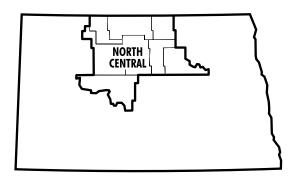


December 2019

### Projected 2020 Crop Budgets



# North Central 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

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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.

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 - 32 lb

Phosphorus - 8 ppm

Potassium - 363 ppm

#### Fertilizer prices:

Nitrogen - .37/lb Phosphorus - .36/lb Potassium - .31/lb

#### **Seed Prices:**

Spring Wheat 10.25/bu Durum 11.75/bu 8.25/bu Barley Corn GM 2.69/thou.kern. Soybean GM .34/thou.kern. Dry Beans .73/thou.kern. Oil Sunflower 1.55/thou.kern. 2.75/thou.kern. Conf. Sunflower Canola 11.30/lb Flax 17.50/bu Field Peas 14.00/bu Oats 6.25/bu .30/lb Lentils Mustard 2.10/lb Buckwheat .40/lb .35/lb Millet Winter Wheat 9.00/bu

#### **Fuel prices:**

Rye

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.

8.00/bu

**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	51		47	
Market Price	4.96		5.46*	
MARKET INCOME	252.96		256.62	
DIRECT COSTS				
-Seed	17.43		23.50	
-Herbicides	26.20		26.20	
-Fungicides**	9.00		17.00	
-Insecticides***	0.00		0.00	
-Fertilizer	59.41		53.82	
-Crop Insurance	7.00		9.00	
-Fuel & Lubrication	14.55		14.33	
-Repairs	19.96		19.85	
-Drying	0.00		0.00	
-Miscellaneous	1.50		1.50	
-Operating Interest	4.19		4.46	
, ,	=======	========	=======	========
SUM OF LISTED DIRECT COSTS	159.23	<del></del>	169.66	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.62		8.54	
-Machinery Depreciation	22.87		22.66	
-Machinery Investment	13.61		13.49	
-Land Charge	50.00		50.00	
	======	=========	=======	=========
SUM OF LISTED INDIRECT COSTS	95.09		94.69	
SUM OF ALL LISTED COSTS	254.32		264.35	
RETURN TO LABOR & MANAGEMENT	(1.36)		(7.73)	
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	3.12		3.61	
-Indirect Costs	1.86		2.01	
-Total Costs	4.99		5.62	

#### Wheat notes:

<sup>\*</sup>Durum price is for milling quality. There is risk of lower quality and lower price.

<sup>\*\*</sup>Includes seed treatment, an early season foliar fungicide, and a late season fungicide. Prothioconazole, metconazole or pydiflumetofen containing products are highly recommended when conditions are favorable for fusarium head blight (scab).

<sup>\*\*\*</sup>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	71*		110	
Market Price	3.32		3.35	
MARKET INCOME	235.72		368.50	
DIRECT COSTS				
-Seed	13.20		78.01*	
-Herbicides	24.30		25.00	
-Fungicides	17.00**		0.00	
-Insecticides	0.00		0.00	
-Fertilizer	49.72		66.44	
-Crop Insurance	5.50		10.00	
-Fuel & Lubrication	15.54		21.24	
-Repairs	20.37		25.07	
-Drying	0.00		19.80	
-Miscellaneous	1.50	· · · · · · · · · · · · · · · · · · ·	1.50	
-Operating Interest	3.97		6.67	
, ,	======		=======	========
SUM OF LISTED DIRECT COSTS	151.10		253.73	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.96		11.28	
-Machinery Depreciation	23.80		36.85	
-Machinery Investment	14.06		20.67	
-Land Charge	50.00		50.00	
<b>.</b>	=======		=======	
SUM OF LISTED INDIRECT COSTS	96.82		118.80	
SUM OF ALL LISTED COSTS	247.93		372.53	
RETURN TO LABOR & MANAGEMENT	(12.21)		(4.03)	
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	2.13		2.31	
-Indirect Costs	1.36		1.08	
-Total Costs	3.49		3.39	
10tal 003t3	0.70	<del></del>	0.00	

#### Barley notes:

#### Corn notes:

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

<sup>\*\*</sup>Includes seed treatment, an early season foliar fungicide, and a late season fungicide fungicide recommended when conditions are favorable for fusarium head blight (scab).

<sup>\*</sup>GM corn with herbicide tolerance and above ground insect control traits.

### Soybeans

### **Drybeans**

		Your		Your
	Per Acre	Figures	Per Acre	Figures
Market Yield	32		1720	
Market Price	8.05		0.27	
MARKET INCOME	257.60		464.40	
DIRECT COSTS				
-Seed	65.80*		60.23	
-Herbicides	26.00	·	46.90*	
-Fungicides	0.00		20.00**	
-Insecticides	0.00**		0.00	
-Fertilizer	6.19		35.34	
-Crop Insurance	5.00		13.00	
-Fuel & Lubrication	11.33		16.10	
-Repairs	16.67		21.97	
-Drying	0.00		0.00	
-Miscellaneous	5.00		13.00	
-Operating Interest	3.67		6.12	
, ,	=======	========	=======	=========
SUM OF LISTED DIRECT COSTS	139.67		232.66	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.75		9.04	
-Machinery Depreciation	20.46		27.39	
-Machinery Investment	11.37		15.79	
-Land Charge	50.00		50.00	
	=======	========	=======	========
SUM OF LISTED INDIRECT COSTS	89.58		102.21	
SUM OF ALL LISTED COSTS	229.24		334.87	
RETURN TO LABOR & MANAGEMENT	28.36		129.53	
LISTED COSTS PER BUDGET UNIT	(bu):		(lb):	
-Direct Costs	4.36		0.14	
-Indirect Costs	2.80		0.06	
-Total Costs	7.16		0.19	

#### Soybean notes:

#### Drybean notes:

<sup>\*</sup>GM soybeans with herbicide tolerance. The cost includes \$8 for inculant and fungicide treatment in addition to seed expense.

<sup>\*\*</sup>Insecticide for soybean aphid, spider mite, or foliage-feeding caterpillars would cost about \$4 per acre plus application.

<sup>\*</sup>Includes dessicant prior to straight cutting.

<sup>\*\*</sup>Fungicide for white mold. Fungicide for rust at \$4-\$12 plus application maybe necessary.

### Oil Sunflower

## **Confection Sunflower**

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1670		1300	
Market Price	0.174		0.244	
MARKET INCOME	290.58		317.20	
DIRECT COSTS				
-Seed	32.55		49.50	
-Herbicides	34.00		36.20	
-Fungicides	0.00*		0.00*	
-Insecticides	5.00**		10.00**	
-Fertilizer	35.27		24.83	
-Crop Insurance	8.50		13.50	
-Fuel & Lubrication	15.25		14.61	
-Repairs	19.77		19.43	
-Drying	5.01		3.90	
-Miscellaneous	9.50		17.50	
-Operating Interest	4.45		5.12	
· -	======	========	=======	========
SUM OF LISTED DIRECT COSTS	169.30		194.60	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	9.06		8.84	
-Machinery Depreciation	24.75		24.12	
-Machinery Investment	15.03		14.70	
-Land Charge	50.00		50.00	
	=======	========	=======	========
SUM OF LISTED INDIRECT COSTS	98.84		97.66	
SUM OF ALL LISTED COSTS	268.14		292.25	
RETURN TO LABOR & MANAGEMENT	22.44		24.95	
LISTED COSTS PER BUDGET UNIT	(lb):		(lb):	
-Direct Costs	0.10		0.15	
-Indirect Costs	0.06		0.08	
-Total Costs	0.16		0.22	

#### Oil Sunflower notes:

#### Confection Sunflower notes:

<sup>\*</sup>Fungicide for rust would cost \$4 plus application.

<sup>\*\*</sup>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).

<sup>\*</sup>Fungicide for rust would cost \$4 plus application.

<sup>\*\*</sup>Two sprayings for head feeding insects (red seed weevil, lygus bug and banded moths) at about \$5 per application. Each 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	1900		23	
Market Price	0.169		9.16	
MARKET INCOME	321.10		210.68	
DIRECT COSTS				
-Seed	56.50		15.75	
-Herbicides	23.10	-	29.20	
-Fungicides	0.00*		0.00	
-Insecticides	0.00		0.00	
-Fertilizer	68.01		26.14	
-Crop Insurance	8.00		11.00	
-Fuel & Lubrication	13.87		13.93	
-Repairs	19.16		20.03	
-Drying	0.00		0.00	
-Miscellaneous	1.50		1.50	
-Operating Interest	5.13		3.17	
	=======	=========	=======	========
SUM OF LISTED DIRECT COSTS	195.27		120.72	·
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.28		8.37	
-Machinery Depreciation	23.14		23.56	
-Machinery Investment	13.01		13.75	
-Land Charge	50.00		50.00	
SUM OF LISTED INDIRECT COSTS	94.43	========	====== 95.68	========
SUM OF ALL LISTED COSTS	289.70		216.40	
RETURN TO LABOR & MANAGEMENT	31.40		(5.72)	
LISTED COSTS PER BUDGET UNIT	(lb):		(bu):	
-Direct Costs	0.10		5.25	
-Indirect Costs	0.05		4.16	
-Total Costs	0.15		9.41	

#### Canola notes:

<sup>\*</sup>Fungicide for white mold would cost about \$18 plus application.

### **Field Peas**

### **Oats**

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield Market Price	40 5.70		82 2.29	
Market Frice	5.70		2.29	-
MARKET INCOME	228.00		187.78	
DIRECT COSTS				
-Seed	42.00		12.50	
-Herbicides	35.90		10.60	
-Fungicides	1.50		0.00	
-Insecticides	0.00*		0.00	
-Fertilizer	8.96		49.12	
-Crop Insurance	8.50		13.50	
-Fuel & Lubrication	13.35		17.19	
-Repairs	19.29		21.40	
-Drying	0.00		0.00	
-Miscellaneous	9.50		1.50	
-Operating Interest	3.75		3.40	
	=======	========	=======	========
SUM OF LISTED DIRECT COSTS	142.76		129.21	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.33	- <del></del>	9.58	
-Machinery Depreciation	23.74		25.98	
-Machinery Investment	13.04		15.72	
-Land Charge	50.00		50.00	
	=======		=======	
SUM OF LISTED INDIRECT COSTS	95.12		101.28	<del></del>
SUM OF ALL LISTED COSTS	237.88		230.49	
RETURN TO LABOR & MANAGEMENT	(9.88)		(42.71)	
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	3.57		1.58	
-Indirect Costs	2.38		1.24	-
-Total Costs	5.95		2.81	-
	0.00			

#### Field Pea notes:

<sup>\*</sup>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	1500		900	
Market Price	0.14		0.30	
MARKET INCOME	210.00		270.00	
DIRECT COSTS				
-Seed	21.00		25.20	
-Herbicides	35.50*		20.20	
-Fungicides	16.00**		0.00	
-Insecticides	0.00***		6.00*	
-Fertilizer	5.60		22.67	
-Crop Insurance	9.00		16.50**	
-Fuel & Lubrication	14.52		13.63	
-Repairs	22.08		19.50	
-Drying	0.00		0.00	
-Miscellaneous	9.50		1.50	
-Operating Interest	3.60		3.38	
, ,	=======	========	=======	=========
SUM OF LISTED DIRECT COSTS	136.80		128.58	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.81		8.33	
-Machinery Depreciation	26.89		22.47	
-Machinery Investment	14.66		13.87	
-Land Charge	50.00		50.00	
	======	=========	=======	========
SUM OF LISTED INDIRECT COSTS	100.36		94.67	
SUM OF ALL LISTED COSTS	237.16		223.25	
RETURN TO LABOR & MANAGEMENT	(27.16)		46.75	
LISTED COSTS PER BUDGET UNIT	(lb):		(lb):	
-Direct Costs	0.09		ò.14	
-Indirect Costs	0.07		0.11	
-Total Costs	0.16		0.25	

#### Lentil notes:

#### Yellow Mustard notes:

<sup>\*</sup>Includes pre-harvest dessicant.

<sup>\*\*</sup>Fungicide treatment for ascochyta/anthracnose.

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

<sup>\*</sup>Insecticide seed treatment for flea beetles.

<sup>\*\*</sup>Crop insurance is not available in some counties of the region.

### **Buckwheat**

### Millet

		Your		Your
	Per Acre	Figures	Per Acre	Figures
Market Yield	950		1300	
Market Price	0.193		0.075	
MARKET INCOME	183.35		97.50	
DIRECT COSTS				
-Seed	20.00		8.75	
-Herbicides	18.00		9.60	
-Fungicides	0.00		0.00	
-Insecticides	0.00		0.00	
-Fertilizer	14.14		14.06	
-Crop Insurance	8.00*		0.00	
-Fuel & Lubrication	13.34		14.16	
-Repairs	18.82		19.79	
-Drying	0.00		0.00	
-Miscellaneous	1.50		1.50	
-Operating Interest	2.53		1.83	
	======	=========	======	=========
SUM OF LISTED DIRECT COSTS	96.33		69.69	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.17		8.52	
-Machinery Depreciation	21.95		22.99	
-Machinery Investment	13.17		14.15	
-Land Charge	50.00		50.00	
0.04.05.1.0750.00050	=======	========	=======	========
SUM OF LISTED INDIRECT COSTS	93.29	<del></del>	95.67	
SUM OF ALL LISTED COSTS	189.62		165.36	
RETURN TO LABOR & MANAGEMENT	(6.27)		(67.86)	
LISTED COSTS PER BUDGET UNIT	(lb):		(lb):	
-Direct Costs	0.10		0.05	-
-Indirect Costs	0.10		0.07	-
-Total Costs	0.20		0.13	

#### Buckwheat notes:

<sup>\*</sup>Crop insurance is not available in most counties of the region.

### Winter Wheat Rye

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	51*		46	
Market Price	4.18		4.33	
MARKET INCOME	213.18		199.18	
DIRECT COSTS				
-Seed	9.90		9.60	
-Herbicides	24.50		6.50	
-Fungicides	9.00		0.00	
-Insecticides	0.00		0.00	
-Fertilizer	59.41		52.42	
-Crop Insurance	7.00		16.00	
-Fuel & Lubrication	13.47		13.26	
-Repairs	17.79		17.37	
-Drying	0.00		0.00	
-Miscellaneous	8.00		8.00	
-Operating Interest	4.02	·	3.33	-
	======	=========	=======	==========
SUM OF LISTED DIRECT COSTS	153.09	<del></del>	126.48	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.00		7.95	
-Machinery Depreciation	20.71		20.49	
-Machinery Investment	11.54		11.55	
-Land Charge	50.00		50.00	
SUM OF LISTED INDIRECT COSTS	90.25		====== 89.99	
SUM OF ALL LISTED COSTS	243.35		216.47	
RETURN TO LABOR & MANAGEMENT	(30.17)		(17.29)	
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	3.00		2.75	
-Indirect Costs	1.77		1.96	
-Total Costs	4.77		4.71	

Winter Wheat notes:

<sup>\*</sup>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 16-30	118500	1400ac	15	49267	3.30 /ac	2.70 /ac	4.91 /ac	14.2
Corn head 8R 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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