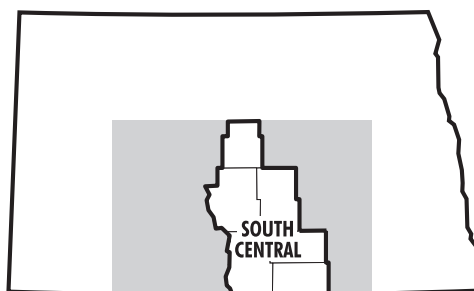


Farm Management Planning Guide



February 2007

Projected 2007 *Organic* Crop Budgets South Central North Dakota



Andrew Swenson, Farm Management Specialist
Brad Brummond, Walsh County Extension Agent
Ron Haugen, Farm Management Specialist

The organic crop budgets for 2007 provide an estimate of revenues and costs for the organic production of selected crops in south central North Dakota. **THESE BUDGETS ARE ONLY INTENDED TO BE USED AS A GUIDE.** There are differences in soil type and productivity, weather conditions, as well as management and organic production practices within this multi-county region. Also, organic production may have more variability in revenue, from both yield and price, compared to conventional production. Chemical pesticide and fertilizer cannot be used to subdue a pest problem or treat a nutrient deficiency. Strong premiums can be achieved with organic commodities, but the market is smaller than for conventionally grown crops and price discovery is more difficult. Therefore, **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. Organic farming requires intensive labor and management for production, marketing and maintaining records for certification and verification.

The profitability 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, respectively. Include real estate tax if land is owned.

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.

NDSU
Extension Service

North Dakota State University, Fargo, ND 58105

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 \$6.50 per acre when averaged over all crop acreage. Counter-cyclical payments are not expected for 2007.

Primary Assumptions

Market Yields: Yields are based on 70 percent of the average yield of conventional crops from the 7 year period, 1999-2005, after the low and high yield years are removed. Conventional yields for field peas, millet and buckwheat are from NDSU extension agronomists and industry sources. The 70 percent factor was derived from interviews with producers, buyers, and NDSU extension personnel. Experienced growers with good management skills may be able to budget at 75 percent or more of conventional yields. New growers and those with less success in managing pests and fertility under an organic system of production should use 65 percent or less. It takes time for new growers and land to convert to an organic system. Also, to meet stringent standards, the cleanout from organic grain is typically greater than for conventional markets, resulting in less marketable yield per acre for the organic food market.

Price: Prices are from a survey of buyers and growers of organic grains. The price estimates used in these budgets are for food quality grain, unless otherwise noted, delivered to a destination point specified by the buyer. Delivery costs are the responsibility of the seller.

Another common method of pricing is “farm gate.” This price is generally lower because the buyer will pick up grain at the farm and pay for transport. The use of farm gate pricing is increasing. Producers generally prefer it and buyers may offer it when competing for grain purchases.

The impact of grain quality on prices cannot be overemphasized. Price discounts for poor quality grain and payment risk are factors that must be considered by growers. The “floor price” for organic grains is the market price of conventionally grown commodities of similar grade. The organic market is not as liquid as the conventional market, but producers are typically paid within 30 days of delivery.

The marketing skills necessary for organic producers are somewhat different than for conventional producers. Some organic producers may get \$.50 to \$2 per bushel more than others, not because of market timing, but because of knowing where a market is, negotiation, and by having established long-term relationships with buyers as a dependable supplier.

Organic markets can be volatile. Sometimes there is strong demand relative to available supply and other times there are few buyers and little premium for a particular commodity — the producer must decide whether to be patient and wait for more buying interest. There is a concern that new growers, inexperienced in marketing, will sell products too cheaply and depress the market.

Costs of Hauling to Market and Cleaning:

The budgets have the following costs for hauling to market. The semi-truck hauling cost assumes about 250 miles to destination and \$3 per loaded mile. Adjust these numbers if your hauling distances or charges are different.

	Hauling
Spring Wheat, Durum, Soybeans, Rye, Flax and Corn Grain	\$.85/bu
Feed Barley	.70/bu
Oats	.60/bu
Sunflowers, Millet, Buckwheat and Field Peas	1.40/cwt

The budgets assume that the grain cleaning is done by the buyer and the producer is paid on quantity after cleaning. Grain cleaning and shipping charges are important costs and one must read the fine print to avoid a surprise. Contracts may specify the producer as responsible for both, either one, or neither. Often it is negotiated. Generally the buyer pays for cleaning and the pricing is based on quantity after cleaning. The contract should specify who owns the clean-out. Clean-out, or screenings, can have significant value as feed for certified organic livestock production.

Fertility: Reliance on rotation with “green manure” crops such as sweet clover, alfalfa and other legumes.

Seed Prices (for planting): Organic certified seed is required. Conventionally grown untreated seed (not GMO) can be used if organic seed is not commercially available. This rarely occurs. Also, some overseas markets allow no exceptions. Price for conventional untreated seed is used in the sunflower budget.

Spring Wheat	11.00/bu
Durum	11.00/bu
Barley	7.50/bu
Corn grain	1.38/thou.kern.
Oil Sunflower	.70/thou.kern.
Soybean	24.00/bu
Flax	30.00/bu
Oats	6.75/bu
Field Peas	11.50/bu
Millet	.30/lb
Buckwheat	.32/lb
Rye	7.00/bu
Sweet Clover	1.50/lb

Fuel prices:

Diesel	2.30/gal
Gas	2.35/gal

Lubrication charge: 15% of fuel cost

Crop Insurance: Coverage levels are 65% on all insurable crops. MPC estimates are used. Organic producer's pay an additional 5% yet can only insure at the same crop price levels as conventional growers.

Miscellaneous: machinery rent, inoculant.

Operating interest: direct costs charged 8.25% interest for 6 month period.

Costs of moving crop to storage are included.

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, \$2.50 per acre is assumed for organic certification and inspection fees and grain testing. Finally, \$1 per acre is assumed for general farm utilities, farm publications, meetings, 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)

Rotations

The science and management of crop rotations is beyond the scope of this publication. However, rotations are the essence of an organic production system. The crop budgets assume that reasonably sound agronomic rotations and selection and timing of operations are used to manage fertility and weed, disease, and insect pests.

A specific rotation is not assumed. It has been stated that 30 organic growers may provide 30 different responses to the question, "What is the best rotation?" All of the answers may be based on similar agronomic principals and possibly influenced by current market prices. It depends on the environment (soil, slope, weather, pests) at an individual farm and the experience, equipment and marketing of the grower. And the response will constantly evolve over time as grower experience and new techniques are used to adapt to the environment and markets.

The principal rule is to rotate crops to break pest cycles. The same crop should never be grown back to back. Also, crops that have seeds that cannot be sorted from one another should never be grown back to back if the previous crop can become a "weed" in the other. In general, early seeded crops are rotated with late seeded crops, grasses with broadleaves, and shallow-rooted with deep-rooted. An organic producer has the challenging task of being proactive to avoid pest problems because reliance on chemical pesticide is not an option. Labor and management is more intense than with conventional production.

Rotations with a green manure fallow every 3rd, 4th or 5th year, are common. In general it becomes more difficult to control weeds, provide fertility and maintain production levels the longer the rotation goes between green manure fallow.

For more information on crop rotations and organic management practices contact: Brad Brummond, Walsh County Extension Agent, (701) 284-6248, e-mail brummon@ndsuxext.nodak.edu.

Two samples of four year rotations, and a composite budget, are used for illustration purposes. The example rotations assume that food grade quality is achieved.

Example 1 Crop Rotation

	Year 1	Year 2	Year 3	Year 4	Composite
Crop composite	Oats seeded with S.Clover 25%	Green Manure Fallow 25%	Spring Wheat 25%	Soybeans 25%	Budget 100%
Market Yield	42 BU	0	21 BU	18 BU	N/A
Market Price	\$ 4.00	\$ 0.00	\$ 8.50	\$ 15.20	N/A
MARKET INCOME	168.00	0.00	178.50	273.60	155.03
DIRECT COSTS					
-Seed	31.88	0.00	22.00	33.60	21.87
-Crop Insurance	6.00	0.00	3.60	6.50	4.03
-Fuel & Lubrication	12.38	8.70	13.27	22.63	14.25
-Repairs	10.44	4.13	10.96	17.02	10.64
-Drying	0.00	0.00	0.00	0.00	0.00
-Haul to Market	25.20	0.00	17.85	15.30	14.59
-Miscellaneous	0.00	0.00	0.00	1.50	0.38
-Operating Interest	3.54	0.53	2.79	3.98	2.71
SUM OF LISTED DIRECT COSTS	89.44	13.37	70.47	100.53	68.45
INDIRECT (FIXED) COSTS					
-Misc. Overhead	6.19	4.78	6.11	7.75	6.21
-Machinery Depreciation	12.86	6.17	13.17	19.90	13.03
-Machinery Investment	7.93	4.28	8.17	13.72	8.53
-Land Charge	29.00	29.00	29.00	29.00	29.00
SUM OF LISTED INDIRECT COSTS	55.98	44.23	56.45	70.36	56.76
SUM OF ALL LISTED COSTS	145.42	57.60	126.92	170.89	125.21
RETURN TO LABOR & MANAGEMENT	22.58	(57.60)	51.58	102.71	29.82

Example 2 Crop Rotation

	Year 1	Year 2	Year 3	Year 4	Composite Budget
Crop composite	Spr. Wheat seeded with S.Clover 25%	Green Manure Fallow 25%	Rye 25%	Flax 25%	100%
Market Yield	21 BU	0	27 BU	11 BU	N/A
Market Price	\$ 8.50	\$ 0.00	\$ 4.30	\$ 17.50	N/A
MARKET INCOME	178.50	0.00	116.10	192.50	121.78
DIRECT COSTS					
-Seed	37.00	0.00	9.10	30.00	19.03
-Crop Insurance	3.60	0.00	6.10	5.00	3.68
-Fuel & Lubrication	11.26	8.70	14.09	15.01	12.27
-Repairs	9.84	4.13	11.30	11.94	9.30
-Drying	0.00	0.00	0.00	0.00	0.00
-Haul to Market	17.85	0.00	24.65	10.63	13.28
-Miscellaneous	0.00	0.00	0.00	0.00	0.00
-Operating Interest	3.28	0.53	2.69	2.99	2.37
SUM OF LISTED DIRECT COSTS	82.83	13.37	67.93	75.57	59.92
INDIRECT (FIXED) COSTS					
-Misc. Overhead	5.81	4.78	6.28	6.28	5.79
-Machinery Depreciation	12.03	6.17	13.65	14.06	11.48
-Machinery Investment	7.17	4.28	8.60	9.01	7.27
-Land Charge	29.00	29.00	29.00	29.00	29.00
SUM OF LISTED INDIRECT COSTS	54.00	44.23	57.52	58.34	53.53
SUM OF ALL LISTED COSTS	136.83	57.60	125.46	133.91	112.45
RETURN TO LABOR & MANAGEMENT	41.67	(57.60)	(9.36)	58.59	8.33

Organic SPRING WHEAT

Organic DURUM

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	21	_____	20	_____
Market Price	\$ 8.50	_____	\$ 8.75	_____
MARKET INCOME	178.50	_____	175.00	_____
DIRECT COSTS				
-Seed	22.00	_____	22.00	_____
-Crop Insurance	3.60	_____	3.20	_____
-Fuel & Lubrication	13.27	_____	13.23	_____
-Repairs	10.96	_____	10.95	_____
-Drying	0.00	_____	0.00	_____
-Hauling to Market	17.85	_____	17.00	_____
-Miscellaneous	0.00	_____	0.00	_____
-Operating Interest	2.79	_____	2.74	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	70.47	_____	69.12	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	6.11	_____	6.09	_____
-Machinery Depreciation	13.17	_____	13.15	_____
-Machinery Investment	8.17	_____	8.16	_____
-Land Charge	29.00	_____	29.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	56.45	_____	56.40	_____
SUM OF ALL LISTED COSTS	126.92	_____	125.51	_____
RETURN TO LABOR & MANAGEMENT	51.58	_____	49.49	_____
LISTED COSTS PER BUDGET UNIT	(bu)		(bu)	
-Direct Costs	3.36	_____	3.46	_____
-Indirect Costs	2.69	_____	2.82	_____
-Total Costs	6.04	_____	6.28	_____

Notes:

There is no charge for green manure fallow year of rotation.

Organic FEED BARLEY

Organic CORN GRAIN

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	39	_____	59	_____
Market Price	\$ 4.50	_____	\$ 6.00*	_____
MARKET INCOME	175.50	_____	354.00	_____
DIRECT COSTS				
-Seed	15.00	_____	28.98	_____
-Crop Insurance	3.80	_____	28.00	_____
-Fuel & Lubrication	13.94	_____	21.12	_____
-Repairs	11.22	_____	16.03	_____
-Drying	0.00	_____	7.97	_____
-Hauling to Market	27.30	_____	50.15	_____
-Miscellaneous	0.00	_____	0.00	_____
-Operating Interest	2.94	_____	6.28	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	74.20	_____	158.53	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	6.33	_____	8.11	_____
-Machinery Depreciation	13.61	_____	21.77	_____
-Machinery Investment	8.46	_____	14.00	_____
-Land Charge	29.00	_____	29.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	57.40	_____	72.89	_____
SUM OF ALL LISTED COSTS	131.60	_____	231.41	_____
RETURN TO LABOR & MANAGEMENT	43.90	_____	122.59	_____
LISTED COSTS PER BUDGET UNIT	(bu)		(bu)	
-Direct Costs	1.90	_____	2.69	_____
-Indirect Costs	1.47	_____	1.24	_____
-Total Costs	3.37	_____	3.92	_____

Barley notes:

There is no charge for green manure fallow year of rotation.

Corn notes:

There is no charge for green manure fallow year of rotation.

*Price is for livestock feed. Food quality price for yellow corn is estimated at \$6.75. Blue corn price is estimated at \$9.00, but yield could be reduced by about 25 percent.

Organic OIL SUNFLOWER

Organic SOYBEANS

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	930	_____	18	_____
Market Price	\$ 0.25	_____	\$ 15.20*	_____
MARKET INCOME	232.50	_____	273.60	_____
DIRECT COSTS				
-Seed	15.40	_____	33.60	_____
-Crop Insurance	11.20	_____	6.50	_____
-Fuel & Lubrication	18.56	_____	22.63	_____
-Repairs	14.20	_____	17.02	_____
-Drying	1.86	_____	0.00	_____
-Hauling to Market	13.02	_____	15.30	_____
-Miscellaneous	0.00	_____	1.50	_____
-Operating Interest	3.06	_____	3.98	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	77.31	_____	100.53	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.11	_____	7.75	_____
-Machinery Depreciation	17.27	_____	19.90	_____
-Machinery Investment	11.30	_____	13.72	_____
-Land Charge	29.00	_____	29.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	64.68	_____	70.36	_____
SUM OF ALL LISTED COSTS	141.99	_____	170.89	_____
RETURN TO LABOR & MANAGEMENT	90.51	_____	102.71	_____
LISTED COSTS PER BUDGET UNIT	(lb)		(bu)	
-Direct Costs	0.08	_____	5.59	_____
-Indirect Costs	0.07	_____	3.91	_____
-Total Costs	0.15	_____	9.49	_____

Sunflower notes:

There is no charge for green manure fallow year of rotation.

Soybean notes:

There is no charge for green manure fallow year of rotation.

*Food quality price estimate. Livestock feed price is about \$11.50.

Organic FLAX

Organic OATS

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	11*		42	
Market Price	\$ 17.50		\$ 4.00	
MARKET INCOME	192.50		168.00	
DIRECT COSTS				
-Seed	30.00		16.88	
-Crop Insurance	5.00		6.00	
-Fuel & Lubrication	15.01		14.05	
-Repairs	11.94		11.27	
-Drying	0.00		0.00	
-Hauling to Market	10.63		25.20	
-Miscellaneous	0.00		0.00	
-Operating Interest	2.99		3.03	
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	75.57		76.42	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	6.28		6.36	
-Machinery Depreciation	14.06		13.68	
-Machinery Investment	9.01		8.51	
-Land Charge	29.00		29.00	
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	58.34		57.56	
SUM OF ALL LISTED COSTS	133.91		133.98	
RETURN TO LABOR & MANAGEMENT	58.59		34.02	
LISTED COSTS PER BUDGET UNIT	(bu)		(bu)	
-Direct Costs	6.87		1.82	
-Indirect Costs	5.30		1.37	
-Total Costs	12.17		3.19	

Flax notes:

There is no charge for green manure fallow year of rotation.

*Harvest yield is estimated at 12.5 bu/acre but payment yield is net elevator dockage which is estimated at 12 to 15 percent. The price is paid on 11 bushels which includes cleanout in excess of dockage.

Oat notes:

There is no charge for green manure fallow year of rotation.

Organic FIELD PEAS

Organic MILLET

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	1260		1050	
Market Price	\$ 0.14*		\$ 0.11	
MARKET INCOME	176.40		115.50	
DIRECT COSTS				
-Seed	34.50		7.50	
-Crop Insurance	4.80		0.00	
-Fuel & Lubrication	15.36		13.27	
-Repairs	12.45		10.96	
-Drying	0.00		0.00	
-Hauling to Market	17.64		14.70	
-Miscellaneous	1.50		0.00	
-Operating Interest	3.56		1.92	
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	89.82		48.34	
INDIRECT (FIXED) COSTS				
-Misc. Overhead	6.39		6.11	
-Machinery Depreciation	14.94		13.17	
-Machinery Investment	9.12		8.17	
-Land Charge	29.00		29.00	
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	59.45		56.45	
SUM OF ALL LISTED COSTS	149.26		104.79	
RETURN TO LABOR & MANAGEMENT	27.14		10.71	
LISTED COSTS PER BUDGET UNIT	(lb)		(lb)	
-Direct Costs	0.07		0.05	
-Indirect Costs	0.05		0.05	
-Total Costs	0.12		0.10	

Field Pea notes:

There is no charge for green manure fallow year of rotation.

*Food quality price estimate. Livestock feed price is about \$.10 per lb.

Millet notes:

There is no charge for green manure fallow year of rotation.

Organic BUCKWHEAT

Organic RYE

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	630	_____	27	_____
Market Price	\$ 0.18	_____	\$ 4.30	_____
MARKET INCOME	113.40	_____	116.10	_____
DIRECT COSTS				
-Seed	19.20	_____	9.10	_____
-Crop Insurance	0.00	_____	6.10	_____
-Fuel & Lubrication	14.41	_____	14.09	_____
-Repairs	11.73	_____	11.30	_____
-Drying	0.00	_____	0.00	_____
-Hauling to Market	8.82	_____	24.65	_____
-Miscellaneous	0.00	_____	0.00	_____
-Operating Interest	2.23	_____	2.69	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	56.40	_____	67.93	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	6.22	_____	6.28	_____
-Machinery Depreciation	13.81	_____	13.65	_____
-Machinery Investment	8.74	_____	8.60	_____
-Land Charge	29.00	_____	29.00	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	57.77	_____	57.52	_____
SUM OF ALL LISTED COSTS	114.17	_____	125.46	_____
RETURN TO LABOR & MANAGEMENT	(0.77)	_____	(9.36)	_____
LISTED COSTS PER BUDGET UNIT	(lb)		(bu)	
-Direct Costs	0.09	_____	2.52	_____
-Indirect Costs	0.09	_____	2.13	_____
-Total Costs	0.18	_____	4.65	_____

Notes:

There is no charge for green manure fallow year of rotation.

Rotational Green Manure Follow

	Per Acre	Your Figures
MARKET INCOME	0.00	_____
DIRECT COSTS		
-Seed	15.00	_____
-Crop Insurance	0.00	_____
-Fuel & Lubrication	8.70	_____
-Repairs	4.13	_____
-Drying	0.00	_____
-Hauling to Market	0.00	_____
-Miscellaneous	0.00	_____
-Operating Interest	1.15	_____
	=====	=====
SUM OF LISTED DIRECT COSTS	28.99	_____
INDIRECT (FIXED) COSTS		
-Misc. Overhead	4.78	_____
-Machinery Depreciation	6.17	_____
-Machinery Investment	4.28	_____
-Land Charge	29.00	_____
	=====	=====
SUM OF LISTED INDIRECT COSTS	44.23	_____
SUM OF ALL LISTED COSTS	73.22	_____
RETURN TO LABOR & MANAGEMENT	(73.22)	_____

Notes:

Sweet clover is underseeded in crop the previous year. There are several other crops that can be used as soil building green manure but legumes, such as sweet clover, are generally preferred.

Machinery List

Machine	Purch. Price	Annual Use	Years to trade	Trade in	Deprec.	Invest.	Repairs	Ac/hr
2WD 100HP Tractor	53400	400 hr	20	17239	4.52 /hr	3.97 /hr	5.44 /hr	
2WD 160HP Tractor	88000	500 hr	15	26044	8.26 /hr	5.13 /hr	8.96 /hr	
4WD 280HP Tractor	121100	500 hr	15	35832	11.37 /hr	7.06 /hr	7.05 /hr	
SP Combine (base unit)	150200	250 hr	12	37351	37.62 /hr	16.88 /hr	24.38 /hr	
Single Axle Truck (used)	20500	100 hr	20	4100	8.20 /hr	5.54 /hr	6.00 /hr	
Tandem Truck (used)	30800	150 hr	15	10200	9.16 /hr	6.15 /hr	5.50 /hr	
Pick-up Truck	20200	300 hr	10	4200	5.33 /hr	1.83 /hr	2.58 /hr	
Swather 25 ft	16900	1000 ac	20	3989	0.65 /ac	0.47 /ac	0.29 /ac	12.1
Chisel Plow 35 ft	25600	1600 ac	15	14651	0.44 /ac	0.57 /ac	0.69 /ac	16.2
Field Cultivator 45 ft	32100	3000 ac	15	17333	0.32 /ac	0.37 /ac	0.57 /ac	23.2
Tandem Disk 28 ft	24700	800 ac	20	6869	1.10 /ac	0.89 /ac	0.70 /ac	12.2
Harrow (springtooth) 60 ft	10500	1200 ac	20	5881	0.19 /ac	0.31 /ac	0.13 /ac	34.0
Row-crop cultivator 8-30	5900	600 ac	15	3377	0.28 /ac	0.35 /ac	0.34 /ac	7.8
Grain Drill 30 ft	44800	1400 ac	12	20595	1.41 /ac	1.06 /ac	2.30 /ac	11.5
Planter 8-30	24300	600 ac	20	8123	1.35 /ac	1.22 /ac	2.02 /ac	7.1
Corn head 8-30	31400	400 ac	20	3209	3.53 /ac	1.94 /ac	0.83 /ac	5.9
Grain head w/pu	10800	1200 ac	10	3724	0.58 /ac	0.27 /ac	0.20 /ac	8.5
Grain str. cut 25 ft	14600	800 ac	15	2872	0.97 /ac	0.49 /ac	0.27 /ac	8.5
Head w/sunf pans 20 ft	14900	400 ac	20	1509	1.67 /ac	0.92 /ac	0.34 /ac	6.8
Soybeans str. cut 20 ft	15800	400 ac	20	1613	1.77 /ac	0.98 /ac	0.37 /ac	6.8
Rock picker	15400	50 hr	20	4748	0.35 /ac	0.30 /ac	0.23 /ac	29.1
Grain auger	6700	50 hr	20	500	6.20 /hr	3.24 /hr	0.66 /hr	

For more information on this and other topics, see: **www.ag.ndsu.edu**

County commissions, North Dakota State University and U.S. Department of Agriculture cooperating. Duane Hauck, director, Fargo, N.D. Distributed in furtherance of the acts of Congress of May 8 and June 30, 1914. We offer our programs and facilities to all people regardless of race, color, national origin, religion, gender, disability, age, veteran's status or sexual orientation; and are an equal opportunity institution. This publication will be made available in alternative formats for people with disabilities upon request, (701) 231-7881. 750-2-07