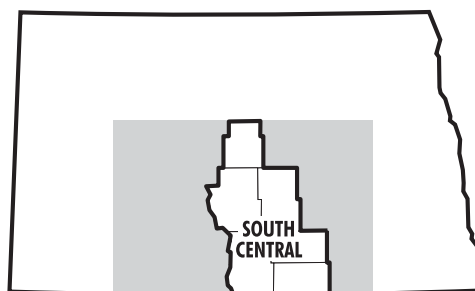


Farm Management Planning Guide



February 2010

Projected 2010 *Organic* Crop Budgets South Central North Dakota



Andrew Swenson, Farm Management Specialist

Ron Haugen, Farm Management Specialist

Brad Brummond, Walsh County Extension Agent

The organic crop budgets for 2010 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 58108

Direct and counter-cyclical payments under the 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 2010.

Primary Assumptions

Market Yields: Yields are based on 70-75 percent of the average yield of conventional crops from the 7 year period, 2002-2008, 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 70-75 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. The prices are “farm gate” where the buyer arranges and incurs the cost of transporting grain from the farm. The budgets assume that the grain cleaning is done by the buyer and the producer is paid on quantity after cleaning.

Another common method of pricing is FOB a delivery point specified by the buyer. The transportation costs are the responsibility of the seller. The price is generally higher than farm gate pricing because the seller pays for transport.

Grain cleaning and shipping charges are important costs and one must read the contract 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 value as feed for certified organic livestock production.

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.

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 and lentil budgets.

Producers often use their own seed when planting small grain crops. The small grain seed prices are an average of the opportunity cost of producer’s own “bin run” seed, plus cleaning and handling, and purchased certified organic seed.

Spring Wheat	14.00/bu
Durum	14.00/bu
Barley	8.00/bu
Corn grain	1.60/thou.kern.
Oil Sunflower	1.05/thou.kern.
Soybean	34.00/bu
Flax	35.00/bu
Oats	7.00/bu
Field Peas	15.00/bu
Millet	.30/lb
Buckwheat	.50/lb
Lentils	.40/lb
Rye	7.50/bu
Sweet Clover	1.60/lb

Fuel prices:

Diesel 2.50/gal
Gas 2.70/gal

Lubrication charge: 15% of fuel cost

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

Miscellaneous: organic certification, inspection fees and grain testing is estimated at \$2.50 per acre. Miscellaneous also includes any machinery rent and seed inoculant.

Operating interest: direct costs charged 5.25% 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. Finally, \$2.50 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 = $(\text{Purchase price} + \text{Disposal price})/2$

Depreciation = $(\text{Purchase price} - \text{disposal price} / \text{years ownership})$

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@ndsuext.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	
	Oats seeded with S.Clover 25%	Green Manure Fallow 25%	Spring Wheat 25%	Soybeans 25%	Composite Budget 100%
Crop composite					
Market Yield	41 BU	0	22 BU	17 BU	N/A
Market Price	\$ 3.30	\$ 0.00	\$ 9.00	\$ 20.00	N/A
MARKET INCOME	135.30	0.00	198.00	340.00	168.33
DIRECT COSTS					
-Seed	33.50	0.00	28.00	47.60	27.28
-Crop Insurance	7.00	0.00	4.70	10.20	5.48
-Fuel & Lubrication	15.08	9.33	15.54	25.54	16.37
-Repairs	12.72	4.73	13.19	20.63	12.82
-Drying	0.00	0.00	0.00	0.00	0.00
-Miscellaneous	2.50	0.00	2.50	4.50	2.38
-Operating Interest	1.86	0.37	1.68	2.85	1.69
	=====	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	72.66	14.42	65.61	111.31	66.01
INDIRECT (FIXED) COSTS					
-Misc. Overhead	5.77	6.01	5.66	7.65	6.27
-Machinery Depreciation	15.94	7.25	16.28	24.75	16.06
-Machinery Investment	9.57	5.02	9.84	16.63	10.27
-Land Charge	34.90	34.90	34.90	34.90	34.90
	=====	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	66.17	53.18	66.68	83.94	67.49
SUM OF ALL LISTED COSTS	138.83	67.60	132.29	195.26	133.50
RETURN TO LABOR & MANAGEMENT	(3.53)	(67.60)	65.71	144.74	34.83

Example 2 Crop Rotation

	Year 1	Year 2	Year 3	Year 4	
	Spr. Wheat seeded with S.Clover 25%	Green Manure Fallow 25%	Rye 25%	Flax 25%	Composite Budget 100%
Crop composite					
Market Yield	22 BU	0	29	10.5	N/A
Market Price	\$ 9.00	\$ 0.00	\$ 4.10	\$ 23.00	N/A
MARKET INCOME	198.00	0.00	118.90	241.50	139.60
DIRECT COSTS					
-Seed	44.00	0.00	9.75	35.00	22.19
-Crop Insurance	4.70	0.00	6.30	6.30	4.33
-Fuel & Lubrication	13.57	9.33	16.39	16.81	14.03
-Repairs	11.99	4.73	13.53	14.16	11.10
-Drying	0.00	0.00	0.00	0.00	0.00
-Miscellaneous	2.50	0.00	2.50	2.50	1.88
-Operating Interest	2.01	0.37	1.27	1.96	1.40
	=====	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	78.77	14.42	49.75	76.73	54.92
INDIRECT (FIXED) COSTS					
-Misc. Overhead	5.32	6.01	5.88	5.83	5.76
-Machinery Depreciation	14.98	7.25	16.83	17.23	14.07
-Machinery Investment	8.68	5.02	10.34	10.76	8.70
-Land Charge	34.90	34.90	34.90	34.90	34.90
	=====	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	63.88	53.18	67.95	68.71	63.43
SUM OF ALL LISTED COSTS	142.66	67.60	117.69	145.44	118.35
RETURN TO LABOR & MANAGEMENT	55.34	(67.60)	1.21	96.06	21.25

Organic SPRING WHEAT

Organic DURUM

	Your Per Acre	Figures		Your Per Acre	Figures
Market Yield	22	_____		21	_____
Market Price	\$ 9.00	_____		\$ 9.00	_____
 MARKET INCOME	 198.00	_____		 189.00	_____
 DIRECT COSTS					
-Seed	28.00	_____		28.00	_____
-Crop Insurance	4.70	_____		4.80	_____
-Fuel & Lubrication	15.54	_____		15.48	_____
-Repairs	13.19	_____		13.17	_____
-Drying	0.00	_____		0.00	_____
-Miscellaneous	2.50	_____		2.50	_____
-Operating Interest	1.68	_____		1.68	_____
	=====	=====		=====	=====
SUM OF LISTED DIRECT COSTS	65.61	_____		65.63	_____
 INDIRECT (FIXED) COSTS					
-Misc. Overhead	5.66	_____		5.65	_____
-Machinery Depreciation	16.28	_____		16.25	_____
-Machinery Investment	9.84	_____		9.82	_____
-Land Charge	34.90	_____		34.90	_____
	=====	=====		=====	=====
SUM OF LISTED INDIRECT COSTS	66.68	_____		66.62	_____
 SUM OF ALL LISTED COSTS	 132.29	_____		 132.24	_____
 RETURN TO LABOR & MANAGEMENT	 65.71	_____		 56.76	_____
 LISTED COSTS PER BUDGET UNIT	(bu)			(bu)	
-Direct Costs	2.98	_____		3.13	_____
-Indirect Costs	3.03	_____		3.17	_____
-Total Costs	6.01	_____		6.30	_____

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	38	_____	57	_____
Market Price	\$ 3.80	_____	\$ 5.00*	_____
MARKET INCOME	144.40	_____	285.00	_____
DIRECT COSTS				
-Seed	16.00	_____	33.60	_____
-Crop Insurance	3.30	_____	23.50	_____
-Fuel & Lubrication	16.50	_____	24.80	_____
-Repairs	13.53	_____	19.88	_____
-Drying	0.00	_____	11.40	_____
-Miscellaneous	2.50	_____	2.50	_____
-Operating Interest	1.36	_____	3.04	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	53.18	_____	118.72	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	5.92	_____	8.18	_____
-Machinery Depreciation	16.78	_____	27.43	_____
-Machinery Investment	10.16	_____	17.24	_____
-Land Charge	34.90	_____	34.90	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	67.76	_____	87.75	_____
SUM OF ALL LISTED COSTS	120.94	_____	206.47	_____
RETURN TO LABOR & MANAGEMENT	23.46	_____	78.53	_____
LISTED COSTS PER BUDGET UNIT	(bu)		(bu)	
-Direct Costs	1.40	_____	2.08	_____
-Indirect Costs	1.78	_____	1.54	_____
-Total Costs	3.18	_____	3.62	_____

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.

Organic SOYBEANS

Organic OIL SUNFLOWER

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	17	_____	900	_____
Market Price	\$ 20.00*	_____	\$ 0.25	_____
MARKET INCOME	340.00	_____	225.00	_____
DIRECT COSTS				
-Seed	47.60	_____	23.10	_____
-Crop Insurance	10.20	_____	11.40	_____
-Fuel & Lubrication	25.54	_____	21.36	_____
-Repairs	20.63	_____	17.36	_____
-Drying	0.00	_____	1.80	_____
-Miscellaneous	4.50	_____	2.50	_____
-Operating Interest	2.85	_____	2.03	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	111.31	_____	79.55	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	7.65	_____	6.89	_____
-Machinery Depreciation	24.75	_____	21.48	_____
-Machinery Investment	16.63	_____	13.72	_____
-Land Charge	34.90	_____	34.90	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	83.94	_____	76.99	_____
SUM OF ALL LISTED COSTS	195.26	_____	156.54	_____
RETURN TO LABOR & MANAGEMENT	144.74	_____	68.46	_____
LISTED COSTS PER BUDGET UNIT	(bu)		(lb)	
-Direct Costs	6.55	_____	0.09	_____
-Indirect Costs	4.94	_____	0.09	_____
-Total Costs	11.49	_____	0.17	_____

Soybean notes:

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

*Food quality price estimate. Livestock feed price is \$15 to \$17.

Sunflower notes:

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

Organic FLAX

Organic OATS

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	10.5*	_____	41	_____
Market Price	\$ 23.00	_____	\$ 3.30	_____
MARKET INCOME	241.50	_____	135.30	_____
DIRECT COSTS				
-Seed	35.00	_____	17.50	_____
-Crop Insurance	6.30	_____	7.00	_____
-Fuel & Lubrication	16.81	_____	16.68	_____
-Repairs	14.16	_____	13.59	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	2.50	_____	2.50	_____
-Operating Interest	1.96	_____	1.50	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	76.73	_____	58.77	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	5.83	_____	5.96	_____
-Machinery Depreciation	17.23	_____	16.87	_____
-Machinery Investment	10.76	_____	10.22	_____
-Land Charge	34.90	_____	34.90	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	68.71	_____	67.96	_____
SUM OF ALL LISTED COSTS	145.44	_____	126.73	_____
RETURN TO LABOR & MANAGEMENT	96.06	_____	8.57	_____
LISTED COSTS PER BUDGET UNIT	(bu)		(bu)	
-Direct Costs	7.31	_____	1.43	_____
-Indirect Costs	6.54	_____	1.66	_____
-Total Costs	13.85	_____	3.09	_____

Flax notes:

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

*Harvest yield is estimated at 12 bu/acre but payment yield is net elevator dockage which estimated at 12 to 15 percent. The price is paid on 10.5 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	23	_____	1050	_____
Market Price	\$ 9.00*	_____	\$ 0.13	_____
MARKET INCOME	207.00	_____	136.50	_____
DIRECT COSTS				
-Seed	45.00	_____	7.50	_____
-Crop Insurance	4.70	_____	0.00	_____
-Fuel & Lubrication	17.66	_____	15.48	_____
-Repairs	14.96	_____	13.04	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	5.50	_____	2.50	_____
-Operating Interest	2.31	_____	1.01	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	90.13	_____	39.53	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	6.05	_____	5.61	_____
-Machinery Depreciation	18.67	_____	16.04	_____
-Machinery Investment	11.09	_____	9.70	_____
-Land Charge	34.90	_____	34.90	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	70.71	_____	66.26	_____
SUM OF ALL LISTED COSTS	160.83	_____	105.78	_____
RETURN TO LABOR & MANAGEMENT	46.17	_____	30.72	_____
LISTED COSTS PER BUDGET UNIT	(bu)		(lb)	
-Direct Costs	3.92	_____	0.04	_____
-Indirect Costs	3.07	_____	0.06	_____
-Total Costs	6.99	_____	0.10	_____

Field Pea notes:

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

*Livestock feed price estimate.

Millet notes:

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

Organic BUCKWHEAT

Organic LENTILS

	Per Acre	Your Figures	Per Acre	Your Figures
Market Yield	700	_____	700*	_____
Market Price	\$ 0.22	_____	\$ 0.48	_____
MARKET INCOME	154.00	_____	336.00	_____
DIRECT COSTS				
-Seed	30.00	_____	40.00	_____
-Crop Insurance	6.30	_____	0.00	_____
-Fuel & Lubrication	16.68	_____	17.78	_____
-Repairs	14.07	_____	16.28	_____
-Drying	0.00	_____	0.00	_____
-Miscellaneous	2.50	_____	8.00	_____
-Operating Interest	1.83	_____	2.15	_____
	=====	=====	=====	=====
SUM OF LISTED DIRECT COSTS	71.38	_____	84.21	_____
INDIRECT (FIXED) COSTS				
-Misc. Overhead	5.80	_____	6.08	_____
-Machinery Depreciation	17.05	_____	18.78	_____
-Machinery Investment	10.50	_____	11.56	_____
-Land Charge	34.90	_____	34.90	_____
	=====	=====	=====	=====
SUM OF LISTED INDIRECT COSTS	68.26	_____	71.32	_____
SUM OF ALL LISTED COSTS	139.63	_____	155.54	_____
RETURN TO LABOR & MANAGEMENT	14.37	_____	180.46	_____
LISTED COSTS PER BUDGET UNIT	(lb)		(lb)	
-Direct Costs	0.10	_____	0.12	_____
-Indirect Costs	0.10	_____	0.10	_____
-Total Costs	0.20	_____	0.22	_____

Buckwheat notes:

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

Lentil notes:

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

*There is risk to lentil production in this geographic region because of ascochyta blight.

Organic Rye

Rotational Green Manure Fallow

	Your Per Acre	Figures		Your Per Acre	Figures
Market Yield	29	_____		0	_____
Market Price	\$ 4.10	_____		\$ 0.00	_____
MARKET INCOME	118.90	_____		0.00	_____
DIRECT COSTS					
-Seed	9.75	_____		16.00	_____
-Crop Insurance	6.30	_____		0.00	_____
-Fuel & Lubrication	16.39	_____		9.33	_____
-Repairs	13.53	_____		4.73	_____
-Drying	0.00	_____		0.00	_____
-Miscellaneous	2.50	_____		0.00	_____
-Operating Interest	1.27	_____		0.79	_____
	=====	=====		=====	=====
SUM OF LISTED DIRECT COSTS	49.75	_____		30.84	_____
INDIRECT (FIXED) COSTS					
-Misc. Overhead	5.88	_____		6.01	_____
-Machinery Depreciation	16.83	_____		7.25	_____
-Machinery Investment	10.34	_____		5.02	_____
-Land Charge	34.90	_____		34.90	_____
	=====	=====		=====	=====
SUM OF LISTED INDIRECT COSTS	67.95	_____		53.18	_____
SUM OF ALL LISTED COSTS	117.69	_____		84.02	_____
RETURN TO LABOR & MANAGEMENT	1.21	_____		(84.02)	_____
LISTED COSTS PER BUDGET UNIT	(bu)				
-Direct Costs	1.72	_____			
-Indirect Costs	2.34	_____			
-Total Costs	4.06	_____			

Rye notes:

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

Rotational Green Manure Fallow 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	60300	400hr	20	19447	5.11 /hr	4.49 /hr	6.14 /hr	
2WD 160HP Tractor	102600	500hr	15	30365	9.63 /hr	5.98 /hr	10.45 /hr	
4WD 280HP Tractor	150400	500hr	15	44498	14.12 /hr	8.77 /hr	8.75 /hr	
SP Combine (base unit)	191600	250hr	12	47654	47.98 /hr	21.53 /hr	31.10 /hr	
Single Axle Truck (used)	21500	100hr	20	4500	8.50 /hr	5.85 /hr	7.00 /hr	
Tandem Truck (used)	33000	150hr	15	10500	10.00 /hr	6.53 /hr	6.33 /hr	
Pick-up Truck	21900	300hr	10	4500	5.80 /hr	1.98 /hr	2.93 /hr	
Swather 25 ft	20500	1000ac	20	4855	0.78 /ac	0.57 /ac	0.36 /ac	12.1
Chisel Plow 35 ft	29900	1600ac	15	17482	0.52 /ac	0.67 /ac	0.72 /ac	18.0
Field Cultivator 45 ft	36000	3000ac	15	19866	0.36 /ac	0.42 /ac	0.60 /ac	24.7
Tandem Disk 28 ft	28800	800ac	20	8228	1.29 /ac	1.04 /ac	0.81 /ac	12.2
Harrow (springtooth) 60 ft	12300	1200ac	20	7000	0.22 /ac	0.36 /ac	0.16 /ac	34.0
Row-crop cultivator 8-30	6900	600ac	15	3924	0.33 /ac	0.41 /ac	0.40 /ac	7.8
Grain Drill 30 ft	4500	1400ac	12	21236	1.41 /ac	1.06 /ac	2.30 /ac	11.5
Planter 8-30	28400	600ac	20	9510	1.57 /ac	1.42 /ac	2.37 /ac	7.1
Corn head	41000	600ac	20	3860	3.09 /ac	1.68 /ac	0.95 /ac	6.8
Grain head w/pu	13100	1200ac	10	4610	0.71 /ac	0.33 /ac	0.25 /ac	8.5
Grain str. cut 25 ft	17700	800ac	15	3568	1.18 /ac	0.60 /ac	0.32 /ac	8.5
Head w/sunf pans 20 ft	17400	400ac	20	1760	1.95 /ac	1.08 /ac	0.40 /ac	6.8
Soybeans str. cut 20 ft	20400	400ac	20	2081	2.29 /ac	1.26 /ac	0.47 /ac	6.8
Rock picker	18700	50hr	20	5976	0.42 /ac	0.37 /ac	0.28 /ac	29.1
Grain cleaner	7000	30hr	20	700	10.50 /hr	5.78 /hr	6.67 /hr	
Grain auger	7800	50hr	20	590	7.21 /hr	3.78 /hr	4.00 /hr	

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