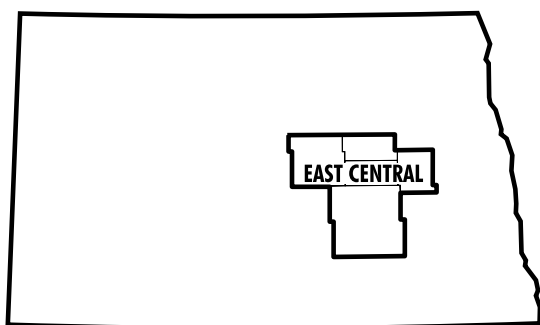




FARM MANAGEMENT PLANNING GUIDE

December 2019

Projected 2020 Crop Budgets



East Central North Dakota

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Note: This region consists of five counties:
Eddy, Foster, Griggs, Stutsman and Wells.

The contributions of NDSU Extension Specialists: Frayne Olson, Joe Ikley, Janet Knodel, Sam Markell, Andrew Friskop, Greg Endres, Hans Kandel, Joel Ransom, Claire Keene and Lesley Lubenow are acknowledged. The information provided by agronomists, crop input suppliers, crop processors and producers throughout North Dakota is also acknowledged.

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 - 30 lb
 Phosphorus - 8 ppm
 Potassium - 280 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	2.69/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
Mustard	2.10/lb
Buckwheat	.40/lb
Millet	.35/lb
Winter Wheat	9.00/bu
Rye	8.00/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	56	_____	53	_____
Market Price	5.05	_____	5.54*	_____
MARKET INCOME	282.80	_____	293.62	_____
DIRECT COSTS				
-Seed	17.94	_____	20.56	_____
-Herbicides	22.50	_____	22.50	_____
-Fungicides*	17.00	_____	17.00	_____
-Insecticides**	0.00	_____	0.00	_____
-Fertilizer	67.13	_____	62.94	_____
-Crop Insurance	7.00	_____	9.00	_____
-Fuel & Lubrication	16.04	_____	15.88	_____
-Repairs	20.32	_____	20.24	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.50	_____	1.50	_____
-Operating Interest	4.57	_____	4.58	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	174.01	_____	174.20	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.72	_____	8.66	_____
-Machinery Depreciation	23.44	_____	23.28	_____
-Machinery Investment	13.77	_____	13.69	_____
-Land Charge	67.00	_____	67.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	112.93	_____	112.63	_____
SUM OF ALL LISTED COSTS	286.94	_____	286.83	_____
RETURN TO LABOR & MANAGEMENT	(4.14)	_____	6.79	_____
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	3.11	_____	3.29	_____
-Indirect Costs	2.02	_____	2.13	_____
-Total Costs	5.12	_____	5.41	_____

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	71	_____	138	_____
Market Price	3.31*	_____	3.35	_____
MARKET INCOME	235.01	_____	462.30	_____
DIRECT COSTS				
-Seed	14.44	_____	84.74*	_____
-Herbicides	19.70	_____	27.00	_____
-Fungicides	17.00**	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	50.46	_____	87.10	_____
-Crop Insurance	5.00	_____	11.50	_____
-Fuel & Lubrication	16.73	_____	24.38	_____
-Repairs	20.50	_____	27.40	_____
-Drying	0.00	_____	24.84	_____
-Miscellaneous	1.50	_____	1.50	_____
-Operating Interest	3.92	_____	7.79	_____
SUM OF LISTED DIRECT COSTS	149.25	_____	296.25	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	9.06	_____	12.16	_____
-Machinery Depreciation	24.55	_____	39.80	_____
-Machinery Investment	14.39	_____	22.68	_____
-Land Charge	67.00	_____	67.00	_____
SUM OF LISTED INDIRECT COSTS	115.01	_____	141.64	_____
SUM OF ALL LISTED COSTS	264.26	_____	437.88	_____
RETURN TO LABOR & MANAGEMENT	(29.25)	_____	24.42	_____
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	2.10	_____	2.15	_____
-Indirect Costs	1.62	_____	1.03	_____
-Total Costs	3.72	_____	3.17	_____

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 ground insect control traits.

Soybeans

Drybeans

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	35		1800	
Market Price	8.20		0.27	
MARKET INCOME	287.00		486.00	
DIRECT COSTS				
-Seed	65.80*		60.23	
-Herbicides	28.00		46.90*	
-Fungicides	0.00		20.00**	
-Insecticides	4.00**		0.00	
-Fertilizer	6.77		40.86	
-Crop Insurance	5.50		10.50	
-Fuel & Lubrication	13.61		17.79	
-Repairs	19.17		23.61	
-Drying	0.00		0.00	
-Miscellaneous	5.00		13.00	
-Operating Interest	3.99		6.29	
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	151.84		239.17	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.34		9.39	
-Machinery Depreciation	22.83		28.80	
-Machinery Investment	13.24		16.93	
-Land Charge	67.00		67.00	
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	111.41		122.12	
SUM OF ALL LISTED COSTS	263.24		361.29	
RETURN TO LABOR & MANAGEMENT	23.76		124.71	
LISTED COSTS PER BUDGET UNIT	(bu):		(lb):	
-Direct Costs	4.34		0.13	
-Indirect Costs	3.18		0.07	
-Total Costs	7.52		0.20	

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 foliar-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	1830	_____	1350	_____
Market Price	0.177	_____	0.248	_____
MARKET INCOME	323.91	_____	334.80	_____
DIRECT COSTS				
-Seed	34.10	_____	52.25	_____
-Herbicides	27.70	_____	29.90	_____
-Fungicides	0.00*	_____	0.00*	_____
-Insecticides	5.00**	_____	10.00**	_____
-Fertilizer	40.52	_____	26.98	_____
-Crop Insurance	9.50	_____	15.00	_____
-Fuel & Lubrication	16.82	_____	16.00	_____
-Repairs	20.63	_____	20.19	_____
-Drying	5.49	_____	4.05	_____
-Miscellaneous	9.50	_____	17.50	_____
-Operating Interest	4.57	_____	5.18	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	173.83	_____	197.05	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	9.38	_____	9.09	_____
-Machinery Depreciation	25.84	_____	25.02	_____
-Machinery Investment	15.92	_____	15.49	_____
-Land Charge	67.00	_____	67.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	118.14	_____	116.61	_____
SUM OF ALL LISTED COSTS	291.97	_____	313.66	_____
RETURN TO LABOR & MANAGEMENT	31.94	_____	21.14	_____
LISTED COSTS PER BUDGET UNIT	(lb):		(lb):	
-Direct Costs	0.09	_____	0.15	_____
-Indirect Costs	0.06	_____	0.09	_____
-Total Costs	0.16	_____	0.23	_____

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	1660	_____	19	_____
Market Price	0.166	_____	9.30	_____
MARKET INCOME	275.56	_____	176.70	_____
DIRECT COSTS				
-Seed	56.50	_____	17.50	_____
-Herbicides	23.10	_____	24.70	_____
-Fungicides	0.00*	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	59.55	_____	20.27	_____
-Crop Insurance	8.00	_____	12.00	_____
-Fuel & Lubrication	15.37	_____	15.12	_____
-Repairs	19.98	_____	20.74	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.50	_____	1.50	_____
-Operating Interest	4.97	_____	3.02	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	188.97	_____	114.85	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.44	_____	8.49	_____
-Machinery Depreciation	23.92	_____	24.13	_____
-Machinery Investment	13.70	_____	14.31	_____
-Land Charge	67.00	_____	67.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	113.06	_____	113.93	_____
SUM OF ALL LISTED COSTS	302.03	_____	228.78	_____
RETURN TO LABOR & MANAGEMENT	(26.47)	_____	(52.08)	_____
LISTED COSTS PER BUDGET UNIT	(lb):		(bu):	
-Direct Costs	0.11	_____	6.04	_____
-Indirect Costs	0.07	_____	6.00	_____
-Total Costs	0.18	_____	12.04	_____

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	36		82	
Market Price	5.70		2.26	
MARKET INCOME	205.20		185.32	
DIRECT COSTS				
-Seed	42.00		12.50	
-Herbicides	32.30		5.40	
-Fungicides	1.50		0.00	
-Insecticides	0.00*		0.00	
-Fertilizer	7.96		49.86	
-Crop Insurance	6.00		12.00	
-Fuel & Lubrication	15.93		18.83	
-Repairs	21.42		22.09	
-Drying	0.00		0.00	
-Miscellaneous	9.50		1.50	
-Operating Interest	3.69		3.30	
SUM OF LISTED DIRECT COSTS	140.29		125.48	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.79		9.64	
-Machinery Depreciation	25.60		26.92	
-Machinery Investment	14.72		15.93	
-Land Charge	67.00		67.00	
SUM OF LISTED INDIRECT COSTS	116.10		119.48	
SUM OF ALL LISTED COSTS	256.39		244.96	
RETURN TO LABOR & MANAGEMENT	(51.19)		(59.64)	
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	3.90		1.53	
-Indirect Costs	3.23		1.46	
-Total Costs	7.12		2.99	

Field Pea notes:

*Foliar insecticide for cutworms and/or pea aphids would cost about \$4 per acre plus application.

Yellow Mustard

Buckwheat

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	850	_____	950	_____
Market Price	0.30	_____	0.194	_____
MARKET INCOME	255.00	_____	184.30	_____
DIRECT COSTS				
-Seed	25.20	_____	20.00	_____
-Herbicides	14.00	_____	11.80	_____
-Fungicides	0.00	_____	0.00	_____
-Insecticides	6.00*	_____	0.00	_____
-Fertilizer	21.49	_____	14.88	_____
-Crop Insurance	0.00**	_____	9.50*	_____
-Fuel & Lubrication	14.50	_____	14.72	_____
-Repairs	19.80	_____	19.93	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.50	_____	1.50	_____
-Operating Interest	2.77	_____	2.49	_____
SUM OF LISTED DIRECT COSTS	105.26	_____	94.82	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.32	_____	8.41	_____
-Machinery Depreciation	22.96	_____	23.20	_____
-Machinery Investment	13.86	_____	13.98	_____
-Land Charge	67.00	_____	67.00	_____
SUM OF LISTED INDIRECT COSTS	112.14	_____	112.60	_____
SUM OF ALL LISTED COSTS	217.40	_____	207.41	_____
RETURN TO LABOR & MANAGEMENT	37.60	_____	(23.11)	_____
LISTED COSTS PER BUDGET UNIT	(lb):		(lb):	
-Direct Costs	0.12	_____	0.10	_____
-Indirect Costs	0.13	_____	0.12	_____
-Total Costs	0.26	_____	0.22	_____

Yellow Mustard notes:

*Insecticide seed treatment for flea beetles.

**Crop insurance is not available in this region.

Buckwheat notes:

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

Millet

Winter Wheat

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1700	_____	53*	_____
Market Price	0.075	_____	4.29	_____
MARKET INCOME	127.50	_____	227.37	_____
DIRECT COSTS				
-Seed	8.75	_____	10.80	_____
-Herbicides	3.40	_____	24.50	_____
-Fungicides	0.00	_____	9.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	22.77	_____	62.94	_____
-Crop Insurance	0.00	_____	6.50	_____
-Fuel & Lubrication	16.24	_____	13.58	_____
-Repairs	20.70	_____	17.85	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.50	_____	8.00	_____
-Operating Interest	1.98	_____	4.14	_____
SUM OF LISTED DIRECT COSTS	75.34	=====	157.31	=====
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.73	_____	8.04	_____
-Machinery Depreciation	24.36	_____	20.82	_____
-Machinery Investment	14.58	_____	11.60	_____
-Land Charge	67.00	_____	67.00	_____
SUM OF LISTED INDIRECT COSTS	114.67	=====	107.46	=====
SUM OF ALL LISTED COSTS	190.01	_____	264.76	_____
RETURN TO LABOR & MANAGEMENT	(62.51)	_____	(37.39)	_____
LISTED COSTS PER BUDGET UNIT	(lb):		(bu):	
-Direct Costs	0.04	_____	2.97	_____
-Indirect Costs	0.07	_____	2.03	_____
-Total Costs	0.11	_____	5.00	_____

Winter Wheat notes:

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

Rye

	Per Acre	Your Figures
Market Yield	47	_____
Market Price	4.60	_____
MARKET INCOME	216.20	_____
DIRECT COSTS		
-Seed	9.60	_____
-Herbicides	6.50	_____
-Fungicides	0.00	_____
-Insecticides	0.00	_____
-Fertilizer	54.56	_____
-Crop Insurance	14.00	_____
-Fuel & Lubrication	13.32	_____
-Repairs	17.40	_____
-Drying	0.00	_____
-Miscellaneous	8.00	_____
-Operating Interest	3.33	_____
	=====	=====
SUM OF LISTED DIRECT COSTS	126.71	_____
INDIRECT (FIXED) COSTS		
-Misc. Overhead	7.97	_____
-Machinery Depreciation	20.54	_____
-Machinery Investment	11.58	_____
-Land Charge	67.00	_____
	=====	=====
SUM OF LISTED INDIRECT COSTS	107.09	_____
SUM OF ALL LISTED COSTS	233.80	_____
RETURN TO LABOR & MANAGEMENT	(17.60)	_____
LISTED COSTS PER BUDGET UNIT	(bu):	
-Direct Costs	2.70	_____
-Indirect Costs	2.28	_____
-Total Costs	4.97	_____

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 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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