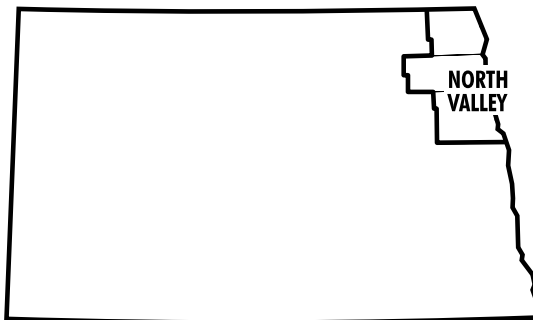




# FARM MANAGEMENT PLANNING GUIDE

December 2015

## Projected 2016 Crop Budgets



# North Valley North Dakota

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The 2016 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 2016 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 2014 Farm Bill initiated the Price Loss Coverage (PLC) and Agricultural Risk Coverage (ARC) support programs, and eliminated the direct and counter-cyclical payment programs and the ACRE program.

**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 2008-2014, 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 of 130% of market yield. N fertilizer can be reduced if previous crop was soybean, dry bean, field peas or lentil.

**Soil test - recrop:**  
 Nitrogen - 35 lb  
 Phosphorus - 10 ppm  
 Potassium - 280 ppm

**Fertilizer prices:**  
 Nitrogen - .40/lb  
 Phosphorus - .44/lb  
 Potassium - .33/lb

### Seed Prices:

Spring Wheat	9.25/bu
Durum	12.50/bu
Barley	8.50/bu
Corn GM	2.70/thou.kern.
Soybean RR2	.33/thou.kern.
Dry Beans	.67/lb
Oil Sunflower	1.50/thou.kern.
Conf. Sunflower	2.50/thou.kern.
Canola	10.25/lb
Flax	14.50/bu
Field Peas	14.00/bu
Oats	6.00/bu
Mustard	2.00/lb
Winter Wheat	8.00/bu

### Fuel prices:

Diesel	1.80/gal
Gas	1.95/gal

**Lubrication charge:** 15% of fuel cost

**Crop Insurance:** Revenue Protection was used for all wheat, barley, soybeans, corn, canola, sunflowers and dry beans. Yield Protection or APH insurance was used for other crops. A 70% coverage and optional units were used, except corn for which 75% coverage and enterprise units were assumed.

**Miscellaneous:** soil testing, machinery rent and custom work.

**Operating Interest:** Direct costs charged 4.25% 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, \$3 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	56	_____	46	_____
Market Price	5.36	_____	6.06*	_____
<b>MARKET INCOME</b>	<b>300.16</b>	_____	<b>278.76</b>	_____
<b>DIRECT COSTS</b>				
-Seed	18.50	_____	25.00	_____
-Herbicides	22.00	_____	22.00	_____
-Fungicides**	17.00	_____	17.00	_____
-Insecticides***	0.00	_____	0.00	_____
-Fertilizer	71.64	_____	56.35	_____
-Crop Insurance	12.70	_____	13.50	_____
-Fuel & Lubrication	12.96	_____	12.54	_____
-Repairs	20.55	_____	20.28	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	7.50	_____	7.50	_____
-Operating Interest	3.89	_____	3.70	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>186.74</b>	=====	<b>177.87</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	7.92	_____	7.74	_____
-Machinery Depreciation	23.73	_____	23.24	_____
-Machinery Investment	13.87	_____	13.61	_____
-Land Investment	90.00	_____	90.00	_____
<b>SUM OF LISTED INDIRECT COSTS 1</b>	<b>35.52</b>	=====	<b>134.59</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>322.26</b>	_____	<b>312.46</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(22.10)</b>	_____	<b>(33.70)</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu)</b>		<b>(bu)</b>	
-Direct Costs	3.33	_____	3.87	_____
-Indirect Costs	2.42	_____	2.93	_____
-Total Costs	5.75	_____	6.79	_____

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 often warranted in this region for fusarium head blight (scab) control.

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

## Malting Barley

## Corn Grain

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	70	_____	124	_____
Market Price	4.22*	_____	3.50	_____
<b>MARKET INCOME</b>	<b>295.40</b>	_____	<b>434.00</b>	_____
<b>DIRECT COSTS</b>				
-Seed	17.00	_____	85.05*	_____
-Herbicides	19.20	_____	22.00	_____
-Fungicides	17.00**	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	52.01	_____	81.82	_____
-Crop Insurance	17.90	_____	18.60	_____
-Fuel & Lubrication	14.17	_____	16.85	_____
-Repairs	21.50	_____	26.23	_____
-Drying	0.00	_____	26.04	_____
-Miscellaneous	7.50	_____	7.50	_____
-Operating Interest	3.53	_____	6.04	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>169.82</b>	=====	<b>290.13</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	8.43	_____	10.36	_____
-Machinery Depreciation	24.96	_____	34.83	_____
-Machinery Investment	15.11	_____	20.01	_____
-Land Investment	90.00	_____	90.00	_____
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>138.50</b>	=====	<b>155.20</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>308.31</b>	_____	<b>445.33</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(12.91)</b>	_____	<b>(11.33)</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu)</b>		<b>(bu)</b>	
-Direct Costs	2.43	_____	2.34	_____
-Indirect Costs	1.98	_____	1.25	_____
-Total Costs	4.40	_____	3.59	_____

### Barley notes:

\*There is risk of not making malting barley quality. Use \$2.90 price for feed barley.

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

### Corn notes:

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

Cost includes insecticide seed treatment for wireworm, rootworm, white grub and suppression of cutworm.

## Soybeans

## Drybeans

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	32	_____	1670	_____
Market Price	8.02	_____	0.22	_____
<b>MARKET INCOME</b>	<b>256.64</b>	_____	<b>367.40</b>	_____
<b>DIRECT COSTS</b>				
-Seed	65.75*	_____	55.28	_____
-Herbicides	20.00	_____	41.60	_____
-Fungicides	0.00	_____	20.00*	_____
-Insecticides	4.00**	_____	0.00	_____
-Fertilizer	2.75	_____	38.08	_____
-Crop Insurance	16.70	_____	27.60	_____
-Fuel & Lubrication	10.58	_____	14.07	_____
-Repairs	19.02	_____	24.06	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.50	_____	15.50	_____
-Operating Interest	2.98	_____	5.02	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>143.27</b>	=====	<b>241.20</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	7.34	_____	9.11	_____
-Machinery Depreciation	22.15	_____	28.68	_____
-Machinery Investment	12.73	_____	18.64	_____
-Land Investment	90.00	_____	90.00	_____
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>132.21</b>	=====	<b>146.43</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>275.49</b>	_____	<b>387.63</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(18.85)</b>	_____	<b>(20.23)</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu)</b>		<b>(lb)</b>	
-Direct Costs	4.48	_____	0.14	_____
-Indirect Costs	4.13	_____	0.09	_____
-Total Costs	8.61	_____	0.23	_____

### Soybean notes:

\*RR2 (glyphosate) resistant soybeans. The cost includes \$8 for inoculant and fungicide treatment in addition to seed expense.

\*\*Soybean aphid and/or spider mite insecticide

### Drybean notes:

Under the 2014 farm bill government payment reductions can occur if drybean plantings exceed non-base acres plus 15 percent of base acres (35 percent if enrolled in ARC-IC).

\*Fungicide for white mold. A second treatment may be necessary.

Fungicide for rust at \$4-\$12 plus application may be necessary.

# Oil Sunflower Confection Sunflower

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1410		1120	
Market Price	0.16		0.217	
<b>MARKET INCOME</b>	<b>225.60</b>		<b>243.04</b>	
<b>DIRECT COSTS</b>				
-Seed	36.00		50.00	
-Herbicides	27.00		29.20	
-Fungicides	0.00*		0.00*	
-Insecticides	5.00**		10.00**	
-Fertilizer	29.52		20.57	
-Crop Insurance	12.80		17.00	
-Fuel & Lubrication	12.00		11.61	
-Repairs	19.23		18.98	
-Drying	4.23		3.36	
-Miscellaneous	15.50		23.50	
-Operating Interest	3.43		3.91	
	=====	=====	=====	=====
<b>SUM OF LISTED DIRECT COSTS</b>	<b>164.70</b>		<b>188.13</b>	
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	8.13		7.97	
-Machinery Depreciation	24.78		24.33	
-Machinery Investment	14.96		14.73	
-Land Investment	90.00		90.00	
	=====	=====	=====	=====
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>137.88</b>		<b>137.02</b>	
<b>SUM OF ALL LISTED COSTS</b>	<b>302.58</b>		<b>325.15</b>	
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(76.98)</b>		<b>(82.11)</b>	
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(lb)</b>		<b>(lb)</b>	
-Direct Costs	0.12		0.17	
-Indirect Costs	0.10		0.12	
-Total Costs	0.21		0.29	

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	1740	_____	24	_____
Market Price	0.143	_____	8.09	_____
<b>MARKET INCOME</b>	<b>248.82</b>	_____	<b>194.16</b>	_____
<b>DIRECT COSTS</b>				
-Seed	51.25*	_____	14.50	_____
-Herbicides	21.30	_____	20.40	_____
-Fungicides	0.00**	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	66.15	_____	29.48	_____
-Crop Insurance	16.50	_____	7.60	_____
-Fuel & Lubrication	10.73	_____	12.24	_____
-Repairs	18.06	_____	20.57	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	7.50	_____	1.50	_____
-Operating Interest	4.07	_____	2.26	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>195.56</b>	=====	<b>108.55</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	7.26	_____	7.73	_____
-Machinery Depreciation	20.98	_____	23.18	_____
-Machinery Investment	12.46	_____	14.29	_____
-Land Investment	90.00	_____	90.00	_____
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>130.70</b>	=====	<b>135.20</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>326.26</b>	_____	<b>243.74</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(77.44)</b>	_____	<b>(49.58)</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(lb)</b>		<b>(bu)</b>	
-Direct Costs	0.11	_____	4.52	_____
-Indirect Costs	0.08	_____	5.63	_____
-Total Costs	0.19	_____	10.16	_____

Canola notes:

\*Cost includes insecticide seed treatment for flea beetles.

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

## Field Peas

## Oats

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	37		77	
Market Price	6.42		2.33	
<b>MARKET INCOME</b>	<b>237.54</b>		<b>179.41</b>	
<b>DIRECT COSTS</b>				
-Seed	42.00		12.00	
-Herbicides	29.70		5.25	
-Fungicides	1.50		0.00	
-Insecticides	0.00		0.00	
-Fertilizer	7.75		48.36	
-Crop Insurance	10.40		11.90	
-Fuel & Lubrication	11.97		14.16	
-Repairs	20.88		20.89	
-Drying	0.00		0.00	
-Miscellaneous	6.00		7.50	
-Operating Interest	2.77		2.55	
	=====	=====	=====	=====
<b>SUM OF LISTED DIRECT COSTS</b>	<b>132.96</b>		<b>122.62</b>	
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	7.74		8.41	
-Machinery Depreciation	24.33		24.65	
-Machinery Investment	13.90		14.80	
-Land Investment	90.00		90.00	
	=====	=====	=====	=====
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>135.97</b>		<b>137.86</b>	
<b>SUM OF ALL LISTED COSTS</b>	<b>268.93</b>		<b>260.48</b>	
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(31.39)</b>		<b>(81.07)</b>	
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu)</b>		<b>(bu)</b>	
-Direct Costs	3.59		1.59	
-Indirect Costs	3.67		1.79	
-Total Costs	7.27		3.38	

Field Pea notes:

For 2016, yellow and green peas are expected to have very similar returns and costs.



# Yellow Mustard      Winter Wheat

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	950		52*	
Market Price	0.31		4.61	
<b>MARKET INCOME</b>	<b>294.50</b>		<b>239.72</b>	
<b>DIRECT COSTS</b>				
-Seed	24.00		11.05	
-Herbicides	13.70		23.90	
-Fungicides	0.00		9.00	
-Insecticides	6.00*		0.00	
-Fertilizer	25.72		65.53	
-Crop Insurance	0.00**		12.30	
-Fuel & Lubrication	9.79		11.54	
-Repairs	17.50		19.05	
-Drying	0.00		0.00	
-Miscellaneous	1.50		7.50	
-Operating Interest	2.09		3.40	
<b>SUM OF LISTED DIRECT COSTS</b>	<b>100.29</b>		<b>163.27</b>	
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	6.94		7.51	
-Machinery Depreciation	19.97		22.19	
-Machinery Investment	11.91		12.64	
-Land Investment	90.00		90.00	
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>128.83</b>		<b>132.34</b>	
<b>SUM OF ALL LISTED COSTS</b>	<b>229.12</b>		<b>295.61</b>	
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>65.38</b>		<b>(55.89)</b>	
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(lb)</b>		<b>(bu)</b>	
-Direct Costs	0.11		3.14	
-Indirect Costs	0.14		2.54	
-Total Costs	0.24		5.68	

Yellow Mustard notes:

\*Insecticide seed treatment for flea beetles.

\*\*Crop insurance is not available in this region.

Winter Wheat notes:

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

## 2016 Machinery List

Machine	Purch. Price	Annual Use	Years to trade	Trade in	Deprec.	Invest.	Repairs	Ac/hr
FWA 140HP Tractor	130000	400 hr	20	40676	11.17 /hr	9.60 /hr	12.84 /hr	
FWA 180HP Tractor	176200	500 hr	15	50575	16.75 /hr	10.20 /hr	17.40 /hr	
4WD 340HP Tractor	232100	500 hr	15	66661	22.06 /hr	13.44 /hr	13.11 /hr	
SP Combine (base unit)	281900	250 hr	12	68074	71.28 /hr	31.50 /hr	44.43 /hr	
Tandem Truck (used)	38300	150 hr	15	12200	11.60 /hr	7.58 /hr	7.85 /hr	
Semi & Trailer (used)	42900	150 hr	10	12250	20.43 /hr	8.27 /hr	9.47 /hr	
Pick-up Truck	30600	300 hr	10	6000	8.20 /hr	2.75 /hr	3.55 /hr	
Swather 30 ft	30600	1000 ac	20	7253	1.17 /ac	0.85 /ac	0.49 /ac	13.1
Sprayer 90 ft	38800	5000 ac	10	19278	0.39 /ac	0.26 /ac	0.50 /ac	42.5
Chisel Plow 38 ft	43300	3000 ac	15	25280	0.40 /ac	0.51 /ac	0.96 /ac	19.6
Field Cultivator 48 ft	48900	3000 ac	15	28558	0.45 /ac	0.58 /ac	0.86 /ac	24.7
Tandem Disk 28 ft	34300	800 ac	20	9830	1.53 /ac	1.24 /ac	0.87 /ac	13.6
Heavy Harrow 70 ft	31000	2000 ac	20	18080	0.32 /ac	0.55 /ac	0.35 /ac	39.7
Air Seeder 40 ft	180800	2400 ac	10	92386	3.68 /ac	2.56 /ac	6.25 /ac	17.0
Planter 24-22	135300	1600 ac	15	56265	3.29 /ac	2.69 /ac	5.10 /ac	15.6
Bean cutter	13400	400 ac	20	3786	1.20 /ac	0.97 /ac	0.72 /ac	6.5
Corn head 12R w/chopper	117300	1000 ac	15	22458	6.32 /ac	3.14 /ac	2.47 /ac	7.5
Grain head w/pu	15600	800 ac	20	1536	0.88 /ac	0.48 /ac	0.25 /ac	10.2
Grain str. cut 30 ft	26000	1000 ac	15	5290	1.38 /ac	0.70 /ac	0.40 /ac	10.2
Head w/sunf pans 30 ft	31300	600 ac	20	3200	2.34 /ac	1.29 /ac	0.48 /ac	10.2
Flex head 30 ft	38600	1000 ac	20	3541	1.75 /ac	0.95 /ac	0.60 /ac	10.2
Head w/drybean pickups	31300	400 ac	20	3334	3.50 /ac	1.95 /ac	0.56 /ac	8.9
Grain Cart	30000	100 hr	20	5100	12.45 /hr	7.90 /hr	7.50 /hr	
Grain auger	12700	50 hr	20	735	11.97 /hr	6.05 /hr	4.70 /hr	



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