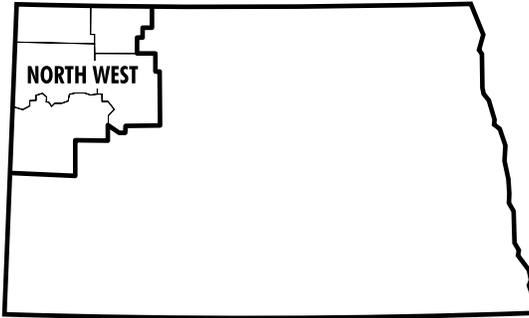




FARM MANAGEMENT PLANNING GUIDE

December 2019

Projected 2020 Crop Budgets



North West North Dakota

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The 2020 crop budgets provide an estimate of revenues and costs for selected crops. Each set of budgets are developed for a multi-county region. There is considerable variation in soil type and productivity, weather conditions, as well as management and production practices within each region. Therefore, **THESE BUDGETS ARE ONLY INTENDED TO BE USED AS A GUIDE. EVERY INDIVIDUAL IS HIGHLY ENCOURAGED TO DEVELOP HIS/HER OWN BUDGETS!**

The profitability budget accounts for full economic opportunity costs for land and machinery investment, regardless of farm operator equity position. The bottom line is the return to labor and management. This is the expected “payment” to the producer for the labor and managerial efforts required by the crop enterprise. Each individual must make the decision whether it is sufficient.

The budget can be changed to conform to the more common definition of accounting profit (return to unpaid labor and management, and owner equity) by

replacing the machinery investment and land charge cost items with your per acre interest and rental expense of machinery and land, and real estate tax if land is owned.

The budget can be used for long run decisions if the revenues and costs are realistic for several years. (Crop prices, direct costs, and the land charge are best estimates for only the 2020 crop year, but crop yields are historic averages and machinery ownership costs are an average for the total length of ownership). If the budget shows a high return to labor and management, and is representative for several years, increased acreage and corresponding investment should be considered. However, if long-run returns to labor and management are unsatisfactory the best decision may be to exit the crop enterprise and employ the machinery and land investment, and labor and management, in a different enterprise or investment.

For short-run planning decisions you can omit the indirect costs if the land and machinery required to produce the different enterprises are in place. Simply compare the crop enterprises by calculating return over direct costs. Labor requirements and risk should also be considered. Insurance is not available for some crops.

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The budget can be used to estimate cashflow by making a few modifications. Machinery depreciation should be omitted and the machinery investment number replaced with your per acre principal and interest payment on machinery debt. For owned land, the land charge should be replaced with your per acre real estate tax and principal and interest payment on land debt.

The 2018 Farm Bill continues the Price Loss Coverage (PLC) and Agricultural Risk Coverage (ARC) support programs. PLC and ARC payments have been omitted from the budgets because those payments, if any, are tied to historic farm program base acres, not to current crop selection or production.

Primary Assumptions:

Crops are planted on dryland recrop ground. Costs of moving crop to local market/storage are included.

The budgets for the South West, North West, South Central and North Central regions typically represent production systems where soil disturbance only occurs at seeding.

Market Price: Best estimates of NDSU extension economists. The greater of projected market price and marketing loan rate is used.

Market Yields: Average yield for the 7 year period 2012-2018, after the low and high yield years are removed. Yields for safflower, yellow mustard, buckwheat, millet, rye and chickpeas are from NDSU extension agronomists and industry sources.

Fertilizer: Cost of fertilizer applied, based on soil test, to meet yield goal. N fertilizer can be reduced if previous crop was soybean, dry bean, field peas or lentil.

Soil test - recrop:
 Nitrogen - 30 lb
 Phosphorus - 6 ppm
 Potassium - 328 ppm

Fertilizer prices:
 Nitrogen - .37/lb
 Phosphorus - .36/lb
 Potassium - .31/lb

Seed Prices:

Spring Wheat	10.25/bu
Durum	11.75/bu
Barley	8.25/bu
Corn GM	2.69/thou.kern.
Soybean GM	.34/thou.kern.
Oil Sunflower	1.55/thou.kern.
Canola	11.30/lb
Flax	17.50/bu
Field Peas	14.00/bu
Oats	6.25/bu
Lentils	.30/lb
Mustard	2.10/lb
Safflower	.45/lb
Buckwheat	.40/lb
Millet	.35/lb
Large Chickpeas	.40/lb
Winter Wheat	9.00/bu
Rye	8.00/bu

Fuel prices:

Diesel	2.45/gal
Gas	2.45/gal

Lubrication charge: 15% of fuel cost

Crop Insurance: Revenue Protection was used for all wheat, barley, soybeans, corn, canola, sunflowers, field peas, dry beans and lentils with a 75% coverage level and enterprise units. APH insurance was used for other crops for which 70% coverage and optional units were assumed.

Miscellaneous: soil testing, machinery rent and custom work.

Operating Interest: Direct costs charged 5.4% interest for 6 month period.

Misc. Overhead: Machinery housing and insurance at .5% and .85%, respectively, of average machinery investment. Also, liability insurance and license fees of trucks. In addition, \$4.00 per acre is assumed for general farm utilities, farm publications, meetings, dues, income tax preparation, legal fees, etc.

Land charge = average cash rent.

Machinery investment: 4.5% real interest rate, over the years of machine ownership, is charged on average machinery investment. The real, or inflation adjusted, rate is the commercial rate minus the inflation rate. Ave. mach. investment = (Purchase price + Disposal price)/2

Depreciation = (Purchase price - disposal price / years ownership)

Spring Wheat

Durum

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	40	_____	35	_____
Market Price	4.93	_____	5.43*	_____
MARKET INCOME	197.20	_____	190.05	_____
DIRECT COSTS				
-Seed	15.38	_____	20.56	_____
-Herbicides	25.80	_____	25.80	_____
-Fungicides**	5.00	_____	5.00	_____
-Insecticides***	0.00	_____	0.00	_____
-Fertilizer	47.19	_____	39.91	_____
-Crop Insurance	5.50	_____	6.00	_____
-Fuel & Lubrication	11.19	_____	10.92	_____
-Repairs	16.24	_____	16.10	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	8.00	_____	8.00	_____
-Operating Interest	3.63	_____	3.57	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	137.93	_____	135.86	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.59	_____	7.49	_____
-Machinery Depreciation	19.15	_____	18.88	_____
-Machinery Investment	10.56	_____	10.42	_____
-Land Charge	37.00	_____	37.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	74.29	_____	73.79	_____
SUM OF ALL LISTED COSTS	212.22	_____	209.65	_____
RETURN TO LABOR & MANAGEMENT	(15.02)	_____	(19.60)	_____
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	3.45	_____	3.88	_____
-Indirect Costs	1.86	_____	2.11	_____
-Total Costs	5.31	_____	5.99	_____

Wheat notes:

*Durum price is for milling quality. There is risk of lower quality and lower price.

**Includes seed treatment and early season foliar fungicide. Although late season fungicides are often not common in this region, prothioconazole, metconazole, or pydiflumetofen containing products are recommended for fusarium head blight (scab) control when conditions are favorable for infection.

***Cereal grain aphid insecticide would cost about \$4. Wheat midge insecticide would cost about \$6.

Malting Barley

Corn Grain

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	58	_____	95	_____
Market Price	3.40*	_____	3.35	_____
MARKET INCOME	197.20	_____	318.25	_____
DIRECT COSTS				
-Seed	11.14	_____	61.87*	_____
-Herbicides	24.30	_____	21.00	_____
-Fungicides	5.00**	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	41.80	_____	60.26	_____
-Crop Insurance	5.50	_____	7.50**	_____
-Fuel & Lubrication	12.17	_____	15.72	_____
-Repairs	16.76	_____	20.12	_____
-Drying	0.00	_____	17.10	_____
-Miscellaneous	8.00	_____	8.00	_____
-Operating Interest	3.37	_____	5.71	_____
SUM OF LISTED DIRECT COSTS	128.03	=====	217.29	=====
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.93	_____	9.96	_____
-Machinery Depreciation	20.11	_____	30.67	_____
-Machinery Investment	11.06	_____	16.76	_____
-Land Charge	37.00	_____	37.00	_____
SUM OF LISTED INDIRECT COSTS	76.10	=====	94.39	=====
SUM OF ALL LISTED COSTS	204.13	_____	311.68	_____
RETURN TO LABOR & MANAGEMENT	(6.93)	_____	6.57	_____
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	2.21	_____	2.29	_____
-Indirect Costs	1.31	_____	0.99	_____
-Total Costs	3.52	_____	3.28	_____

Barley notes:

*There is risk of not making malting barley quality. Use \$2.40 for feed barley.

**Includes seed treatment and early season foliar fungicide. Although late season fungicides are often not common in this region, prothioconazole or metconazole containing products are recommended for fusarium head blight (scab) control when conditions are favorable for infection.

Corn notes:

*GM corn with herbicide tolerance and above ground insect control traits.

**Crop insurance is only available by written agreement in most counties of region.

Soybeans Oil Sunflower

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	27		1520	
Market Price	8.05		0.172	
MARKET INCOME	217.35		261.44	
DIRECT COSTS				
-Seed	65.80*		32.55	
-Herbicides	18.00		34.00	
-Fungicides	0.00		0.00*	
-Insecticides	0.00		5.00**	
-Fertilizer	8.63		33.69	
-Crop Insurance	6.00**		10.00	
-Fuel & Lubrication	11.06		12.04	
-Repairs	16.53		17.41	
-Drying	0.00		4.56	
-Miscellaneous	5.00		16.00	
-Operating Interest	3.54		4.46	
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	134.55		169.72	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.65		8.21	
-Machinery Depreciation	20.20		22.00	
-Machinery Investment	11.23		12.39	
-Land Charge	37.00		37.00	
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	76.07		79.60	
SUM OF ALL LISTED COSTS	210.63		249.32	
RETURN TO LABOR & MANAGEMENT	6.72		12.12	
LISTED COSTS PER BUDGET UNIT	(bu):		(lb):	
-Direct Costs	4.98		0.11	
-Indirect Costs	2.82		0.05	
-Total Costs	7.80		0.16	

Soybean notes:

*GM soybeans with herbicide tolerance. The cost includes \$8 for inoculant and fungicide treatment in addition to seed expense.

**Crop insurance is only available in McKenzie county by written agreement.

Oil Sunflower notes:

*Fungicide for rust would cost \$4 plus application.

**One spraying for head feeding insects (red seed weevil, lygus bug and banded moths). Custom application cost of \$8 is under "Miscellaneous." Foliar applied insecticide for cutworms would cost about \$5 per acre plus application (usually tank mixed with herbicide).

Canola

Flax

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1730	_____	21	_____
Market Price	0.166	_____	9.00	_____
MARKET INCOME	287.18	_____	189.00	_____
DIRECT COSTS				
-Seed	56.50	_____	14.00	_____
-Herbicides	23.10	_____	29.20	_____
-Fungicides	0.00	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	65.66	_____	24.95	_____
-Crop Insurance	10.00	_____	12.00	_____
-Fuel & Lubrication	11.99	_____	11.74	_____
-Repairs	17.50	_____	18.26	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	8.00	_____	1.50	_____
-Operating Interest	5.20	_____	3.01	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	197.96	_____	114.67	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.84	_____	7.90	_____
-Machinery Depreciation	21.45	_____	21.67	_____
-Machinery Investment	11.65	_____	12.26	_____
-Land Charge	37.00	_____	37.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	77.94	_____	78.83	_____
SUM OF ALL LISTED COSTS	275.90	_____	193.51	_____
RETURN TO LABOR & MANAGEMENT	11.28	_____	(4.51)	_____
LISTED COSTS PER BUDGET UNIT	(lb):		(bu):	
-Direct Costs	0.11	_____	5.46	_____
-Indirect Costs	0.05	_____	3.75	_____
-Total Costs	0.16	_____	9.21	_____

Field Peas

Oats

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	33		68	
Market Price	5.70		2.32	
MARKET INCOME	188.10		157.76	
DIRECT COSTS				
-Seed	42.00		12.50	
-Herbicides	35.90		10.60	
-Fungicides	1.50		0.00	
-Insecticides	6.00*		0.00	
-Fertilizer	9.31		41.96	
-Crop Insurance	7.50		12.00	
-Fuel & Lubrication	12.38		14.16	
-Repairs	18.85		18.62	
-Drying	0.00		0.00	
-Miscellaneous	9.50		8.00	
-Operating Interest	3.86		3.18	
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	146.79		121.03	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.12		8.68	
-Machinery Depreciation	22.95		22.93	
-Machinery Investment	12.58		13.21	
-Land Charge	37.00		37.00	
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	80.65		81.83	
SUM OF ALL LISTED COSTS	227.44		202.85	
RETURN TO LABOR & MANAGEMENT	(39.34)		(45.09)	
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	4.45		1.78	
-Indirect Costs	2.44		1.20	
-Total Costs	6.89		2.98	

Field Pea notes:

*Seed treatment for pea leaf weevil. Foliar insecticide for cutworms and/or pea aphids would cost about \$4 per acre plus application.

Lentils Yellow Mustard

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1280		850	
Market Price	0.14		0.30	
MARKET INCOME	179.20		255.00	
DIRECT COSTS				
-Seed	21.00		21.00	
-Herbicides	35.50*		20.20	
-Fungicides	16.00**		0.00	
-Insecticides	0.00***		0.00	
-Fertilizer	6.05		23.17	
-Crop Insurance	9.00		13.00*	
-Fuel & Lubrication	13.81		11.60	
-Repairs	21.44		17.81	
-Drying	0.00		0.00	
-Miscellaneous	9.50		8.00	
-Operating Interest	3.57		3.10	
SUM OF LISTED DIRECT COSTS	135.87		117.88	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.47		7.90	
-Machinery Depreciation	26.09		20.71	
-Machinery Investment	14.15		12.46	
-Land Charge	37.00		37.00	
SUM OF LISTED INDIRECT COSTS	85.71		78.07	
SUM OF ALL LISTED COSTS	221.58		195.95	
RETURN TO LABOR & MANAGEMENT	(42.38)		59.05	
LISTED COSTS PER BUDGET UNIT				
	(lb):		(lb):	
-Direct Costs	0.11		0.14	
-Indirect Costs	0.07		0.09	
-Total Costs	0.17		0.23	

Lentil notes:

*Includes pre-harvest dessicant.

**Fungicide treatment for ascochyta/anthracnose.

***Foliar insecticide for cutworms, pea aphids and/or grasshoppers would cost about \$4 per acre plus application.

Yellow Mustard notes:

**Crop insurance is only available in McKenzie county by written agreement.

Safflower

Buckwheat

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1050	_____	850	_____
Market Price	0.19	_____	0.191	_____
MARKET INCOME	199.50	_____	162.35	_____
DIRECT COSTS				
-Seed	8.10	_____	20.00	_____
-Herbicides	22.10	_____	18.00	_____
-Fungicides	18.00*	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	21.12	_____	13.47	_____
-Crop Insurance	17.00	_____	6.50*	_____
-Fuel & Lubrication	10.44	_____	11.17	_____
-Repairs	16.54	_____	17.06	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	8.00	_____	1.50	_____
-Operating Interest	3.28	_____	2.37	_____
SUM OF LISTED DIRECT COSTS	124.57	=====	90.07	=====
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.44	_____	7.70	_____
-Machinery Depreciation	18.83	_____	20.08	_____
-Machinery Investment	10.51	_____	11.69	_____
-Land Charge	37.00	_____	37.00	_____
SUM OF LISTED INDIRECT COSTS	73.79	=====	76.47	=====
SUM OF ALL LISTED COSTS	198.36	_____	166.54	_____
RETURN TO LABOR & MANAGEMENT	1.14	_____	(4.19)	_____
LISTED COSTS PER BUDGET UNIT				
	(lb):		(lb):	
-Direct Costs	0.12	_____	0.11	_____
-Indirect Costs	0.07	_____	0.09	_____
-Total Costs	0.19	_____	0.20	_____

Safflower notes:

*Fungicide for alternaria leaf spot.

Buckwheat notes:

*Crop insurance is not available in most counties of the region.

Millet Large Chickpea

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1300		1400	
Market Price	0.075		0.16	
MARKET INCOME	97.50		224.00	
DIRECT COSTS				
-Seed	8.75		56.00	
-Herbicides	9.60		36.30	
-Fungicides	0.00		36.00*	
-Insecticides	0.00		0.00	
-Fertilizer	16.09		14.74	
-Crop Insurance	0.00		9.50	
-Fuel & Lubrication	11.90		14.29	
-Repairs	17.40		22.33	
-Drying	0.00		0.00	
-Miscellaneous	8.00		8.50	
-Operating Interest	1.94		5.34	
SUM OF LISTED DIRECT COSTS	73.67		203.00	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.88		8.66	
-Machinery Depreciation	20.69		26.87	
-Machinery Investment	12.04		14.71	
-Land Charge	37.00		37.00	
SUM OF LISTED INDIRECT COSTS	77.61		87.23	
SUM OF ALL LISTED COSTS	151.29		290.23	
RETURN TO LABOR & MANAGEMENT	(53.79)		(66.23)	
LISTED COSTS PER BUDGET UNIT				
	(lb):		(lb):	
-Direct Costs	0.06		0.15	
-Indirect Costs	0.06		0.06	
-Total Costs	0.12		0.21	

Large Chickpea notes:

*Two fungicide treatments for ascochyta blight. Additional treatments may be necessary.

Winter Wheat

Rye

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	42*	_____	40	_____
Market Price	4.16	_____	4.16	_____
MARKET INCOME	174.72	_____	166.40	_____
DIRECT COSTS				
-Seed	9.00	_____	9.60	_____
-Herbicides	23.00	_____	6.50	_____
-Fungicides	9.00	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	50.11	_____	47.19	_____
-Crop Insurance	5.50	_____	8.00	_____
-Fuel & Lubrication	11.11	_____	10.79	_____
-Repairs	16.32	_____	15.39	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	8.00	_____	8.00	_____
-Operating Interest	3.57	_____	2.85	_____
SUM OF LISTED DIRECT COSTS	135.61	=====	108.32	=====
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.53	_____	7.43	_____
-Machinery Depreciation	19.00	_____	18.45	_____
-Machinery Investment	10.31	_____	10.04	_____
-Land Charge	37.00	_____	37.00	_____
SUM OF LISTED INDIRECT COSTS	73.85	=====	72.92	=====
SUM OF ALL LISTED COSTS	209.46	_____	181.24	_____
RETURN TO LABOR & MANAGEMENT	(34.74)	_____	(14.84)	_____
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	3.23	_____	2.71	_____
-Indirect Costs	1.76	_____	1.82	_____
-Total Costs	4.99	_____	4.53	_____

Winter Wheat notes:

*Yield is per harvested acre. There is some risk of acreage abandonment in spring.

2020 Machinery List

Machine	Purch. Price	Annual Use	Years to trade	Trade in	Deprec.	Invest.	Repairs	Ac/hr
FWA 150HP Tractor	140800	400hr	20	44054	12.09 /hr	10.40 /hr	13.91 /hr	
FWA 190HP Tractor	185100	500hr	15	53163	17.59 /hr	10.72 /hr	18.30 /hr	
4WD 370HP Tractor	164000	500hr	15	75814	25.09 /hr	15.29 /hr	14.91 /hr	
SP Combine (base unit)	300200	250hr	12	72486	75.90 /hr	33.54 /hr	47.31 /hr	
Tandem Truck (used)	40600	150hr	15	12900	12.31 /hr	8.03 /hr	8.33 /hr	
Semi & Trailer (used)	47600	150hr	10	13500	22.73 /hr	9.17 /hr	10.33 /hr	
Pick-up Truck	34200	300hr	10	7900	8.77 /hr	3.16 /hr	3.92 /hr	
Swather 30 ft	31600	1000ac	20	7495	1.20 /ac	0.88 /ac	0.51 /ac	13.1
Sprayer 90 ft	40800	5000ac	10	20293	0.41 /ac	0.28 /ac	0.52 /ac	42.5
Heavy Harrow 70 ft	32600	2000ac	20	19004	0.34 /ac	0.58 /ac	0.36 /ac	39.7
Air Seeder 40 ft	186700	2400ac	10	95428	3.80 /ac	2.64 /ac	6.46 /ac	17.0
Planter 12-30	71100	800ac	20	23662	2.97 /ac	2.67 /ac	3.93 /ac	10.6
Corn head w/chopper	85400	800ac	12	24457	6.34 /ac	3.08 /ac	1.98 /ac	6.8
Grain head w/pu	19400	800ac	20	1873	1.09 /ac	0.60 /ac	0.30 /ac	10.2
Grain str. cut 35 ft	31900	2000ac	8	13256	1.16 /ac	0.51 /ac	0.42 /ac	11.9
Head w/sunf pans	38400	600ac	20	4016	2.86 /ac	1.59 /ac	0.51 /ac	11.9
Flex head 35 ft	46600	1000ac	20	4442	2.10 /ac	1.15 /ac	0.62 /ac	11.9
Rock picker	23400	50hr	20	7476	0.53 /ac	0.46 /ac	0.35 /ac	29.1
Grain Cart	37900	100hr	20	6400	15.75 /hr	9.97 /hr	8.90 /hr	
Grain auger	14000	50hr	20	800	13.20 /hr	6.66 /hr	5.20 /hr	

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