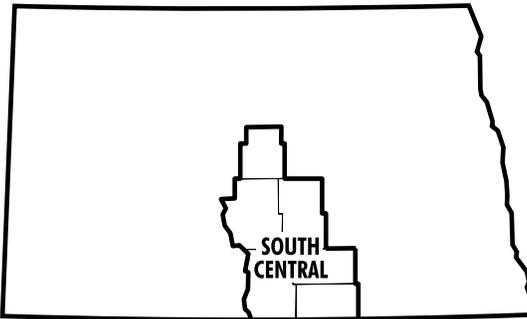




FARM MANAGEMENT PLANNING GUIDE

December 2019

Projected 2020 Crop Budgets



South Central North Dakota

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Note: This region consists of six counties: Burleigh, Emmons, Kidder, Logan, McIntosh and Sheridan.

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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.

The budgets for the South West, North West, South Central and North Central regions typically represent production systems where soil disturbance only occurs at seeding.

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 - 32 lb
 Phosphorus - 9 ppm
 Potassium - 328 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
Lentils	.30/lb
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	47	_____	50	_____
Market Price	5.02	_____	5.52*	_____
MARKET INCOME	235.94	_____	276.00	_____
DIRECT COSTS				
-Seed	17.43	_____	21.15	_____
-Herbicides	25.80	_____	25.80	_____
-Fungicides**	9.00	_____	9.00	_____
-Insecticides***	0.00	_____	0.00	_____
-Fertilizer	52.40	_____	56.50	_____
-Crop Insurance	7.00	_____	7.50	_____
-Fuel & Lubrication	12.54	_____	12.71	_____
-Repairs	18.12	_____	18.21	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	8.00	_____	8.00	_____
-Operating Interest	4.06	_____	4.29	_____
SUM OF LISTED DIRECT COSTS	154.35	_____	163.15	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.13	_____	8.19	_____
-Machinery Depreciation	21.00	_____	21.16	_____
-Machinery Investment	12.13	_____	12.21	_____
-Land Charge	57.00	_____	57.00	_____
SUM OF LISTED INDIRECT COSTS	98.26	_____	98.56	_____
SUM OF ALL LISTED COSTS	252.60	_____	261.71	_____
RETURN TO LABOR & MANAGEMENT	(16.66)	_____	14.29	_____
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	3.28	_____	3.26	_____
-Indirect Costs	2.09	_____	1.97	_____
-Total Costs	5.37	_____	5.23	_____

Wheat notes:

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

**Includes seed treatment, an early season foliar fungicide, and a late season fungicide. Prothioconazole, metconazole or pydiflumetofen containing products are highly 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	66	_____	105	_____
Market Price	3.34*	_____	3.35	_____
MARKET INCOME	220.44	_____	351.75	_____
DIRECT COSTS				
-Seed	13.20	_____	78.01*	_____
-Herbicides	24.30	_____	25.00	_____
-Fungicides	9.00**	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	43.90	_____	60.80	_____
-Crop Insurance	6.00	_____	10.50	_____
-Fuel & Lubrication	13.57	_____	19.28	_____
-Repairs	18.67	_____	23.38	_____
-Drying	0.00	_____	18.90	_____
-Miscellaneous	8.00	_____	8.00	_____
-Operating Interest	3.69	_____	6.58	_____
SUM OF LISTED DIRECT COSTS	140.32	_____	250.45	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.49	_____	10.81	_____
-Machinery Depreciation	22.01	_____	35.08	_____
-Machinery Investment	12.66	_____	19.27	_____
-Land Charge	57.00	_____	57.00	_____
SUM OF LISTED INDIRECT COSTS	100.16	_____	122.16	_____
SUM OF ALL LISTED COSTS	240.48	_____	372.61	_____
RETURN TO LABOR & MANAGEMENT	(20.04)	_____	(20.86)	_____
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	2.13	_____	2.39	_____
-Indirect Costs	1.52	_____	1.16	_____
-Total Costs	3.64	_____	3.55	_____

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. Prothioconazole, metconazole or pydiflumetofen containing products are highly 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	31		1610	
Market Price	8.15		0.27	
MARKET INCOME	252.65		434.70	
DIRECT COSTS				
-Seed	65.80*		60.23	
-Herbicides	26.00		46.90*	
-Fungicides	0.00		20.00**	
-Insecticides	4.00**		0.00	
-Fertilizer	4.05		31.88	
-Crop Insurance	8.00		12.00	
-Fuel & Lubrication	11.68		16.00	
-Repairs	17.49		21.92	
-Drying	0.00		0.00	
-Miscellaneous	5.00		13.00	
-Operating Interest	3.83		5.99	
SUM OF LISTED DIRECT COSTS	145.86		227.92	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.88		9.00	
-Machinery Depreciation	21.10		27.29	
-Machinery Investment	11.86		15.74	
-Land Charge	57.00		57.00	
SUM OF LISTED INDIRECT COSTS	97.84		109.03	
SUM OF ALL LISTED COSTS	243.70		336.95	
RETURN TO LABOR & MANAGEMENT	8.95		97.75	
LISTED COSTS PER BUDGET UNIT	(bu):		(lb):	
-Direct Costs	4.71		0.14	
-Indirect Costs	3.16		0.07	
-Total Costs	7.86		0.21	

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

Oil Sunflower

Confection Sunflower

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1760	_____	1750	_____
Market Price	0.176	_____	0.246	_____
MARKET INCOME	309.76	_____	430.50	_____
DIRECT COSTS				
-Seed	34.10	_____	49.50	_____
-Herbicides	34.00	_____	36.20	_____
-Fungicides	0.00*	_____	0.00*	_____
-Insecticides	5.00**	_____	10.00**	_____
-Fertilizer	36.70	_____	36.43	_____
-Crop Insurance	8.50	_____	21.00	_____
-Fuel & Lubrication	13.70	_____	13.68	_____
-Repairs	18.29	_____	18.28	_____
-Drying	5.28	_____	5.25	_____
-Miscellaneous	16.00	_____	24.00	_____
-Operating Interest	4.63	_____	5.79	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	176.20	_____	220.13	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.73	_____	8.73	_____
-Machinery Depreciation	23.38	_____	23.37	_____
-Machinery Investment	13.85	_____	13.84	_____
-Land Charge	57.00	_____	57.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	102.96	_____	102.93	_____
SUM OF ALL LISTED COSTS	279.16	_____	323.06	_____
RETURN TO LABOR & MANAGEMENT	30.60	_____	107.44	_____
LISTED COSTS PER BUDGET UNIT	(lb):		(lb):	
-Direct Costs	0.10	_____	0.13	_____
-Indirect Costs	0.06	_____	0.06	_____
-Total Costs	0.16	_____	0.18	_____

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." Foliar applied insecticide for cutworms would cost about \$5 per acre plus application (usually tank mixed with herbicide).

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." Foliar applied insecticide for cutworms would cost about \$5 per acre plus application (usually tank mixed with herbicide).

Canola

Flax

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1740	_____	18	_____
Market Price	0.166	_____	9.26	_____
MARKET INCOME	288.84	_____	166.68	_____
DIRECT COSTS				
-Seed	56.50	_____	15.75	_____
-Herbicides	23.10	_____	29.20	_____
-Fungicides	0.00*	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	60.15	_____	17.29	_____
-Crop Insurance	6.50	_____	11.50	_____
-Fuel & Lubrication	12.00	_____	11.96	_____
-Repairs	17.51	_____	18.32	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	8.00	_____	1.50	_____
-Operating Interest	4.96	_____	2.85	_____
SUM OF LISTED DIRECT COSTS	188.73	_____	108.37	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.84	_____	7.89	_____
-Machinery Depreciation	21.46	_____	21.77	_____
-Machinery Investment	11.66	_____	12.35	_____
-Land Charge	57.00	_____	57.00	_____
SUM OF LISTED INDIRECT COSTS	97.96	_____	99.01	_____
SUM OF ALL LISTED COSTS	286.69	_____	207.38	_____
RETURN TO LABOR & MANAGEMENT	2.15	_____	(40.70)	_____
LISTED COSTS PER BUDGET UNIT	(lb):		(bu):	
-Direct Costs	0.11	_____	6.02	_____
-Indirect Costs	0.06	_____	5.50	_____
-Total Costs	0.16	_____	11.52	_____

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		69	
Market Price	5.70		2.26	
MARKET INCOME	205.20		155.94	
DIRECT COSTS				
-Seed	42.00		12.50	
-Herbicides	35.90		10.60	
-Fungicides	1.50		0.00	
-Insecticides	0.00*		0.00	
-Fertilizer	7.00		38.19	
-Crop Insurance	6.00		15.00	
-Fuel & Lubrication	13.14		14.78	
-Repairs	19.17		19.47	
-Drying	0.00		0.00	
-Miscellaneous	9.50		8.00	
-Operating Interest	3.62		3.20	
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	137.83		121.74	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.26		8.95	
-Machinery Depreciation	23.53		23.77	
-Machinery Investment	12.93		14.09	
-Land Charge	57.00		57.00	
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	101.72		103.82	
SUM OF ALL LISTED COSTS	239.55		225.55	
RETURN TO LABOR & MANAGEMENT	(34.35)		(69.61)	
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	3.83		1.76	
-Indirect Costs	2.83		1.50	
-Total Costs	6.65		3.27	

Field Pea notes:

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

Lentils

Yellow Mustard

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1200	_____	850	_____
Market Price	0.14	_____	0.30	_____
MARKET INCOME	168.00	_____	255.00	_____
DIRECT COSTS				
-Seed	21.00	_____	25.20	_____
-Herbicides	35.50*	_____	20.20	_____
-Fungicides	16.00**	_____	0.00	_____
-Insecticides	0.00***	_____	0.00	_____
-Fertilizer	3.89	_____	19.91	_____
-Crop Insurance	7.00	_____	0.00*	_____
-Fuel & Lubrication	14.23	_____	11.87	_____
-Repairs	21.86	_____	17.92	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	9.50	_____	8.00	_____
-Operating Interest	3.48	_____	2.78	_____
SUM OF LISTED DIRECT COSTS	132.45	=====	105.88	=====
INDIRECT (FIXED) COSTS				
-Misc. Overhead	8.67	_____	7.93	_____
-Machinery Depreciation	26.56	_____	20.90	_____
-Machinery Investment	14.47	_____	12.58	_____
-Land Charge	57.00	_____	57.00	_____
SUM OF LISTED INDIRECT COSTS	106.70	=====	98.42	=====
SUM OF ALL LISTED COSTS	239.15	_____	204.30	_____
RETURN TO LABOR & MANAGEMENT	(71.15)	_____	50.70	_____
LISTED COSTS PER BUDGET UNIT	(lb):		(lb):	
-Direct Costs	0.11	_____	0.12	_____
-Indirect Costs	0.09	_____	0.12	_____
-Total Costs	0.20	_____	0.24	_____

Lentil notes:

*Includes pre-harvest dessicant.

**Fungicide treatment for ascochyta/anthracnose.

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

Yellow Mustard notes:

**Crop insurance is not available in this region.

Buckwheat

Millet

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	900	_____	1500	_____
Market Price	0.193	_____	0.075	_____
MARKET INCOME	173.70	_____	112.50	_____
DIRECT COSTS				
-Seed	20.00	_____	8.75	_____
-Herbicides	18.00	_____	9.60	_____
-Fungicides	0.00	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	12.07	_____	17.30	_____
-Crop Insurance	10.00*	_____	0.00	_____
-Fuel & Lubrication	11.57	_____	12.67	_____
-Repairs	17.23	_____	18.34	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	1.50	_____	8.00	_____
-Operating Interest	2.44	_____	2.02	_____
SUM OF LISTED DIRECT COSTS	92.81	=====	76.68	=====
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.77	_____	8.21	_____
-Machinery Depreciation	20.37	_____	21.69	_____
-Machinery Investment	11.87	_____	13.00	_____
-Land Charge	57.00	_____	57.00	_____
SUM OF LISTED INDIRECT COSTS	97.01	=====	99.91	=====
SUM OF ALL LISTED COSTS	189.83	_____	176.59	_____
RETURN TO LABOR & MANAGEMENT	(16.13)	_____	(64.09)	_____
LISTED COSTS PER BUDGET UNIT				
	(lb):		(lb):	
-Direct Costs	0.10	_____	0.05	_____
-Indirect Costs	0.11	_____	0.07	_____
-Total Costs	0.21	_____	0.12	_____

Buckwheat notes:

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

Winter Wheat

Rye

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	47*	_____	43	_____
Market Price	4.28	_____	4.49	_____
MARKET INCOME	201.16	_____	193.07	_____
DIRECT COSTS				
-Seed	9.90	_____	9.60	_____
-Herbicides	23.00	_____	6.50	_____
-Fungicides	9.00	_____	0.00	_____
-Insecticides	0.00	_____	0.00	_____
-Fertilizer	52.40	_____	46.93	_____
-Crop Insurance	7.00	_____	13.00	_____
-Fuel & Lubrication	11.54	_____	11.51	_____
-Repairs	16.44	_____	16.30	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	8.00	_____	8.00	_____
-Operating Interest	3.71	_____	3.02	_____
SUM OF LISTED DIRECT COSTS	140.99	=====	114.87	=====
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.73	_____	7.74	_____
-Machinery Depreciation	19.36	_____	19.40	_____
-Machinery Investment	10.79	_____	10.98	_____
-Land Charge	57.00	_____	57.00	_____
SUM OF LISTED INDIRECT COSTS	94.87	=====	95.12	=====
SUM OF ALL LISTED COSTS	235.86	_____	209.99	_____
RETURN TO LABOR & MANAGEMENT	(34.70)	_____	(16.92)	_____
LISTED COSTS PER BUDGET UNIT	(bu):		(bu):	
-Direct Costs	3.00	_____	2.67	_____
-Indirect Costs	2.02	_____	2.21	_____
-Total Costs	5.02	_____	4.88	_____

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
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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