



Projected Budgets for Irrigated Crops

Western North Dakota - February 2014

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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.

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

Input Prices Used

Seed	Alfalfa	\$4.50/pound
	Barley	\$10.00/bushel
	Corn grain	\$3.15/1,000 seeds
	Corn silage	\$2.60/1,000 seeds
	Dry beans	\$0.90/pound
	Soybeans RR	\$0.43/1,000 seeds
Fertilizer	Spring wheat	\$12.50/bushel
	Nitrogen	\$0.45/pound
	Phosphorus	\$0.43/pound
Fuel	Potassium	\$0.40/pound
	Diesel	\$3.60/gallon
	Gasoline	\$3.60/gallon

Miscellaneous expenses include soil testing and twine. For corn silage, miscellaneous costs include custom harvesting charges.

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 U.S. Department of Agriculture's irrigated crop land rental survey less depreciation and interest on investment for irrigation equipment.

Machinery and irrigation equipment investment is calculated at 4 percent of 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	_____	160.0	_____	22.0	_____
Market price	\$100.00	_____	\$100.00	_____	\$4.00	_____	\$30.00	_____
MARKET INCOME	550.00	_____	300.00	_____	640.00	_____	660.00	_____
DIRECT COSTS								
-Seed	0.00	_____	67.50	_____	110.25	_____	91.00	_____
-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	68.01	_____	37.11	_____	140.42	_____	160.13	_____
-Crop insurance	0.00	_____	0.00	_____	51.31	_____	37.22	_____
-Fuel and lubrication	28.65	_____	22.93	_____	24.21	_____	5.76	_____
-Repairs	20.22	_____	20.16	_____	17.79	_____	6.54	_____
-Irrigation power	43.67	_____	43.67	_____	33.98	_____	33.98	_____
-Irrigation repairs	24.03	_____	24.03	_____	18.69	_____	18.69	_____
-Drying	0.00	_____	0.00	_____	32.00	_____	0.00	_____
-Miscellaneous	6.60	_____	4.10	_____	1.00	_____	80.00	_____
-Operating interest	5.74	_____	7.18	_____	13.53	_____	13.64	_____
	=====	=====	=====	=====	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	196.92	_____	246.38	_____	464.63	_____	468.41	_____
INDIRECT (FIXED) COSTS								
-Misc. overhead	6.00	_____	6.00	_____	6.00	_____	6.00	_____
-Machinery depreciation	44.52	_____	39.41	_____	27.43	_____	11.56	_____
-Machinery overhead	29.19	_____	25.78	_____	17.27	_____	7.68	_____
-Irrigation depreciation	44.69	_____	44.69	_____	44.69	_____	44.69	_____
-Irrigation investment	26.81	_____	26.81	_____	26.81	_____	26.81	_____
-Land charge	80.75	_____	80.75	_____	80.75	_____	80.75	_____
	=====	=====	=====	=====	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	231.96	_____	223.44	_____	202.94	_____	177.49	_____
SUM OF ALL LISTED COSTS	428.88	_____	469.82	_____	667.57	_____	645.90	_____
RETURN to LABOR and MANAGEMENT	121.12	_____	-169.82	_____	-27.57	_____	14.10	_____
LISTED COSTS PER BUDGET UNIT:								
-Direct costs	35.80	_____	82.13	_____	2.90	_____	21.29	_____
-Indirect costs	42.17	_____	74.48	_____	1.27	_____	8.07	_____
-Total costs	77.98	_____	156.61	_____	4.17	_____	29.36	_____

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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	_____
\$0.280	_____	\$5.30	_____	\$10.75	_____	\$7.00	_____
560.00	_____	530.00	_____	537.50	_____	490.00	_____
45.00	_____	25.00	_____	77.40	_____	25.00	_____
35.27	_____	12.00	_____	21.72	_____	21.25	_____
18.00	_____	1.50	_____	0.00	_____	13.50	_____
0.00	_____	0.00	_____	7.68	_____	0.00	_____
48.90	_____	84.53	_____	24.37	_____	123.55	_____
20.46	_____	17.14	_____	36.38	_____	22.06	_____
22.46	_____	17.49	_____	16.44	_____	16.14	_____
19.82	_____	13.94	_____	16.92	_____	16.70	_____
33.98	_____	33.98	_____	33.98	_____	33.98	_____
18.69	_____	18.69	_____	18.69	_____	18.69	_____
0.00	_____	0.00	_____	0.00	_____	0.00	_____
1.00	_____	1.00	_____	1.00	_____	1.00	_____
7.91	_____	6.76	_____	7.64	_____	8.76	_____
=====	=====	=====	=====	=====	=====	=====	=====
271.48	_____	232.03	_____	262.22	_____	300.63	_____
6.00	_____	6.00	_____	6.00	_____	6.00	_____
35.37	_____	22.14	_____	22.61	_____	23.19	_____
12.69	_____	13.36	_____	13.71	_____	14.07	_____
44.69	_____	44.69	_____	44.69	_____	44.69	_____
26.81	_____	26.81	_____	26.81	_____	26.81	_____
80.75	_____	80.75	_____	80.75	_____	80.75	_____
=====	=====	=====	=====	=====	=====	=====	=====
206.31	_____	193.75	_____	194.56	_____	195.51	_____
477.79	_____	425.78	_____	456.78	_____	469.13	_____
82.21	_____	104.22	_____	80.72	_____	-6.13	_____
0.14	_____	2.32	_____	5.24	_____	4.29	_____
0.10	_____	1.94	_____	3.89	_____	2.79	_____
0.24	_____	4.26	_____	9.14	_____	7.09	_____

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Irrigation Investment Assumptions

Center pivot	\$80,000	Salvage value	20%
Well	\$22,000	Average years of life	20
Pump, motor and electrical	\$24,000	Total depreciation	\$114,400
Pipe	\$17,000	Average annual investment	\$ 85,800
Total investment	\$143,000		

These investment figures do not include the cost of getting electrical power to the site.

Irrigation Costs By Amount of Water Pumped

	Dry Beans, Corn and Small Grain Western North Dakota			Alfalfa Western North Dakota		
	Pivot acres	128		Pivot acres	128	
	Inches pumped	14		Inches pumped	18	
	Operating hours	982		Operating hours	1262	
	kwh/hr	55.37		kwh/hr	55.37	
	\$/kwh	\$0.080		\$/kwh	\$0.080	
		per acre			per acre	
Average annual interest cost per acre @ 4%		\$26.81			\$26.81	
Depreciation cost per acre		\$44.69			\$44.69	
Total ownership costs		\$71.50			\$71.50	
Repairs per hour of operation	per hour	total	per acre	per hour	total	per acre
Power unit @	\$0.57	\$559.63	\$4.48	\$0.57	\$719.34	\$5.75
Delivery system @	\$1.74	\$1,708.33	\$13.67	\$1.74	\$2,195.88	\$17.57
Oil/elec. motor @	\$0.07	\$68.73	\$0.55	\$0.07	\$83.40	\$0.71
Total repairs			\$18.70			\$24.03
Electricity @	\$4.43	\$4,348.98	\$33.98	\$4.43	\$5,590.16	\$43.67
Total operating costs/acre			\$52.68			\$67.70

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