

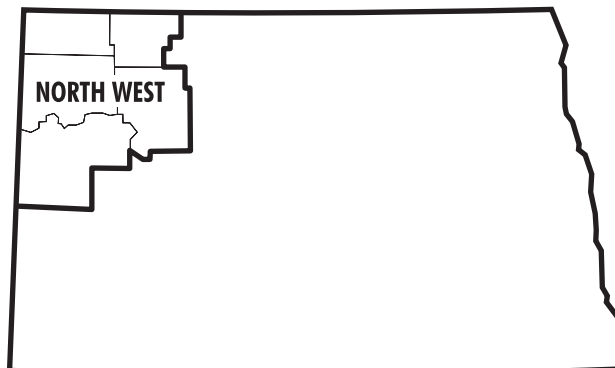
# Farm Management Planning Guide



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## Projected 2006 Crop Budgets North West North Dakota

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



The 2006 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, or rental, expense of machinery and land, and real estate tax if land is owned, respectively.

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 2006 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.

**NDSU**  
**Extension Service**

North Dakota State University, Fargo, ND 58105

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.

**Direct and counter-cyclical payments** under the 2002 Farm Bill are omitted from the budgets because those payments are tied to historic farm program base acres and payment yields, not to current crop selection or production. Direct payments for this region are about \$7.50 per acre when averaged over all crop acreage. Counter-cyclical payments will occur if the national average price of wheat, feed grains or soybeans is below a certain level. Only counter-cyclical payment rates per bushel of \$0.10 for wheat, \$0.35 for corn, and \$0.06 for barley are expected with the price levels used in the budgets. The estimate over all crop acreage is about \$1.50 per acre for this region. Counter-cyclical payments will vary by a farm's base acres and payment yields and will dissipate if prices rise.

## 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 1998-2004, after the low and high yield years are removed. Yields for field peas, safflower, yellow mustard, buckwheat, millet and garbanzo beans 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 - 6 ppm  
 Potassium - 328 ppm

## Fertilizer prices:

Nitrogen - .33/lb  
 Phosphorus - .25/lb  
 Potassium - .185/lb

## Seed Prices:

Spring Wheat 5.80/bu  
 Durum 6.00/bu  
 Barley 4.20/bu  
 Corn grain RR 1.43/thous.kern.  
 Oil Sunflower .66/thou.kern.  
 Flax 9.00/bu  
 Canola 3.20/lb  
 Oats 3.25/bu  
 Field Peas 5.75/bu  
 Millet .17/lb  
 Buckwheat .28/lb  
 Safflower .45/lb  
 Lentils .19/lb  
 Mustard .65/lb  
 Large Chickpeas .65/lb  
 Rye 4.00/bu  
 Winter Wheat 4.75/bu

## Fuel prices:

Diesel 2.10/gal  
 Gas 2.20/gal

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

**Crop Insurance:** Coverage levels are 70% on all insurable crops. MPCI estimates are used, except for RA-HPO on spring wheat and soybeans.

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

**Operating Interest:** Direct costs charged 7.75% 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, \$1 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	28	_____	29	_____
Market Price	3.40	_____	3.37	_____
<b>MARKET INCOME</b>	<b>95.20</b>	_____	<b>97.73</b>	_____
<b>DIRECT COSTS</b>				
-Seed	7.25	_____	9.00	_____
-Herbicides	10.30	_____	10.30	_____
-Fungicides*	1.50	_____	1.50	_____
-Insecticides**	0.00	_____	0.00	_____
-Fertilizer	24.57	_____	25.86	_____
-Crop Insurance	4.20	_____	3.10	_____
-Fuel & Lubrication	10.05	_____	10.08	_____
-Repairs	9.48	_____	9.50	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.00	_____	1.00	_____
-Operating Interest	2.65	_____	2.73	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>71.00</b>	=====	<b>73.06</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	3.37	_____	3.39	_____
-Machinery Depreciation	11.89	_____	11.92	_____
-Machinery Investment	7.15	_____	7.17	_____
-Land Investment	26.70	_____	26.70	_____
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>49.12</b>	=====	<b>49.18</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>120.12</b>	_____	<b>122.24</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(24.92)</b>	_____	<b>(24.51)</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu):</b>		<b>(bu):</b>	
-Direct Costs	2.54	_____	2.52	_____
-Indirect Costs	1.75	_____	1.70	_____
-Total Costs	4.29	_____	4.22	_____

**notes:**

\*Early season foliar fungicide would cost about \$3-\$5 and late season fungicide would cost about \$9.50 plus application. Recent trials consistently show yield response of 5-10% with early season fungicide, if wheat planted into residue, and 15-20% with late application if weather favors disease development.

\*\*Orange wheat blossom midge insecticide would cost about \$3-5 per acre plus application.

# Malting Barley

# Corn Grain

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	47	_____	60	_____
Market Price	2.32*	_____	2.01	_____
<b>MARKET INCOME</b>	<b>109.04</b>	_____	<b>120.60</b>	_____
<b>DIRECT COSTS</b>				
-Seed	5.25	_____	27.17*	_____
-Herbicides	9.80	_____	7.75	_____
-Fungicides	1.25	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	26.10	_____	27.84	_____
-Crop Insurance	3.30	_____	0.00**	_____
-Fuel & Lubrication	10.97	_____	14.13	_____
-Repairs	10.18	_____	12.83	_____
-Drying	0.00	_____	8.10	_____
-Miscellaneous	1.00	_____	1.00	_____
-Operating Interest	2.63	_____	3.83	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>70.48</b>	=====	<b>102.65</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	3.75	_____	4.80	_____
-Machinery Depreciation	13.04	_____	19.10	_____
-Machinery Investment	7.90	_____	11.13	_____
-Land Investment	26.70	_____	26.70	_____
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>51.38</b>	=====	<b>61.72</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>121.86</b>	_____	<b>164.37</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(12.82)</b>	_____	<b>(43.77)</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu):</b>		<b>(bu):</b>	
-Direct Costs	1.50	_____	1.71	_____
-Indirect Costs	1.09	_____	1.03	_____
-Total Costs	2.59	_____	2.74	_____

### Barley notes:

\*On average, about 35% of production is feed quality. Use county loan rate of about \$1.70 for feed barley price.

### Corn notes:

\*Roundup (glyphosate) resistant corn.

\*\*Crop insurance only available by written agreement.

# Oil Sunflower

# Canola

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1200		1340	
Market Price	0.108		0.101	
<b>MARKET INCOME</b>	129.60		135.34	
<b>DIRECT COSTS</b>				
-Seed	15.51		17.60	
-Herbicides	18.90		17.50	
-Fungicides	0.00		0.00	
-Insecticides	5.00*		6.00	
-Fertilizer	19.69		41.05*	
-Crop Insurance	8.60		4.20	
-Fuel & Lubrication	10.15		9.85	
-Repairs	9.67		9.40	
-Drying	2.40		0.00	
-Miscellaneous	1.00		1.00	
-Operating Interest	3.52		4.13	
<b>SUM OF LISTED DIRECT COSTS</b>	94.44		110.72	
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	3.70		3.32	
-Machinery Depreciation	13.52		11.97	
-Machinery Investment	7.97		7.05	
-Land Investment	26.70		26.70	
<b>SUM OF LISTED INDIRECT COSTS</b>	51.89		49.04	
<b>SUM OF ALL LISTED COSTS</b>	146.33		159.76	
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	(16.73)		(24.42)	
<b>LISTED COSTS PER BUDGET UNIT</b>				
	(lb):		(lb):	
-Direct Costs	0.08		0.08	
-Indirect Costs	0.04		0.04	
-Total Costs	0.12		0.12	

**Oil Sunflower notes:**

\*Seed treatment for control of wireworm and flea beetle.  
 Sunflower beetle insecticide would cost about \$2 plus application.  
 Red seed weevil insecticide would cost about \$6 plus application.

**Canola notes:**

\*\*Fertilizer cost includes 20 lbs sulfur at \$.265/lb.

## Flax

## Field Peas

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	19		32	
Market Price	5.17		3.50*	
<b>MARKET INCOME</b>	<b>98.23</b>		<b>112.00</b>	
<b>DIRECT COSTS</b>				
-Seed	5.40		17.25**	
-Herbicides	18.71		16.00	
-Fungicides	0.00		0.00	
-Insecticides	0.00*		0.00	
-Fertilizer	12.90**		6.55	
-Crop Insurance	5.50		3.80	
-Fuel & Lubrication	9.04		10.40	
-Repairs	9.10		10.26	
-Drying	0.00		0.00	
-Miscellaneous	1.00		2.00	
-Operating Interest	2.39		2.57	
<b>SUM OF LISTED DIRECT COSTS</b>	<b>64.04</b>		<b>68.84</b>	
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	3.15		3.51	
-Machinery Depreciation	11.43		13.29	
-Machinery Investment	6.64		7.50	
-Land Investment	26.70		26.70	
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>47.92</b>		<b>51.00</b>	
<b>SUM OF ALL LISTED COSTS</b>	<b>111.96</b>		<b>119.83</b>	
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(13.73)</b>		<b>(7.84)</b>	
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu):</b>		<b>(bu):</b>	
-Direct Costs	3.37		2.15	
-Indirect Costs	2.52		1.59	
-Total Costs	5.89		3.75	

**Flax notes:**

\*Insecticide for late season grasshopper outbreaks would cost about \$8 per acre plus application.

\*\*No phosphorus fertilizer is used because flax does not show a yield response.

**Field Pea notes:**

\*Loan rate is used because it is higher than expected market price. The market price plus loan deficiency payment (LDP) of food quality peas may exceed the loan rate because LDP is calculated from the price of feed quality peas.

\*\*Producer's own seed is used. Seed cost for new grower would be about \$27.

## Oats

## Lentils

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	59	_____	1300	_____
Market Price	1.41	_____	0.117*	_____
<b>MARKET INCOME</b>	<b>83.19</b>	_____	<b>152.10</b>	_____
<b>DIRECT COSTS</b>				
-Seed	6.50	_____	13.30	_____
-Herbicides	1.88	_____	20.14	_____
-Fungicides	0.00	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	28.99	_____	4.44	_____
-Crop Insurance	4.40	_____	7.80	_____
-Fuel & Lubrication	11.34	_____	11.04	_____
-Repairs	10.35	_____	10.93	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.00	_____	4.00	_____
-Operating Interest	2.50	_____	2.78	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>66.95</b>	=====	<b>74.42</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	3.90	_____	3.58	_____
-Machinery Depreciation	13.39	_____	13.88	_____
-Machinery Investment	8.07	_____	8.00	_____
-Land Investment	26.70	_____	26.70	_____
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>52.07</b>	=====	<b>52.16</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>119.02</b>	_____	<b>126.58</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(35.83)</b>	_____	<b>25.52</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu):</b>		<b>(lb):</b>	
-Direct Costs	1.13	_____	0.06	_____
-Indirect Costs	0.88	_____	0.04	_____
-Total Costs	2.02	_____	0.10	_____

**Lentil notes:**

\*Loan rate is used because it is higher than expected market price.

# Yellow Mustard

# Safflower

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	900	_____	950	_____
Market Price	0.133	_____	0.120	_____
<b>MARKET INCOME</b>	<b>119.70</b>	_____	<b>114.00</b>	_____
<b>DIRECT COSTS</b>				
-Seed	6.50	_____	11.25	_____
-Herbicides	5.95	_____	9.75	_____
-Fungicides	0.00	_____	0.10	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	20.22	_____	14.01	_____
-Crop Insurance	3.90	_____	5.20	_____
-Fuel & Lubrication	9.33	_____	8.73	_____
-Repairs	8.82	_____	8.29	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.00	_____	1.00	_____
-Operating Interest	2.16	_____	2.26	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>57.87</b>	=====	<b>60.59</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	3.07	_____	2.95	_____
-Machinery Depreciation	11.13	_____	10.48	_____
-Machinery Investment	6.47	_____	5.83	_____
-Land Investment	26.70	_____	26.70	_____
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>47.37</b>	=====	<b>45.96</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>105.24</b>	_____	<b>106.55</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>14.46</b>	_____	<b>7.45</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(lb):</b>		<b>(lb):</b>	
-Direct Costs	0.06	_____	0.06	_____
-Indirect Costs	0.05	_____	0.05	_____
-Total Costs	0.12	_____	0.11	_____

**notes:**



## Buckwheat

## Millet

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	800	_____	1300	_____
Market Price	0.111	_____	0.065	_____
<b>MARKET INCOME</b>	<b>88.80</b>	_____	<b>84.50</b>	_____
<b>DIRECT COSTS</b>				
-Seed	14.00	_____	4.25	_____
-Herbicides	0.00	_____	1.50	_____
-Fungicides	0.00	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	8.63	_____	12.41	_____
-Crop Insurance	0.00	_____	0.00	_____
-Fuel & Lubrication	10.66	_____	10.31	_____
-Repairs	9.70	_____	9.88	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.00	_____	1.00	_____
-Operating Interest	1.70	_____	1.52	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>45.70</b>	=====	<b>40.87</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	3.29	_____	3.49	_____
-Machinery Depreciation	11.97	_____	12.41	_____
-Machinery Investment	7.16	_____	7.58	_____
-Land Investment	26.70	_____	26.70	_____
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>49.12</b>	=====	<b>50.18</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>94.82</b>	_____	<b>91.05</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(6.02)</b>	_____	<b>(6.55)</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>				
	(lb):		(lb):	
-Direct Costs	0.06	_____	0.03	_____
-Indirect Costs	0.06	_____	0.04	_____
-Total Costs	0.12	_____	0.07	_____

**notes:**

# Winter Wheat

# Rye

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	31*	_____	34	_____
Market Price	3.01	_____	1.94	_____
<b>MARKET INCOME</b>	<b>93.31</b>	_____	<b>65.96</b>	_____
<b>DIRECT COSTS</b>				
-Seed	4.75	_____	4.80	_____
-Herbicides	5.38	_____	0.00	_____
-Fungicides	0.00	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	28.44	_____	32.31	_____
-Crop Insurance	3.10	_____	3.00	_____
-Fuel & Lubrication	8.50	_____	10.84	_____
-Repairs	8.63	_____	9.51	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.10	_____	1.00	_____
-Operating Interest	2.32	_____	2.38	_____
<b>SUM OF LISTED DIRECT COSTS</b>	<b>62.21</b>	=====	<b>63.84</b>	=====
<b>INDIRECT (FIXED) COSTS</b>				
-Misc. Overhead	3.16	_____	3.36	_____
-Machinery Depreciation	11.06	_____	11.87	_____
-Machinery Investment	6.35	_____	6.94	_____
-Land Investment	26.70	_____	26.70	_____
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>47.27</b>	=====	<b>48.87</b>	=====
<b>SUM OF ALL LISTED COSTS</b>	<b>109.48</b>	_____	<b>112.71</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>(16.17)</b>	_____	<b>(46.75)</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(bu):</b>		<b>(bu):</b>	
-Direct Costs	2.01	_____	1.88	_____
-Indirect Costs	1.52	_____	1.44	_____
-Total Costs	3.53	_____	3.31	_____

**Winter Wheat notes:**

\*Yield is per harvested acre, 1998-2004 acreage abandonment averaged 11%.

# Large Chickpeas

	Per Acre	Your Figures
Market Yield	1100	_____
Market Price	0.240	_____
<b>MARKET INCOME</b>	<b>264.00</b>	_____
<b>DIRECT COSTS</b>		
-Seed	78.00	_____
-Herbicides	16.14	_____
-Fungicides	49.00*	_____
-Insecticides	0.00	_____
-Fertilizer	5.26	_____
-Crop Insurance	7.00	_____
-Fuel & Lubrication	11.44	_____
-Repairs	11.78	_____
-Drying	0.00	_____
-Miscellaneous	6.00	_____
-Operating Interest	7.15	_____
	=====	=====
<b>SUM OF LISTED DIRECT COSTS</b>	<b>191.76</b>	_____
<b>INDIRECT (FIXED) COSTS</b>		
-Misc. Overhead	3.81	_____
-Machinery Depreciation	14.91	_____
-Machinery Investment	8.86	_____
-Land Investment	26.70	_____
	=====	=====
<b>SUM OF LISTED INDIRECT COSTS</b>	<b>54.27</b>	_____
<b>SUM OF ALL LISTED COSTS</b>	<b>246.03</b>	_____
<b>RETURN TO LABOR &amp; MANAGEMENT</b>	<b>17.97</b>	_____
<b>LISTED COSTS PER BUDGET UNIT</b>	<b>(lb):</b>	
-Direct Costs	0.17	_____
-Indirect Costs	0.05	_____
-Total Costs	0.22	_____

**notes:**

\*Three treatments of fungicide for ascochyta blight. More treatment may be necessary. Two different chemistries should be used for fungicide resistance management.

# 2006 Machinery List

Machine	Purch. Price	Annual Use	Years to trade	Trade in	Deprec.	Invest.	Repairs	Ac/hr
2WD 100HP Tractor	52000	400 hr	20	16813	4.40/hr	3.87/hr	5.31/hr	
2WD 160HP Tractor	85800	500 hr	15	25385	8.06/hr	5.00/hr	8.74/hr	
4WD 280HP Tractor	118100	500 hr	15	34978	11.08/hr	6.89/hr	6.88/hr	
SP Combine (base unit)	140200	250 hr	12	34889	35.10/hr	15.76/hr	22.77/hr	
Tandem Truck (used)	30000	150 hr	15	10000	8.89/hr	6.00/hr	5.33/hr	
Semi & Trailer (used)	35000	150 hr	10	10000	16.67/hr	6.75/hr	6.67/hr	
Pick-up Truck	19700	300 hr	10	4100	5.20/hr	1.79/hr	2.58/hr	
Swather 25 ft	16500	1000 ac	20	3909	0.63/ac	0.46/ac	0.29/ac	12.1
Sprayer 90 ft	25200	2500 ac	15	10334	0.41/ac	0.32/ac	0.32/ac	42.5
Chisel Plow 35 ft	25000	1600 ac	15	14651	0.43/ac	0.56/ac	0.67/ac	16.2
Field Cultivator 45 ft	31300	3000 ac	15	17333	0.31/ac	0.36/ac	0.56/ac	23.2
Tandem Disk 28 ft	24000	800 ac	20	6869	1.07/ac	0.87/ac	0.68/ac	12.2
Harrow (springtooth) 60 ft	10200	1200 ac	20	5881	0.18/ac	0.30/ac	0.13/ac	34.0
Heavy Harrow 70 ft	21700	2000 ac	20	12734	0.22/ac	0.39/ac	0.24/ac	39.7
Row-crop cultivator 12-30	10400	800 ac	15	5712	0.39/ac	0.45/ac	0.39/ac	11.6
Air Seeder 35 ft	70800	1800 ac	12	33136	1.74/ac	1.30/ac	2.78/ac	14.8
Planter 12-30	38300	800 ac	20	12465	1.60/ac	1.44/ac	2.12/ac	10.6
Corn head 6-30	24100	400 ac	20	2325	2.72/ac	1.48/ac	0.74/ac	5.1
Grain head w/pu	10500	800 ac	15	2193	0.69/ac	0.36/ac	0.20/ac	8.5
Grain str. cut 25 ft	14200	1200 ac	10	4876	0.78/ac	0.36/ac	0.26/ac	8.5
Head w/sunf pans 25 ft	17700	400 ac	20	1867	1.98/ac	1.10/ac	0.33/ac	8.5
Rock picker	15000	50 hr	20	4748	0.34/ac	0.30/ac	0.22/ac	29.1
Grain auger	6500	50 hr	20	500	6.00/hr	3.15/hr	0.66/hr	

## Example Sequence of Operations

Field operations sequence for spring wheat and durum

OP. NO.	DESCRIPTION	(FEET) WIDTH	(MPH) SPEED	(AC/HR) Fld Cap	(\$/AC) FUEL & LUBE	(\$/AC) EST. REPAIRS
1	Chisel Plow +NH3	35	4.5	16.2	1.83	1.10
2	Pick Rocks				0.37	0.40
3	Plant	35	5.0	14.8	2.00	3.25
4	Spray	90	6.0	42.5	0.25	0.45
5	Combine str. cut	25	4.0	8.5	2.88	2.94
6	Heavy Harrow	70	5.5	39.7	0.43	0.46
	Trucks*				0.87	0.40
	Grain auger (pto)				0.14	0.01
	Pickup truck allocation				1.28	0.47
	<b>Total</b>				<b>10.05</b>	<b>9.48</b>

\* Truck costs will vary between crops.

For more information on this and other topics, see: [www.ag.ndsu.edu](http://www.ag.ndsu.edu)