



Center-Pivot-Irrigated Short-Season Corn Cost-Return Budget

Department of Agricultural Economics



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Irrigated short-season corn (or early-corn) has gained acceptance in Kansas as an alternate crop to full-season corn or grain sorghum. Reasons for planting short-season corn vary among producers. Some factors include: profitability, cash flow, marketing, crop rotation, insect problems, water availability, and labor.

Short-season corn allows producers to rotate to wheat without leaving the land idle for a year. Rotational benefits affect weed and insect control, therefore improving profitability. Several insect problems can potentially be avoided with short-season corn. Because of the earlier maturity, avoiding treating for European and Southwestern corn borers and spider mites may be possible. Recently identified bio-type and pesticide-resistant greenbugs pose problems for grain sorghum production that do not affect corn.

The chief factor dictating crop choice is water availability. Short-season corn requires less water than full-season corn, making it an attractive alternative for producers with low well capacities. Another important factor is labor. Because short-season corn is harvested earlier than full-season corn or grain sorghum, fall labor requirements can be reduced.

Producers should compare the cash-flow requirements and profitability of short-season corn with alternate crops. Though early-corn early may be more profitable than other crops, a crop that has lower input costs might be a better choice if the required cash or operating credit is not available. Another factor to consider is marketing. Due to the earlier harvest, taking advantage of old-crop prices may be possible.

Expected Yields and Enterprise Returns

Crop production costs per unit and net returns are highly dependent on yields. The following estimated budget includes three different yield levels, which are intended to represent expected yields for land of varying quality for a given level of management. Alternative expected yields can help producers compare the profitability of crop enterprises on farmland tracts with varying yield potentials. Land values, government payments and some variable inputs have been adjusted for alternative yield levels in this budget. In customizing this budget to your farm, attention should be given to using land values representative of your farm's productive capacity. Projections of net percentage return on investment permit comparisons to be made among alternative enterprises or other investments.

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, MPC I indemnity payments have exceeded premiums due to government subsidies.

Table 1. Factors Used for Cost-Return Budget

Item	Yield Level (bu)			
	128	153	179	
Water, 325 TDH	14 in	17 in	20 in	\$3.76/inch
Fertilizer:				
N (Anhy.)	114	136	159	\$0.15/lb
N (Dry)	38	45	53	\$0.24/lb
P	55	66	77	\$0.18/lb
K	0	0	0	\$0.14/lb
Lime	0	0	0	\$0.01/lb
Seed,				
seeds/acre	36,000	36,000	36,000	
Seed price,				
\$/1,000 seeds	\$1.19	\$1.19	\$1.19	
Labor hours	2.05	2.35	2.65	
Labor price/hour				\$10.80
Land value/acre	\$558	\$697	\$836	
Land interest rate				6.00%
Land real estate tax				0.50%
Machinery investment				\$236
Machinery life				10 yrs
Salvage value				35%
Well, pump and gearhead value				\$317.42
Well, pump and gearhead life				15 yrs
Power unit and meter value				\$41.27
Power unit and meter life				7 yrs
Irrigation system value				\$360.90
Irrigation system life				10 yrs
Interest rate on machinery and equipment				10.00%
Insurance rate on machinery and equipment				0.25%
Interest on variable costs				10.00%

	Yield Level (bu)			Your Farm
	128	153	179	
VARIABLE COSTS PER ACRE:¹				
1. Labor	\$ 22.16	\$ 25.38	\$ 28.60	_____
2. Seed	42.84	42.84	42.84	_____
3. Herbicide	39.56	39.56	39.56	_____
4. Insecticide	13.48	13.48	13.48	_____
5. Fertilizer and Lime	36.12	43.08	50.43	_____
6. Fuel and Oil — Crop	13.97	16.00	18.03	_____
7. Fuel and Oil — Pumping ²	52.64	63.92	75.20	_____
8. Machinery and Equipment Repairs	22.88	26.21	29.54	_____
9. Irrigation Repairs and Maintenance	4.20	5.10	6.00	_____
10. Crop Insurance	_____	_____	_____	_____
11. Drying	12.80	15.30	17.90	_____
12. Custom Hire ³	_____	_____	_____	_____
13. Crop Consulting	6.50	6.50	6.50	_____
14. Miscellaneous	8.00	8.00	8.00	_____
15. Interest on 1/2 Variable Costs	13.76	15.27	16.80	_____
A. TOTAL VARIABLE COSTS	\$ 288.90	\$ 320.64	\$ 352.89	_____
FIXED COSTS PER ACRE:¹				
16. Real Estate Taxes (including well)	4.38	5.07	5.77	_____
17. Interest on Land and Well ⁴	52.53	60.87	69.21	_____
18. Rent for Rented Land ⁵	_____	_____	_____	_____
19. Depreciation on Crop Machinery	15.34	15.34	15.34	_____
20. Interest on Crop Machinery ⁶	15.93	15.93	15.93	_____
21. Depreciation on Irrigation Equipment and Well	63.15	63.15	63.15	_____
22. Interest on Irrigation Equipment ⁶	20.11	20.11	20.11	_____
23. Insurance on Machinery and Equipment	1.60	1.60	1.60	_____
B. TOTAL FIXED COSTS	\$ 173.02	\$ 182.06	\$ 191.09	_____
C. TOTAL COSTS (A + B)	\$ 461.93	\$ 502.70	\$ 543.98	_____
D. YIELD PER ACRE	128	153	179	_____
E. PRICE PER BUSHEL⁷	\$ 2.24	\$ 2.24	\$ 2.24	_____
F. NET GOVERNMENT PAYMENT⁷	\$ 8.67	\$ 9.42	\$ 10.17	_____
G. INDEMNITY PAYMENTS	\$ _____	\$ _____	\$ _____	_____
H. MISCELLANEOUS INCOME	\$ _____	\$ _____	\$ _____	_____
I. RETURNS PER ACRE [(D × E) + F + G + H]	\$ 295.39	\$ 352.14	\$ 411.13	_____
J. RETURNS OVER VARIABLE COSTS (I – A)	\$ 6.49	\$ 31.50	\$ 58.24	_____
K. RETURNS OVER TOTAL COSTS (I – C)	\$ -166.54	\$ 150.56	\$ 132.85	_____
L. VARIABLE COSTS PER BUSHEL (A ÷ D)	\$ 2.26	\$ 2.10	\$ 1.97	_____
M. TOTAL COSTS PER BUSHEL (C ÷ D)	\$ 3.61	\$ 3.29	\$ 3.04	_____
N. NET RETURN ON INVESTMENT				
[(K+15+17+20+22) ÷ INVESTMENT] ⁸	-4.24%	-2.32%	-0.60%	_____

¹Totals were derived using information listed in Table 1. ²See MF-836, "Irrigation Capital Requirements and Energy Costs." ³If using custom hire, adjust lines 6, 8, 19, and 20. ⁴Assumes interest rate shown in Table 1. ⁵If cash rented, insert zero in lines 16 and 17. ⁶Assumes one-half the average investment [(initial investment + salvage value) ÷ 2] at the interest rate shown in Table 1. ⁷See 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. ⁸Investment equals total value of all fixed assets shown in Table 1.

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