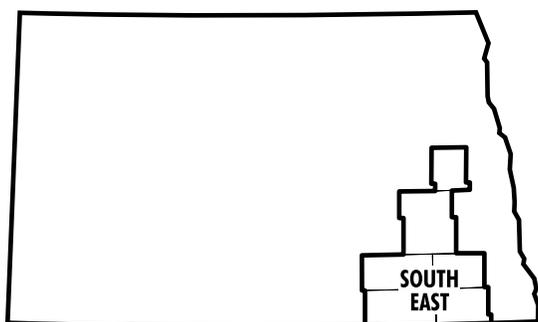




FARM MANAGEMENT PLANNING GUIDE

December 2019

Projected 2020 Crop Budgets



South East North Dakota

Ron Haugen, Farm Management Specialist
Andrew Swenson, Farm Management Specialist

Note: This region consists of six counties: Barnes, Dickey, LaMoure, Ransom, Sargent and Steele.

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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.

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 - 28 lb
 Phosphorus - 10 ppm
 Potassium - 248 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	3.00/thou.kern.
Soybean GM	.34/thou.kern.
Dry Beans	.73/thou.kern.
Oil Sunflower	1.55/thou.kern.
Conf. Sunflower	2.75/thou.kern.
Canola	11.30/lb
Flax	17.50/bu
Field Peas	14.00/bu
Oats	6.25/bu
Buckwheat	.40/lb
Millet	.35/lb
Winter Wheat	9.00/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	60	_____	53	_____
Market Price	5.10	_____	5.57*	_____
MARKET INCOME	306.00	_____	295.21	_____
DIRECT COSTS				
-Seed	17.94	_____	23.50	_____
-Herbicides	21.00	_____	21.00	_____
-Fungicides**	17.00	_____	17.00	_____
-Insecticides***	0.00	_____	0.00	_____
-Fertilizer	69.84	_____	60.49	_____
-Crop Insurance	5.00	_____	6.50	_____
-Fuel & Lubrication	16.26	_____	15.88	_____
-Repairs	20.44	_____	20.24	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.50	_____	1.50	_____
-Operating Interest	4.56	_____	4.48	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	173.54	_____	170.58	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.79	_____	8.66	_____
-Machinery Depreciation	23.66	_____	23.28	_____
-Machinery Investment	13.88	_____	13.69	_____
-Land Charge	97.00	_____	97.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	143.33	_____	142.63	_____
SUM OF ALL LISTED COSTS	316.87	_____	313.22	_____
RETURN TO LABOR & MANAGEMENT	(10.87)	_____	(18.01)	_____
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	2.89	_____	3.22	_____
-Indirect Costs	2.39	_____	2.69	_____
-Total Costs	5.28	_____	5.91	_____

Wheat notes:

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

**Includes seed treatment, an early season foliar fungicide, and a late season fungicide which is recommended when conditions are favorable for fusarium head blight (scab).

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

Malting Barley

Corn Grain

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	76	_____	158	_____
Market Price	3.34*	_____	3.35	_____
MARKET INCOME	253.84	_____	529.30	_____
DIRECT COSTS				
-Seed	16.50	_____	100.50*	_____
-Herbicides	19.70	_____	28.00	_____
-Fungicides	17.00**	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	52.11	_____	95.82	_____
-Crop Insurance	5.00	_____	11.00	_____
-Fuel & Lubrication	17.00	_____	23.75	_____
-Repairs	20.65	_____	28.24	_____
-Drying	0.00	_____	28.44	_____
-Miscellaneous	1.50	_____	1.50	_____
-Operating Interest	4.04	_____	8.57	_____
SUM OF LISTED DIRECT COSTS	153.49	_____	325.82	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	9.16	_____	12.21	_____
-Machinery Depreciation	24.82	_____	38.88	_____
-Machinery Investment	14.53	_____	22.18	_____
-Land Charge	97.00	_____	97.00	_____
SUM OF LISTED INDIRECT COSTS	145.51	_____	170.27	_____
SUM OF ALL LISTED COSTS	299.00	_____	496.09	_____
RETURN TO LABOR & MANAGEMENT	(45.16)	_____	33.21	_____
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	2.02	_____	2.06	_____
-Indirect Costs	1.91	_____	1.08	_____
-Total Costs	3.93	_____	3.14	_____

Barley notes:

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

**Includes seed treatment, an early season foliar fungicide, and a late season fungicide which is recommended when conditions are favorable for fusarium head blight (scab).

Corn notes:

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

Soybeans

Drybeans

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	40	_____	1980	_____
Market Price	8.28	_____	0.27	_____
MARKET INCOME	331.20	_____	534.60	_____
DIRECT COSTS				
-Seed	65.80*	_____	60.23	_____
-Herbicides	35.00	_____	46.90*	_____
-Fungicides	0.00	_____	20.00**	_____
-Insecticides	4.00**	_____	0.00	_____
-Fertilizer	2.70	_____	43.65	_____
-Crop Insurance	5.00	_____	12.00	_____
-Fuel & Lubrication	12.82	_____	17.76	_____
-Repairs	18.50	_____	24.00	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	5.00	_____	13.00	_____
-Operating Interest	4.02	_____	6.41	_____
SUM OF LISTED DIRECT COSTS	152.84	_____	243.95	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.42	_____	9.46	_____
-Machinery Depreciation	22.41	_____	28.97	_____
-Machinery Investment	13.35	_____	17.05	_____
-Land Charge	97.00	_____	97.00	_____
SUM OF LISTED INDIRECT COSTS	141.18	_____	152.49	_____
SUM OF ALL LISTED COSTS	294.02	_____	396.44	_____
RETURN TO LABOR & MANAGEMENT	37.18	_____	138.16	_____
LISTED COSTS PER BUDGET UNIT	(bu):		(lb):	
-Direct Costs	3.82	_____	0.12	_____
-Indirect Costs	3.53	_____	0.08	_____
-Total Costs	7.35	_____	0.20	_____

Soybean notes:

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

**Insecticide for soybean aphid, spider mite, or foliage-feeding caterpillars.

Drybean notes:

*Includes dessicant prior to straight cutting.

**Fungicide for white mold. A second treatment may be necessary. Fungicide for rust at \$4-\$12 plus application maybe necessary.

Oil Sunflower

Confection Sunflower

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1640	_____	1640	_____
Market Price	0.178	_____	0.249	_____
MARKET INCOME	291.92	_____	408.36	_____
DIRECT COSTS				
-Seed	34.10	_____	52.25	_____
-Herbicides	27.70	_____	29.90	_____
-Fungicides	0.00*	_____	0.00*	_____
-Insecticides	5.00**	_____	10.00**	_____
-Fertilizer	33.84	_____	33.84	_____
-Crop Insurance	8.50	_____	16.50	_____
-Fuel & Lubrication	17.30	_____	17.30	_____
-Repairs	20.99	_____	20.99	_____
-Drying	4.92	_____	4.92	_____
-Miscellaneous	9.50	_____	17.50	_____
-Operating Interest	4.37	_____	5.49	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	166.22	_____	208.68	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	9.61	_____	9.61	_____
-Machinery Depreciation	27.31	_____	27.31	_____
-Machinery Investment	16.91	_____	16.91	_____
-Land Charge	97.00	_____	97.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	150.83	_____	150.83	_____
SUM OF ALL LISTED COSTS	317.05	_____	359.52	_____
RETURN TO LABOR & MANAGEMENT	(25.13)	_____	48.84	_____
LISTED COSTS PER BUDGET UNIT	(lb):		(lb):	
-Direct Costs	0.10	_____	0.13	_____
-Indirect Costs	0.09	_____	0.09	_____
-Total Costs	0.19	_____	0.22	_____

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."

Confection Sunflower notes:

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

**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."

Canola

Flax

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1750	_____	24	_____
Market Price	0.162	_____	9.37	_____
MARKET INCOME	283.50	_____	224.88	_____
DIRECT COSTS				
-Seed	56.50	_____	17.50	_____
-Herbicides	23.10	_____	24.70	_____
-Fungicides	0.00*	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	60.27	_____	27.69	_____
-Crop Insurance	8.00	_____	12.50	_____
-Fuel & Lubrication	15.46	_____	15.30	_____
-Repairs	20.03	_____	20.84	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.50	_____	1.50	_____
-Operating Interest	4.99	_____	3.24	_____
SUM OF LISTED DIRECT COSTS	189.86	=====	123.28	=====
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.47	_____	8.57	_____
-Machinery Depreciation	24.01	_____	24.33	_____
-Machinery Investment	13.75	_____	14.41	_____
-Land Charge	97.00	_____	97.00	_____
SUM OF LISTED INDIRECT COSTS	143.23	=====	144.32	=====
SUM OF ALL LISTED COSTS	333.09	_____	267.59	_____
RETURN TO LABOR & MANAGEMENT	(49.59)	_____	(42.71)	_____
LISTED COSTS PER BUDGET UNIT	(lb):		(bu):	
-Direct Costs	0.11	_____	5.14	_____
-Indirect Costs	0.08	_____	6.01	_____
-Total Costs	0.19	_____	11.15	_____

Canola notes:

*Fungicide for white mold would cost about \$18 plus application.

Field Peas

Oats

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	40		82	
Market Price	5.70		2.35	
MARKET INCOME	228.00		192.70	
DIRECT COSTS				
-Seed	42.00		12.50	
-Herbicides	32.30		5.40	
-Fungicides	0.00		0.00	
-Insecticides	0.00		0.00	
-Fertilizer	6.59		47.58	
-Crop Insurance	7.00		9.00	
-Fuel & Lubrication	16.09		18.37	
-Repairs	21.52		21.54	
-Drying	0.00		0.00	
-Miscellaneous	9.50		1.50	
-Operating Interest	3.64		3.13	
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	138.64		119.01	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.86		9.57	
-Machinery Depreciation	25.78		26.22	
-Machinery Investment	14.81		15.69	
-Land Charge	97.00		97.00	
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	146.45		148.48	
SUM OF ALL LISTED COSTS	285.09		267.49	
RETURN TO LABOR & MANAGEMENT	(57.09)		(74.79)	
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	3.47		1.45	
-Indirect Costs	3.66		1.81	
-Total Costs	7.13		3.26	

Buckwheat

Millet

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	950		1800	
Market Price	0.195		0.075	
MARKET INCOME	185.25		135.00	
DIRECT COSTS				
-Seed	20.00		8.75	
-Herbicides	11.80		3.40	
-Fungicides	0.00		0.00	
-Insecticides	0.00		0.00	
-Fertilizer	14.14		23.72	
-Crop Insurance	9.50*		6.00	
-Fuel & Lubrication	13.34		15.89	
-Repairs	18.66		20.21	
-Drying	0.00		0.00	
-Miscellaneous	1.50		1.50	
-Operating Interest	2.40		2.15	
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	91.34		81.61	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.00		8.70	
-Machinery Depreciation	21.07		23.77	
-Machinery Investment	12.59		14.40	
-Land Charge	97.00		97.00	
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	138.66		143.87	
SUM OF ALL LISTED COSTS	229.99		225.48	
RETURN TO LABOR & MANAGEMENT	(44.74)		(90.48)	
LISTED COSTS PER BUDGET UNIT	(lb):		(lb):	
-Direct Costs	0.10		0.05	
-Indirect Costs	0.15		0.08	
-Total Costs	0.24		0.13	

Buckwheat notes:

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

Winter Wheat

	Per Acre	Your Figures
Market Yield	58*	_____
Market Price	4.38	_____
MARKET INCOME	254.04	_____
DIRECT COSTS		
-Seed	10.80	_____
-Herbicides	24.50	_____
-Fungicides	9.00	_____
-Insecticides	0.00	_____
-Fertilizer	67.17	_____
-Crop Insurance	5.00	_____
-Fuel & Lubrication	13.85	_____
-Repairs	18.00	_____
-Drying	0.00	_____
-Miscellaneous	8.00	_____
-Operating Interest	4.22	_____
	=====	=====
SUM OF LISTED DIRECT COSTS	160.53	_____
INDIRECT (FIXED) COSTS		
-Misc. Overhead	8.13	_____
-Machinery Depreciation	21.09	_____
-Machinery Investment	11.74	_____
-Land Charge	97.00	_____
	=====	=====
SUM OF LISTED INDIRECT COSTS	137.96	_____
SUM OF ALL LISTED COSTS	298.49	_____
RETURN TO LABOR & MANAGEMENT	(44.45)	_____
LISTED COSTS PER BUDGET UNIT	(bu):	
-Direct Costs	2.77	_____
-Indirect Costs	2.38	_____
-Total Costs	5.15	_____

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
Chisel Plow 38 ft	47100	3000ac	15	27515	0.43 /ac	0.56 /ac	1.04 /ac	19.6
Field Cultivator 48 ft	54400	3000ac	15	31786	0.50 /ac	0.65 /ac	0.96 /ac	24.7
Tandem Disk 28 ft	36100	800ac	20	10315	1.61 /ac	1.30 /ac	0.91 /ac	13.6
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 24-22	142200	1600ac	15	59127	3.46 /ac	2.83 /ac	5.36 /ac	15.6
Corn head 12R w/chopper	132000	1000ac	15	25273	7.12 /ac	3.54 /ac	2.79 /ac	7.5
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	1000ac	15	6646	1.68 /ac	0.87 /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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