



# Projected Budgets for Irrigated Crops

Central North Dakota - March 2013

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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	\$10.00/bushel
	Corn grain	\$2.69/1,000 seeds
	Corn silage	\$2.50/1,000 seeds
	Dry beans	\$0.88/pound
	Soybeans RR	\$0.33/1,000 seeds
Fertilizer	Spring wheat	\$15.00/bushel
	Nitrogen	\$0.58/pound
	Phosphorous	\$0.55/pound
	Potassium	\$0.55/pound
Fuel	Diesel	\$3.60/gallon
	Gasoline	\$3.60/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 4 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	_____	160.0	_____	22.0	_____
Market price	\$100.00	_____	\$100.00	_____	\$5.50	_____	\$30.00	_____
<b>MARKET INCOME</b>	550.00	_____	300.00	_____	880.00	_____	660.00	_____
<b>DIRECT COSTS</b>								
-Seed	0.00	_____	60.00	_____	94.15	_____	87.50	_____
-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	90.75	_____	49.50	_____	178.96	_____	208.70	_____
-Crop insurance	0.00	_____	0.00	_____	38.00	_____	24.00	_____
-Fuel and lubrication	28.65	_____	22.93	_____	23.94	_____	5.44	_____
-Repairs	20.01	_____	18.63	_____	16.38	_____	5.42	_____
-Irrigation power	33.98	_____	33.98	_____	24.26	_____	24.26	_____
-Irrigation repairs	18.26	_____	18.26	_____	13.03	_____	13.03	_____
-Drying	0.00	_____	0.00	_____	27.36	_____	0.00	_____
-Miscellaneous	6.60	_____	4.10	_____	1.00	_____	80.00	_____
-Operating interest	5.95	_____	6.81	_____	13.16	_____	14.09	_____
	=====	=====	=====	=====	=====	=====	=====	=====
<b>SUM OF LISTED DIRECT COSTS</b>	204.20	_____	233.91	_____	451.69	_____	483.89	_____
<b>INDIRECT (FIXED) COSTS</b>								
-Misc. overhead	6.09	_____	6.38	_____	8.18	_____	16.67	_____
-Machinery depreciation	45.21	_____	40.41	_____	34.24	_____	12.24	_____
-Machinery overhead	29.04	_____	25.64	_____	17.85	_____	7.85	_____
-Irrigation depreciation	44.69	_____	44.69	_____	44.69	_____	44.69	_____
-Irrigation investment	26.81	_____	26.81	_____	26.81	_____	26.81	_____
-Land charge	60.00	_____	60.00	_____	60.00	_____	60.00	_____
	=====	=====	=====	=====	=====	=====	=====	=====
<b>SUM OF LISTED INDIRECT COSTS</b>	211.84	_____	203.93	_____	191.77	_____	168.26	_____
<b>SUM OF ALL LISTED COSTS</b>	416.04	_____	437.84	_____	643.46	_____	652.15	_____
<b>RETURN to LABOR and MANAGEMENT</b>	<b>133.96</b>	_____	<b>-137.84</b>	_____	<b>236.54</b>	_____	<b>7.85</b>	_____
<b>LISTED COSTS PER BUDGET UNIT:</b>								
-Direct costs	37.13	_____	77.97	_____	2.82	_____	22.00	_____
-Indirect costs	38.52	_____	67.98	_____	1.20	_____	7.65	_____
-Total costs	75.64	_____	145.95	_____	4.02	_____	29.54	_____

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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
2200.0	_____	100.0	_____	55.0	_____	70.0	_____
\$0.300	_____	\$6.50	_____	\$12.00	_____	\$8.00	_____
660.00	_____	650.00	_____	660.00	_____	560.00	_____
44.00	_____	25.00	_____	59.40	_____	30.00	_____
35.27	_____	12.00	_____	21.72	_____	21.25	_____
18.00	_____	1.50	_____	0.00	_____	13.50	_____
0.00	_____	0.00	_____	7.68	_____	0.00	_____
68.70	_____	110.25	_____	35.20	_____	161.40	_____
38.00	_____	22.00	_____	37.00	_____	22.00	_____
22.28	_____	17.49	_____	16.39	_____	16.14	_____
17.73	_____	12.78	_____	14.96	_____	14.79	_____
24.26	_____	24.26	_____	24.26	_____	24.26	_____
13.03	_____	13.03	_____	13.03	_____	13.03	_____
0.00	_____	0.00	_____	0.00	_____	0.00	_____
1.00	_____	1.00	_____	1.00	_____	1.00	_____
8.47	_____	7.18	_____	6.92	_____	9.52	_____
=====	=====	=====	=====	=====	=====	=====	=====
290.74	_____	246.49	_____	237.55	_____	326.89	_____
6.67	_____	5.75	_____	5.75	_____	5.75	_____
43.83	_____	27.20	_____	30.44	_____	29.60	_____
13.74	_____	14.38	_____	14.63	_____	15.90	_____
44.69	_____	44.69	_____	44.69	_____	44.69	_____
26.81	_____	26.81	_____	26.81	_____	26.81	_____
60.00	_____	60.00	_____	60.00	_____	60.00	_____
=====	=====	=====	=====	=====	=====	=====	=====
195.74	_____	178.83	_____	182.32	_____	182.75	_____
486.48	_____	425.32	_____	419.88	_____	509.64	_____
<b>173.52</b>	_____	<b>224.68</b>	_____	<b>240.12</b>	_____	<b>50.36</b>	_____
0.13	_____	2.46	_____	4.32	_____	4.67	_____
0.09	_____	1.79	_____	3.31	_____	2.61	_____
0.22	_____	4.25	_____	7.63	_____	7.28	_____

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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 Central North Dakota			Alfalfa Central North Dakota		
Pivot acres			128	Pivot acres		128
Inches pumped			10	Inches pumped		14
Operating hours			701	Operating hours		982
kwh/hr			55.37	kwh/hr		55.37
\$/kwh			\$0.080	\$/kwh		\$0.080
			<b>per acre</b>			<b>per acre</b>
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	<b>per hour</b>	<b>total</b>	<b>per acre</b>	<b>per hour</b>	<b>total</b>	<b>per acre</b>
Power unit @	\$0.57	\$399.57	\$3.12	\$0.57	\$559.74	\$4.37
Delivery system @	\$1.74	\$1,219.74	\$9.53	\$1.74	\$1,708.68	\$13.35
Oil/elec. motor @	\$0.07	\$49.07	\$0.38	\$0.07	\$68.74	\$0.54
Total repairs			\$13.03			\$18.26
Electricity @	\$4.43	\$3,105.15	\$24.26	\$4.43	\$4,349.87	\$33.98
Total operating costs/acre			\$37.29			\$52.24

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