



Projected Budgets for Irrigated Crops

Western North Dakota - February 2011

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These crop budgets provide an estimate of cost and returns for producing various crops under irrigation. The budgets are developed for a multicounty region. Soil type and productivity, as well as weather conditions, vary considerably across the region. These budgets are intended to be used as a guide. Producers should develop their own budgets.

These budgets account for full economic opportunity costs for land, machinery and machinery housing. Labor and management costs are not included. Therefore, the bottom line represents the return to labor and management. Labor and management become the residual claimants of profit or loss and, as a result, are negative for some projected budgets.

Farm program payments (direct and counter-cyclical) are not included in this budget. These payments are tied to historic farm program base acres and payment yields, not to the current crop produced. They can be an important component of overall farm profitability but have very little impact on the selection of crops to produce or the comparative profitability of those crops. Loan deficiency payments and marketing loan gains affect crop profitability and, therefore, crop selection if the expected market price is below the loan rate. However, the projected prices are above loan for all program crops in these budgets.

Electricity rates used for irrigation reflect off-peak or controlled electric rates plus demand and other charges for all crops.

Input Prices Used

| | | |
|------------|--------------|--------------------|
| Seed | Alfalfa | \$4.00/pound |
| | Barley | \$7.50/bushel |
| | Corn grain | \$2.56/1,000 seeds |
| | Corn silage | \$2.40/1,000 seeds |
| | Dry beans | \$0.78/pound |
| | Soybeans RR | \$0.33/1,000 seeds |
| Fertilizer | Spring wheat | \$11.00/bu |
| | Nitrogen | \$0.48/pound |
| | Phosphorous | \$0.55/pound |
| | Potassium | \$0.44/pound |
| Fuel | Diesel | \$3.00/gallon |
| | Gasoline | \$3.00/gallon |

Miscellaneous expenses include soil testing and twine.

Operating interest is charged at a 6 percent annual percentage rate for six months.

Miscellaneous overhead expenses include machinery housing and insurance, farm liability insurance, vehicle license and insurance, farm utilities, farm publications and legal fees.

Land charge is based on the average dryland cash rental rate for the region.

Machinery and irrigation equipment investment is calculated at 6 percent of the average investment. The average investment equals (purchase price plus disposal price) divided by two.

Machinery and irrigation equipment depreciation equals (purchase price minus disposal price) divided by years of ownership.

Market yields are based on estimates of Extension agronomists assuming the use of best production management practices.

Market prices are Extension economists' estimates.

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| | ALFALFA | | ALFALFA SEEDING | | CORN GRAIN | | CORN SILAGE | |
|---------------------------------------|---------------|--------------|-----------------|--------------|------------------|--------------|---------------|--------------|
| | Tons Per Acre | Your Figures | Tons Per Acre | Your Figures | Bushels Per Acre | Your Figures | Tons Per Acre | Your Figures |
| Market Yield | 5.5 | _____ | 3.0 | _____ | 150.0 | _____ | 22.0 | _____ |
| Market Price | \$75.00 | _____ | \$75.00 | _____ | \$5.00 | _____ | \$25.00 | _____ |
| | | | | | | | | |
| MARKET INCOME | 412.50 | _____ | 225.00 | _____ | 750.00 | _____ | 550.00 | _____ |
| | | | | | | | | |
| DIRECT COSTS | | | | | | | | |
| -Seed | 0.00 | _____ | 60.00 | _____ | 89.60 | _____ | 84.00 | _____ |
| -Herbicides | 0.00 | _____ | 19.70 | _____ | 21.45 | _____ | 21.45 | _____ |
| -Fungicides | 0.00 | _____ | 0.00 | _____ | 0.00 | _____ | 0.00 | _____ |
| -Insecticides | 0.00 | _____ | 0.00 | _____ | 0.00 | _____ | 0.00 | _____ |
| -Fertilizer | 79.97 | _____ | 43.67 | _____ | 143.35 | _____ | 179.23 | _____ |
| -Crop Insurance | 0.00 | _____ | 0.00 | _____ | 36.00 | _____ | 22.00 | _____ |
| -Fuel & Lubrication | 26.76 | _____ | 20.74 | _____ | 19.18 | _____ | 4.35 | _____ |
| -Repairs | 14.34 | _____ | 13.13 | _____ | 15.45 | _____ | 3.99 | _____ |
| -Irrigation Power | 33.54 | _____ | 33.54 | _____ | 26.10 | _____ | 26.10 | _____ |
| -Irrigation Repairs | 13.12 | _____ | 13.12 | _____ | 10.21 | _____ | 10.21 | _____ |
| -Drying | 0.00 | _____ | 0.00 | _____ | 25.50 | _____ | 0.00 | _____ |
| -Miscellaneous | 6.60 | _____ | 4.10 | _____ | 1.00 | _____ | 66.00 | _____ |
| -Operating Interest | 5.23 | _____ | 6.24 | _____ | 11.64 | _____ | 12.52 | _____ |
| | ===== | ===== | ===== | ===== | ===== | ===== | ===== | ===== |
| SUM OF LISTED DIRECT COSTS | 179.56 | _____ | 214.24 | _____ | 399.47 | _____ | 429.85 | _____ |
| | | | | | | | | |
| INDIRECT (FIXED) COSTS | | | | | | | | |
| -Misc. Overhead | 6.09 | _____ | 6.38 | _____ | 8.18 | _____ | 16.67 | _____ |
| -Machinery Depreciation | 58.17 | _____ | 46.17 | _____ | 34.73 | _____ | 9.54 | _____ |
| -Machinery Overhead | 40.74 | _____ | 33.62 | _____ | 22.53 | _____ | 8.71 | _____ |
| -Irrigation Depreciation | 39.96 | _____ | 39.96 | _____ | 39.96 | _____ | 39.96 | _____ |
| -Irrigation Investment | 29.30 | _____ | 29.30 | _____ | 29.30 | _____ | 29.30 | _____ |
| -Land Charge | 45.00 | _____ | 45.00 | _____ | 45.00 | _____ | 45.00 | _____ |
| | ===== | ===== | ===== | ===== | ===== | ===== | ===== | ===== |
| SUM OF LISTED INDIRECT COSTS | 219.26 | _____ | 200.43 | _____ | 179.69 | _____ | 149.18 | _____ |
| | | | | | | | | |
| SUM OF ALL LISTED COSTS | 398.82 | _____ | 414.67 | _____ | 579.16 | _____ | 579.03 | _____ |
| | | | | | | | | |
| RETURN to LABOR and MANAGEMENT | 13.68 | _____ | -189.67 | _____ | 170.84 | _____ | -29.03 | _____ |
| | | | | | | | | |
| LISTED COSTS PER BUDGET UNIT: | | | | | | | | |
| -Direct Costs | 32.65 | _____ | 71.41 | _____ | 2.66 | _____ | 19.54 | _____ |
| -Indirect Costs | 39.87 | _____ | 66.81 | _____ | 1.20 | _____ | 6.78 | _____ |
| -Total Costs | 72.51 | _____ | 138.22 | _____ | 3.86 | _____ | 26.32 | _____ |

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| DRY BEANS | | MALTING BARLEY | | SOYBEANS | | SPRING WHEAT | |
|-----------------|--------------|------------------|--------------|------------------|--------------|------------------|--------------|
| Pounds Per Acre | Your Figures | Bushels Per Acre | Your Figures | Bushels Per Acre | Your Figures | Bushels Per Acre | Your Figures |
| 2000.0 | _____ | 100.0 | _____ | 50.0 | _____ | 70.0 | _____ |
| \$0.250 | _____ | \$5.00 | _____ | \$12.00 | _____ | \$8.50 | _____ |
| 00.00 | _____ | 500.00 | _____ | 600.00 | _____ | 595.00 | _____ |
| 39.00 | _____ | 18.75 | _____ | 59.40 | _____ | 22.00 | _____ |
| 35.27 | _____ | 12.00 | _____ | 21.72 | _____ | 21.25 | _____ |
| 18.00 | _____ | 1.50 | _____ | 0.00 | _____ | 13.50 | _____ |
| 0.00 | _____ | 0.00 | _____ | 7.68 | _____ | 0.00 | _____ |
| 54.90 | _____ | 95.41 | _____ | 29.81 | _____ | 138.20 | _____ |
| 18.00 | _____ | 16.30 | _____ | 37.00 | _____ | 30.00 | _____ |
| 18.16 | _____ | 13.82 | _____ | 13.09 | _____ | 12.81 | _____ |
| 13.33 | _____ | 10.19 | _____ | 11.07 | _____ | 11.18 | _____ |
| 26.10 | _____ | 26.10 | _____ | 26.10 | _____ | 26.10 | _____ |
| 10.21 | _____ | 10.21 | _____ | 10.21 | _____ | 10.21 | _____ |
| 0.00 | _____ | 0.00 | _____ | 0.00 | _____ | 0.00 | _____ |
| 1.00 | _____ | 1.00 | _____ | 1.00 | _____ | 1.00 | _____ |
| 7.02 | _____ | 6.16 | _____ | 6.51 | _____ | 8.59 | _____ |
| ===== | ===== | ===== | ===== | ===== | ===== | ===== | ===== |
| 240.99 | _____ | 211.44 | _____ | 223.59 | _____ | 294.83 | _____ |
| 6.67 | _____ | 5.75 | _____ | 5.75 | _____ | 5.75 | _____ |
| 36.34 | _____ | 22.37 | _____ | 24.34 | _____ | 18.20 | _____ |
| 14.67 | _____ | 15.34 | _____ | 16.10 | _____ | 16.54 | _____ |
| 39.96 | _____ | 39.96 | _____ | 39.96 | _____ | 39.96 | _____ |
| 29.30 | _____ | 29.30 | _____ | 29.30 | _____ | 29.30 | _____ |
| 45.00 | _____ | 45.00 | _____ | 45.00 | _____ | 45.00 | _____ |
| ===== | ===== | ===== | ===== | ===== | ===== | ===== | ===== |
| 171.94 | _____ | 157.72 | _____ | 160.44 | _____ | 154.75 | _____ |
| 412.93 | _____ | 369.16 | _____ | 384.03 | _____ | 449.58 | _____ |
| 87.07 | _____ | 130.84 | _____ | 215.97 | _____ | 145.42 | _____ |
| 0.12 | _____ | 2.11 | _____ | 4.47 | _____ | 4.21 | _____ |
| 0.09 | _____ | 1.58 | _____ | 3.21 | _____ | 2.21 | _____ |
| 0.21 | _____ | 3.69 | _____ | 7.68 | _____ | 6.42 | _____ |

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Irrigation Investment Assumptions

| | |
|----------------------------|-----------|
| Center pivot | \$63,000 |
| Well | \$20,000 |
| Pump, motor and electrical | \$20,000 |
| Pipe | \$8,000 |
| <hr/> | |
| Total investment | \$111,000 |

Excludes cost of getting power to the site.

Irrigation Costs By Amount of Water Pumped

| | Dry beans, corn and small grain | | | Alfalfa | | |
|---|------------------------------------|--------------|-----------------|-----------------|--------------|-----------------|
| Pivot acres | | | 125 | Pivot acres | | 125 |
| Inches pumped | | | 14 | Inches pumped | | 18 |
| Operating hours | | | 982 | Operating hours | | 1262 |
| kwh/hr | | | 55.37 | kwh/hr | | 55.37 |
| \$/kwh | | | \$0.06 | \$/kwh | | \$0.06 |
| <hr/> | | | | | | |
| | | | per acre | | | per acre |
| Average annual interest cost per acre @ 6% | | | \$29.30 | | | \$29.30 |
| Depreciation cost per acre | | | \$39.96 | | | \$39.96 |
| Total ownership costs | | | \$69.26 | | | \$69.26 |
| Repairs per hour of operation | per hour | total | per acre | per hour | total | per acre |
| Power unit @ | \$0.36 | \$353.45 | \$2.83 | \$0.36 | \$454.32 | \$3.63 |
| Delivery system @ | \$0.89 | \$873.80 | \$6.99 | \$0.89 | \$1,123.18 | \$8.99 |
| Oil/elec. motor @ | \$0.05 | \$ 49.09 | \$0.39 | \$0.05 | \$ 63.10 | \$0.50 |
| Total repairs | | | \$10.21 | | | \$13.12 |
| Electricity @ | \$3.32 | \$3,262.40 | \$26.10 | \$3.32 | \$4,192.62 | \$33.54 |
| Total operating costs/acre | | | \$36.31 | | | \$46.66 |

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