



Center-Pivot-Irrigated Popcorn Cost-Return Budget

Department of Agricultural Economics



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Irrigated popcorn in Western Kansas has become a viable alternate crop for some producers. With the arrival of near-complete planting flexibility in the 1996 FAIR Act, popcorn is a crop that may fit into irrigated farming operations. The one rotational requirement of popcorn is that it does not follow field corn. Popcorn is a specialty food crop, so it does require a higher level of management than field corn. Due to limited market outlets, there is also much more risk in marketing popcorn than other crops. Because of this, most popcorn is grown under contract. Producers should be aware of quality requirements and all premiums or discounts that exist if the crop does not meet contract specifications.

The cost of production for popcorn is similar to that of field corn. Fertility requirements equal 5 to 10 percent under field corn while herbicide requirements are essentially the same for the two crops. Good weed control early in the season is the key. Insect control will vary from year to year and among producers but is critical since popcorn is a food crop. Producers should expect to treat once each for corn borers and spider mites in a normal year. Rootworm treatments will also be needed in continuous popcorn operations. Earworms are not currently a major problem in Kansas, but if an infestation occurs, treatments could be needed every 3 or 4 days for 2 to 3 weeks. The cost and number of these treatments will depend on whether it can be applied through chemigation or if aerial application is required.

Popcorn requires about the same amount of water as field corn. Eliminating one fall watering is possible. Popcorn does not have as extensive a root system as field corn, so watering popcorn more often with less water per irrigation is common. Yields on popcorn are about half the yields of field corn. A uniform stand is important as it will help increase yield and quality.

Yield Goals

Cost per cwt and net returns in crop production are highly dependent on yields. The following estimated budget includes three different yield levels. Yield goals vary for a number of reasons such as soil type or land quality, historical weather patterns, input levels, and management. Budgeting for alternative yield goals can help producers compare the profitability of crop enterprises on farmland tracts with

varying yield potentials. Multi-peril crop insurance is not available for this crop in this area. Land values have been adjusted for alternative yield goals in this budget. In customizing this budget to fit your farm, attention should be given to using land values representative of your farm's productive capacity.

Table 1. Factors Used for Cost-Return Budget

Item	Yield Level (lbs)			
	3,800	4,300	4,800	
Water, 325 TDH	14 in	17 in	20 in	\$1.95/inch
Fertilizer:				
N (Anhy.)	165	170	180	\$0.15/lb
N (Dry)	0	0	0	\$0.23/lb
P	40	40	40	\$0.27/lb
K	0	0	0	\$0.14/lb
Lime	0	0	0	\$0.0045/lb
Seed,				
(seeds/acre)	33,000	33,000	36,000	
Seed price,				
\$/1,000 seeds	\$0.92	\$0.92	\$0.92	
Labor hours	2.28	2.50	2.72	
Labor price/hour				\$10.80
Land value/acre	\$495	\$620	\$745	
Land interest rate				6.00%
Land real estate tax rate				0.50%
Machinery investment				\$236
Machinery life				10 yrs
Salvage value				35.00%
Interest rate on machinery				10.00%
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				\$359
Irrigation system life				10 yrs
Insurance rate on machinery				0.25%
Interest on variable costs				10.00%

COST-RETURN PROJECTION — CENTER-PIVOT-IRRIGATED POPCORN

	Yield Level (lbs)			Your
	3,800	4,300	4,800	Farm
VARIABLE COSTS PER ACRE:¹				
1. Labor	\$ 24.65	\$ 27.00	\$ 29.35	
2. Seed	30.36	30.36	33.12	
3. Herbicide	21.15	21.15	21.15	
4. Insecticide	43.98	43.98	43.98	
5. Fertilizer and Lime	35.55	36.30	37.80	
6. Fuel and Oil — Crop	7.16	7.85	8.53	
7. Fuel and Oil — Pumping ²	27.30	33.15	39.00	
8. Machinery and Equipment Repairs	22.83	25.00	27.18	
9. Irrigation Repairs and Maintenance	4.20	5.10	6.00	
10. Crop Insurance				
11. Drying				
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	11.58	12.22	13.03	
A. TOTAL VARIABLE COSTS	\$ 243.26	\$256.61	\$ 273.63	
FIXED COSTS PER ACRE:¹				
16. Real Estate Taxes (including well)	4.06	4.69	5.31	
17. Interest on Land and Well ⁴	48.75	56.25	63.75	
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	62.96	62.96	62.96	
22. Interest on Irrigation Equipment ⁶	20.01	20.01	20.01	
23. Insurance on Machinery and Equipment	1.59	1.59	1.59	
B. TOTAL FIXED COSTS	\$ 168.64	\$176.76	\$ 184.89	
C. TOTAL COSTS (A + B)	\$ 411.90	\$433.37	\$ 458.52	
D. YIELD PER ACRE	3,800	4,300	4,800	
E. PRICE PER CWT⁷	\$ 8.50	\$ 8.50	\$ 8.50	
F. NET GOVERNMENT PAYMENT⁷	\$ 11.77	\$ 12.80	\$ 13.82	
G. INDEMNITY PAYMENTS	\$	\$	\$	
H. MISCELLANEOUS INCOME	\$	\$	\$	
I. RETURNS PER ACRE [(D × E) + F + G + H]	\$ 334.77	\$378.30	\$ 421.82	
J. RETURNS OVER VARIABLE COSTS (I – A)	\$ 91.51	\$121.69	\$ 148.19	
K. RETURNS OVER TOTAL COSTS (I – C)	\$ -77.13	\$-55.07	\$ -36.70	
L. VARIABLE COSTS PER CWT (A ÷ D)	\$ 0.06	\$ 0.06	\$ 0.06	
M. TOTAL COSTS PER CWT (C ÷ D)	\$ 0.11	\$ 0.10	\$ 0.10	
N. NET RETURN ON INVESTMENT				
[(K+15+17+20+22) ÷ INVESTMENT] ⁸	1.32%	3.14%	4.48%	

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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