25.7	29.7	Farm
INCOME PER ACRE				
A. Yield per acre	21.6	25.7	29.7	
B. Price per ton	\$ 18.16	\$ 18.16	\$ 18.16	
C. Net government payment	\$ 37.35	\$ 40.60	\$ 43.85	
D. Indemnity payments	\$	\$	\$	
E. Miscellaneous income	\$	\$	\$	
F. Returns/acre ((A × B) + C + D + E)	\$ 429.61	\$ 507.31	\$ 583.20	
COSTS PER ACRE				
1. Seed	\$ 32.48	\$ 37.12	\$ 41.76	
2. Herbicide	20.48	20.48	20.48	
3. Insecticide / Fungicide	23.65	23.65	23.65	
4. Fertilizer and Lime	59.07	70.26	81.02	
5. Crop Consulting	6.50	6.50	6.50	
6. Crop Insurance				
7. Drying				
8. Miscellaneous	10.00	10.00	10.00	
9. Custom Hire / Machinery Expense	203.41	232.82	261.52	
10. Non-machinery Labor	22.98	26.31	29.55	
11. Irrigation				
a. Labor	5.00	5.00	5.00	
b. Fuel and Oil	39.90	54.15	68.40	
c. Repairs and Maintenance	4.62	6.27	7.92	
d. Depreciation on Equipment and Well	43.43	43.43	43.43	
e. Interest on Equipment	28.95	28.95	28.95	
12. Land Charge / Rent	31.80	39.76	47.73	
G. SUB TOTAL	\$ 532.26	\$ 604.69	\$ 675.89	
13. Interest on 1/2 Nonland Costs	14.98	17.24	19.45	
H. TOTAL COSTS	\$ 547.24	\$ 621.93	\$ 695.35	
I. RETURNS OVER COSTS (F - H)	\$ -117.64	\$ -114.62	\$ -112.15	
J. TOTAL COSTS/TON (H ÷ A)	\$ 25.34	\$ 24.20	\$ 23.41	
K. RETURN TO ANNUAL COST (I + 13) ÷ G	-19.29%	-16.10%	-13.71%	

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