

# Center-Pivot-Irrigated Corn Silage Cost-Return Budget

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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. Harvested acres and production of corn silage in Kansas have been stable from 1997 through 2000, averaging 133,750 acres and 2,245,000 tons per year.

## Income Per Acre

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 potential. Land values and government payments have been adjusted for alternative yield levels in the budgets. In customizing a budget to your farm, attention should be given to using land values representative of your farm's productive capacity.

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 other

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

| Item                    | Yield Level (ton) |      |      |              |
|-------------------------|-------------------|------|------|--------------|
|                         | 21.6              | 25.7 | 29.7 |              |
| Seed, 1,000/acre        | 28                | 32   | 36   | \$1.16/1,000 |
| Fertilizer:             |                   |      |      |              |
| N (anhydrous)           | 205               | 244  | 282  | \$0.16/lb    |
| N                       | 0                 | 0    | 0    | \$0.23/lb    |
| P                       | 82                | 98   | 113  | \$0.21/lb    |
| K                       | 0                 | 0    | 0    | \$0.14/lb    |
| Lime                    | 0                 | 0    | 0    | \$0.01/lb    |
| Herbicide               |                   |      |      |              |
| Bicep II Magnum         | 2.0               | 2.0  | 2.0  | \$10.06/qt   |
| Insecticide / Fungicide |                   |      |      |              |
| Force 3G                | 5.4               | 5.4  | 5.4  | \$3.93/lb    |
| Irrigation water, in    | 14                | 19   | 24   | \$3.72/in    |

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

| ITEM                                    | Yield Level (ton) |       |       |               |
|-----------------------------------------|-------------------|-------|-------|---------------|
|                                         | 21.6              | 25.7  | 29.7  |               |
| Tillage/Planting/Chemical Applications: |                   |       |       |               |
| Chisel                                  | 1                 | 1     | 1     | \$6.58/ac     |
| Disk                                    | 1                 | 1     | 1     | \$5.60/ac     |
| Field cultivate                         | 1                 | 1     | 1     | \$5.74/ac     |
| Plant                                   | 1                 | 1     | 1     | \$8.01/ac     |
| Anhydrous application                   | 1                 | 1     | 1     | \$5.23/ac     |
| Fertilizer application                  | 0                 | 0     | 0     | \$3.64/ac     |
| Herbicide application                   | 1                 | 1     | 1     | \$3.61/ac     |
| Insecticide / fungicide application     | 0                 | 0     | 0     | \$3.66/ac     |
| Harvest                                 |                   |       |       |               |
| Base charge                             | 1                 | 1     | 1     | \$0.00/ac     |
| Extra charge for yields exceeding       | 0                 | 0     | 0     | \$5.197/ton   |
| Hauling                                 | 21.6              | 25.7  | 29.7  | \$0.000/ton   |
| Non-machinery labor                     | 0.50              | 0.50  | 0.50  | \$10.00/hr    |
| Irrigation labor                        | 0.50              | 0.50  | 0.50  | \$10.00/hr    |
| Land value/acre                         | \$589             | \$736 | \$883 | 6.00%         |
| Interest on capital                     |                   |       |       | 8.0%          |
| Irrigation Equipment                    | Investment, \$/ac |       | Years | Salvage value |
| Well, pump and gearhead value           | \$317.42          |       | 15    | 0%            |
| Power unit and meter                    | \$41.27           |       | 7     | 0%            |
| Irrigation system                       | \$360.90          |       | 10    | 0%            |

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

## 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.

## Irrigation Costs

Any land preparation costs are included with the land charge. Capital requirements for sprinkler systems will run \$20,000 to \$40,000 higher than flood irrigation systems. Price of the energy source and Total Dynamic Head (TDH) are the major factors affecting pumping costs. See MF-836, *Irrigation Capital Requirements and Energy Costs*, for an explanation of differences in capital costs, TDH, and examples of pumping costs for natural gas, diesel, electricity and propane.

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

|                                             | Yield Level (ton) |           |           | Your |
|---------------------------------------------|-------------------|-----------|-----------|------|
|                                             | 21.6              | 25.7      | 29.7      | Farm |
| <b>INCOME PER ACRE</b>                      |                   |           |           |      |
| A. Yield per acre .....                     | 21.6              | 25.7      | 29.7      |      |
| B. Price per ton .....                      | \$ 18.24          | \$ 18.24  | \$ 18.24  |      |
| C. Net government payment .....             | \$ 14.76          | \$ 16.05  | \$ 17.33  |      |
| D. Indemnity payments .....                 | \$                | \$        | \$        |      |
| E. Miscellaneous income .....               | \$                | \$        | \$        |      |
| F. Returns/acre ((A × B) + C + D + E) ..... | \$ 408.75         | \$ 484.82 | \$ 559.06 |      |
| <b>COSTS PER ACRE</b>                       |                   |           |           |      |
| 1. Seed .....                               | \$ 32.48          | \$ 37.12  | \$ 41.76  |      |
| 2. Herbicide .....                          | 20.12             | 20.12     | 20.12     |      |
| 3. Insecticide / Fungicide .....            | 21.22             | 21.22     | 21.22     |      |
| 4. Fertilizer and Lime .....                | 50.02             | 59.62     | 68.85     |      |
| 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 .....    | 147.02            | 168.33    | 189.12    |      |
| 10. Non-machinery Labor .....               | 5.00              | 5.00      | 5.00      |      |
| 11. Irrigation .....                        |                   |           |           |      |
| a. Labor .....                              | 5.00              | 5.00      | 5.00      |      |
| b. Fuel and Oil .....                       | 52.08             | 70.68     | 89.28     |      |
| c. Repairs and Maintenance .....            | 4.62              | 6.27      | 7.92      |      |
| d. Depreciation on Equipment and Well ..... | 63.15             | 63.15     | 63.15     |      |
| e. Interest on Equipment .....              | 16.09             | 16.09     | 16.09     |      |
| 12. Land Charge / Rent .....                | 35.34             | 44.16     | 52.98     |      |
| G. SUB TOTAL .....                          | \$ 468.64         | \$ 533.26 | \$ 596.99 |      |
| 13. Interest on 1/2 Nonland Costs .....     | 17.33             | 19.56     | 21.76     |      |
| H. TOTAL COSTS .....                        | \$ 485.97         | \$ 552.82 | \$ 618.75 |      |
| I. RETURNS OVER COSTS (F - H) .....         | \$ -77.23         | \$ -68.01 | \$ -59.69 |      |
| J. TOTAL COSTS/TON (H ÷ A) .....            | \$ 22.50          | \$ 21.51  | \$ 20.83  |      |
| K. RETURN TO ANNUAL COST (I + 13) ÷ G ..... | -12.78%           | -9.08%    | -6.35%    |      |

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