



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

Department of Agricultural Economics



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Irrigated short season corn (or early-corn early) 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.

Yield Goals

Cost per bushel 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/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 expenses at a 65 percent yield level are included in this budget as a cost of managing production risk in an area prone to great yield variability. 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 (bu) | | | |
|-------------------------------|------------------|--------|--------|-------------|
| | 120 | 160 | 200 | |
| Water, 325 TDH | 14 in | 17 in | 20 in | \$1.95/inch |
| Fertilizer: | | | | |
| N (Anhy.) | 130 | 180 | 240 | \$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) | 36,000 | 36,000 | 36,000 | |
| Seed price, \$/1,000 | \$1.20 | \$1.20 | \$1.20 | |
| Labor hours | 2.05 | 2.35 | 2.65 | |
| 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% |

| | Yield Level (bu) | | | Your Farm |
|---|-------------------|------------------|------------------|-----------|
| | 120 | 160 | 200 | |
| VARIABLE COSTS PER ACRE:¹ | | | | |
| 1. Labor | \$ 22.16 | \$ 25.38 | \$ 28.60 | _____ |
| 2. Seed | 43.20 | 43.20 | 43.20 | _____ |
| 3. Herbicide | 35.58 | 35.58 | 35.58 | _____ |
| 4. Insecticide | 12.41 | 12.41 | 12.41 | _____ |
| 5. Fertilizer and Lime | 30.30 | 37.80 | 46.80 | _____ |
| 6. Fuel and Oil — Crop | 6.85 | 7.85 | 8.84 | _____ |
| 7. Fuel and Oil — Pumping ² | 27.30 | 33.15 | 39.00 | _____ |
| 8. Machinery and Equipment Repairs | 21.83 | 25.00 | 28.18 | _____ |
| 9. Irrigation Repairs and Maintenance | 4.20 | 5.10 | 6.00 | _____ |
| 10. Crop Insurance | 5.46 | 5.55 | 5.83 | _____ |
| 11. Drying | 12.00 | 16.00 | 20.00 | _____ |
| 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 | 11.79 | 13.08 | 14.45 | _____ |
| A. TOTAL VARIABLE COSTS | \$ 247.57 | \$ 274.59 | \$ 303.39 | _____ |
| 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) | \$ 416.21 | \$ 451.36 | \$ 488.28 | _____ |
| D. YIELD PER ACRE | 120 | 160 | 200 | _____ |
| E. PRICE PER BUSHEL⁷ | \$ 2.51 | \$ 2.51 | \$ 2.51 | _____ |
| 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] | \$ 312.97 | \$ 414.40 | \$ 515.82 | _____ |
| J. RETURNS OVER VARIABLE COSTS (I – A) | \$ 65.40 | \$ 139.81 | \$ 212.43 | _____ |
| K. RETURNS OVER TOTAL COSTS (I – C) | \$ -103.24 | \$ -36.96 | \$ 27.54 | _____ |
| L. VARIABLE COSTS PER BUSHEL (A ÷ D) | \$ 2.06 | \$ 1.72 | \$ 1.52 | _____ |
| M. TOTAL COSTS PER BUSHEL (C ÷ D) | \$ 3.47 | \$ 2.82 | \$ 2.44 | _____ |
| N. NET RETURN ON INVESTMENT | | | | |
| [(K+15+17+20+22) ÷ INVESTMENT] ⁸ | -0.47% | 4.34% | 8.34% | _____ |

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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