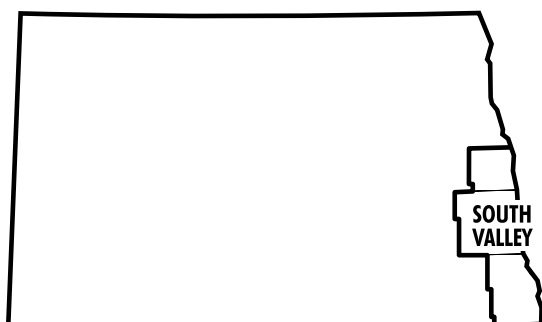




# FARM MANAGEMENT PLANNING GUIDE

December 2019

## Projected 2020 Crop Budgets



# South Valley 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.

# NDSU

# EXTENSION

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 - 278 ppm

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

## Seed Prices:

Spring Wheat	10.25/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.
Oats	6.25/bu
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

## Malting Barley

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	65	_____	84	_____
Market Price	5.11	_____	3.34*	_____
<b>MARKET INCOME</b>	<b>332.15</b>	_____	<b>280.56</b>	_____
<b>DIRECT COSTS</b>				
-Seed	20.50	_____	16.50	_____
-Herbicides	21.00	_____	19.70	_____
-Fungicides	17.00*	_____	17.00**	_____
-Insecticides	0.00**	_____	0.00	_____
-Fertilizer	76.53	_____	58.69	_____
-Crop Insurance	5.00	_____	4.00	_____
-Fuel & Lubrication	18.08	_____	18.99	_____
-Repairs	21.57	_____	21.86	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	8.00	_____	8.00	_____
-Operating Interest	5.07	_____	4.45	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>192.74</b>	=====	<b>169.18</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	9.15	_____	9.46	_____
-Machinery Depreciation	25.21	_____	26.02	_____
-Machinery Investment	14.90	_____	15.28	_____
-Land Charge	125.00	_____	125.00	_____
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>174.27</b>	=====	<b>175.76</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>367.01</b>	_____	<b>344.94</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(34.86)</b>	_____	<b>(64.38)</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu):</b>		<b>(bu):</b>	
-Direct Costs	2.97	_____	2.01	_____
-Indirect Costs	2.68	_____	2.09	_____
-Total Costs	5.65	_____	4.11	_____

### Spring Wheat notes:

\*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.

### 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 Grain

## Soybeans

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	161		41	
Market Price	3.35		8.32	
<b>MARKET INCOME</b>	<b>539.35</b>		<b>341.12</b>	
<b>DIRECT COSTS</b>				
-Seed	100.50*		65.80*	
-Herbicides	28.00		35.00	
-Fungicides	0.00		0.00	
-Insecticides	0.00		4.00**	
-Fertilizer	97.83		2.77	
-Crop Insurance	11.00		6.00	
-Fuel & Lubrication	25.46		14.92	
-Repairs	29.31		19.86	
-Drying	28.98		0.00	
-Miscellaneous	8.00		1.50	
-Operating Interest	8.89		4.05	
<b>SUM OF LISTED DIRECT COSTS</b>	<b>337.97</b>		<b>153.89</b>	
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	12.42		8.53	
-Machinery Depreciation	39.81		23.48	
-Machinery Investment	22.78		13.65	
-Land Charge	125.00		125.00	
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>200.01</b>		<b>170.65</b>	
<b>SUM OF ALL LISTED COSTS</b>	<b>537.97</b>		<b>324.54</b>	
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>1.38</b>		<b>16.58</b>	
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu):</b>		<b>(bu):</b>	
-Direct Costs	2.10		3.75	
-Indirect Costs	1.24		4.16	
-Total Costs	3.34		7.92	

Corn notes:

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

Soybean notes:

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

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

## Drybeans

## Oil Sunflower

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	2050	_____	2130	_____
Market Price	0.27	_____	0.179	_____
<b>MARKET INCOME</b>	<b>553.50</b>	_____	<b>381.27</b>	_____
<b>DIRECT COSTS</b>				
-Seed	60.23	_____	37.20	_____
-Herbicides	46.90*	_____	27.70	_____
-Fungicides	20.00**	_____	0.00*	_____
-Insecticides	0.00	_____	5.00**	_____
-Fertilizer	45.66	_____	47.04	_____
-Crop Insurance	15.00	_____	10.00	_____
-Fuel & Lubrication	16.64	_____	17.54	_____
-Repairs	22.73	_____	20.61	_____
-Drying	0.00	_____	6.39	_____
-Miscellaneous	16.00	_____	16.00	_____
-Operating Interest	6.57	_____	5.06	_____
	=====	=====	=====	=====
<b>SUM OF LISTED DIRECT COSTS</b>	<b>249.72</b>	_____	<b>192.55</b>	_____
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	9.15	_____	9.65	_____
-Machinery Depreciation	27.63	_____	27.20	_____
-Machinery Investment	15.98	_____	16.52	_____
-Land Charge	125.00	_____	125.00	_____
	=====	=====	=====	=====
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>177.76</b>	_____	<b>178.38</b>	_____
<b>SUM OF ALL LISTED COSTS</b>	<b>427.48</b>	_____	<b>370.93</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>126.02</b>	_____	<b>10.34</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(lb):</b>		<b>(lb):</b>	
-Direct Costs	0.12	_____	0.09	_____
-Indirect Costs	0.09	_____	0.08	_____
-Total Costs	0.21	_____	0.17	_____

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 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

# Oats

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1740	_____	100	_____
Market Price	0.251	_____	2.43	_____
<b>MARKET INCOME</b>	<b>436.74</b>	_____	<b>243.00</b>	_____
<b>DIRECT COSTS</b>				
-Seed	55.00	_____	12.50	_____
-Herbicides	29.90	_____	5.40	_____
-Fungicides	0.00*	_____	0.00	_____
-Insecticides	10.00**	_____	0.00	_____
-Fertilizer	36.53	_____	60.30	_____
-Crop Insurance	15.00	_____	9.50	_____
-Fuel & Lubrication	16.88	_____	20.90	_____
-Repairs	20.25	_____	23.04	_____
-Drying	5.22	_____	0.00	_____
-Miscellaneous	24.00	_____	8.00	_____
-Operating Interest	5.75	_____	3.77	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>218.53</b>	=====	<b>143.40</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	9.42	_____	10.06	_____
-Machinery Depreciation	26.54	_____	27.95	_____
-Machinery Investment	16.18	_____	16.72	_____
-Land Charge	125.00	_____	125.00	_____
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>177.14</b>	=====	<b>179.73</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>395.67</b>	_____	<b>323.14</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>41.07</b>	_____	<b>(80.14)</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(lb):</b>		<b>(bu):</b>	
-Direct Costs	0.13	_____	1.43	_____
-Indirect Costs	0.10	_____	1.80	_____
-Total Costs	0.23	_____	3.23	_____

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."

# Winter Wheat

	Per Acre	Your Figures
Market Yield	60*	_____
Market Price	4.41	_____
<b>MARKET INCOME</b>	<b>264.60</b>	_____
<b>DIRECT COSTS</b>		
-Seed	11.70	_____
-Herbicides	24.50	_____
-Fungicides	9.00	_____
-Insecticides	0.00	_____
-Fertilizer	69.84	_____
-Crop Insurance	5.00	_____
-Fuel & Lubrication	16.11	_____
-Repairs	19.86	_____
-Drying	0.00	_____
-Miscellaneous	8.00	_____
-Operating Interest	4.43	_____
	=====	=====
<b>SUM OF LISTED DIRECT COSTS</b>	<b>168.44</b>	_____
<b>INDIRECT (FIXED) COSTS</b>		
-Misc. Overhead	8.68	_____
-Machinery Depreciation	23.43	_____
-Machinery Investment	13.50	_____
-Land Charge	125.00	_____
	=====	=====
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>170.60</b>	_____
<b>SUM OF ALL LISTED COSTS</b>	<b>339.04</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(74.44)</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu):</b>	
-Direct Costs	2.81	_____
-Indirect Costs	2.84	_____
-Total Costs	5.65	_____

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	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
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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