

# Grain Sorghum Cost-Return Budget in Southeast Kansas

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Grain sorghum acreage in southeast Kansas has decreased in recent years due, in large part, to the fact that many acres previously devoted to grain sorghum have been diverted to corn. Despite the popularity of corn, grain sorghum is historically a much more consistent crop, more suited for the southeast Kansas climate in which summers can be hot and dry. The advantages of grain sorghum over corn go on to include lower production costs. Grain sorghum can be planted from late April to mid-June. However, producers planting grain sorghum early may see plants experiencing stress and suffering from stalk rot. When conditions are dry, early-planted grain sorghum on upland soils can experience considerable lodging. The following budget outlines the expected costs and returns for grain sorghum in southeast Kansas.

## Income per Acre

Crop production costs per unit 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 could help producers compare the profitability of crop enterprises on farmland tracts with varying yield potentials. Land values and government payments have been adjusted for alternative yield levels in this budget. In customizing this budget to

**Table 1. Production Inputs — Grain Sorghum**

| Item                    | Yield Level (bu) |     |     |           |
|-------------------------|------------------|-----|-----|-----------|
|                         | 70               | 85  | 110 |           |
| Seed, lbs*              | 4.5              | 4.5 | 4.5 | \$2.59/lb |
| Fertilizer:             |                  |     |     |           |
| N (anhydrous)           | 70               | 85  | 110 | \$0.13/lb |
| N                       | 0                | 0   | 0   | \$0.22/lb |
| P                       | 35               | 35  | 35  | \$0.22/lb |
| K                       | 40               | 40  | 40  | \$0.14/lb |
| Lime                    | 500              | 500 | 500 | \$0.01/lb |
| Herbicide               |                  |     |     |           |
| Bicep II Magnum (PRE)   | 2.0              | 2.0 | 2.0 | \$9.90/qt |
| Insecticide / Fungicide |                  |     |     |           |
| Warrior                 | 2.5              | 2.5 | 2.5 | \$2.03/oz |

\* Concep/Gaucha treated

your farm, attention should be given to using land values representative of your farm's production capacity.

Price per bushel represents an expected harvest price in Emporia, Kan. Producers in other regions of southeast

**Table 2. Machinery and Land Resources — Grain Sorghum**

| ITEM                                    | Yield Level (bu) |       |       |            |
|-----------------------------------------|------------------|-------|-------|------------|
|                                         | 70               | 85    | 110   |            |
| Tillage/Planting/Chemical Applications: |                  |       |       |            |
| Chisel                                  | 0                | 0     | 0     | \$8.84/ac  |
| Disk                                    | 2                | 2     | 2     | \$6.80/ac  |
| Field cultivate                         | 1                | 1     | 1     | \$5.51/ac  |
| Plant                                   | 1                | 1     | 1     | \$7.28/ac  |
| Anhydrous application                   | 1                | 1     | 1     | \$5.57/ac  |
| Fertilizer application                  | 1                | 1     | 1     | \$3.36/ac  |
| Herbicide application                   | 1                | 1     | 1     | \$3.74/ac  |
| Insecticide / fungicide application     | 0                | 0     | 0     | \$3.85/ac  |
| Harvest                                 |                  |       |       |            |
| Base charge                             | 1                | 1     | 1     | \$16.64/ac |
| Extra charge for yields exceeding       | 44.6             | 44.6  | 44.6  | \$0.123/bu |
| Hauling                                 | 70               | 85    | 110   | \$0.125/bu |
| Non-machinery labor                     | 1.25             | 1.25  | 1.25  | \$10.00/hr |
| Irrigation labor                        | 0.00             | 0.00  | 0.00  | \$10.00/hr |
| Land value/acre                         | \$651            | \$814 | \$977 | 5.75%      |
| Interest on capital                     |                  |       |       | 8.0%       |

Kansas should account for local basis (cash price – futures price) when making their own price forecasts.

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, MPCI 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, and insecticide requirements (rate and cost/unit) for conventional till grain sorghum. Each tillage, planting, and harvest operation is identified. Table 2 outlines the machinery and land resources used for conventional till

### COST-RETURN PROJECTION — GRAIN SORGHUM — SOUTHEAST KANSAS

|                                             | Yield Level (bu) |           |           | Your Farm |
|---------------------------------------------|------------------|-----------|-----------|-----------|
|                                             | 70               | 85        | 110       |           |
| INCOME PER ACRE                             |                  |           |           |           |
| A. Yield per acre .....                     | 70               | 85        | 110       |           |
| B. Price per bushel .....                   | \$ 1.92          | \$ 1.92   | \$ 1.92   |           |
| C. Net government payment .....             | \$ 11.10         | \$ 12.07  | \$ 13.04  |           |
| D. Indemnity payments .....                 | \$               | \$        | \$        |           |
| E. Miscellaneous income .....               | \$               | \$        | \$        |           |
| F. Returns/acre ((A × B) + C + D + E) ..... | \$ 145.50        | \$ 175.27 | \$ 224.24 |           |
| COSTS PER ACRE                              |                  |           |           |           |
| 1. Seed .....                               | \$ 11.66         | \$ 11.66  | \$ 11.66  |           |
| 2. Herbicide .....                          | 19.80            | 19.80     | 19.80     |           |
| 3. Insecticide / Fungicide .....            | 5.08             | 5.08      | 5.08      |           |
| 4. Fertilizer and Lime .....                | 27.40            | 29.35     | 32.60     |           |
| 5. Crop Consulting .....                    |                  |           |           |           |
| 6. Crop Insurance .....                     |                  |           |           |           |
| 7. Drying .....                             |                  |           |           |           |
| 8. Miscellaneous .....                      | 7.00             | 7.00      | 7.00      |           |
| 9. Custom Hire / Machinery Expense .....    | 67.55            | 71.27     | 77.45     |           |
| 10. Non-machinery Labor .....               | 12.50            | 12.50     | 12.50     |           |
| 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 .....                | 37.43            | 46.81     | 56.18     |           |
| G. SUB TOTAL .....                          | \$ 188.42        | \$ 203.45 | \$ 222.26 |           |
| 13. Interest on 1/2 Nonland Costs .....     | 6.04             | 6.27      | 6.64      |           |
| H. TOTAL COSTS .....                        | \$ 194.45        | \$ 209.72 | \$ 228.90 |           |
| I. RETURNS OVER COSTS (F - H) .....         | \$ -48.95        | \$ -34.45 | \$ -4.67  |           |
| J. TOTAL COSTS/BUSHEL (H ÷ A) .....         | \$ 2.78          | \$ 2.47   | \$ 2.08   |           |
| K. RETURN TO ANNUAL COST (I + 13) ÷ G ..... | -22.77%          | -13.85%   | 0.89%     |           |

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