

Minnesota Farm Machinery Economic Cost Estimates For 1991

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The data which follows is designed to aid in estimating farm machinery use or function costs for 1991. The estimates are determined by economic - engineering formula and represent an average farming industry use and cost for a specific machine or machine operation.

There are two types of costs associated with owning and operating a machine: Overhead costs are incurred whether or not the machine is used, provided it is owned. Overhead costs include depreciation, interest, insurance, housing, and taxes. Operating costs, which occur only when the machine is used, include fuel, lubrication, repairs and labor.

Overhead Costs: Each machine is costed over 10 years. Salvage value at 10 years of life ranges from 16 to 30 percent according to the current Agricultural Engineer's Yearbook. Repair and maintenance calculations are based on the same source. Major purchases of new machinery remain infrequent. Good used equipment is scarce. Managers, striving for cost control, can sometimes still buy a second item twinned to one now in current use.

Purchase cost for equipment, as shown in the tables, is based on a survey of dealers, companies and extension agents. They are not list prices, but rather reflect current market conditions. Price competition exists. Delivery charges are recognized. Commonly purchased optional items are included. Purchase often includes a delay in delivery. Interest and insurance rates are assumed to be 12 percent on .75 percent of new cost, respectively. Housing cost is assumed to be 33 cents per square foot of shelter space needed per year.

Formulas used to compute machinery overhead costs:

- Depreciation per year = $\frac{\text{purchase cost} - \text{salvage value}}{\text{years you will use machine}}$
- Interest per year = $\frac{\text{purchase cost} + \text{salvage value}}{2} \times \text{Interest rate}$
- Insurance per year = $\frac{\text{purchase cost} + \text{salvage value}}{2} \times \text{rate}$
- Housing per year = price per sq. foot x sq. feet shelter space required
- Taxes per year = 0 (no taxes on personal property in Minnesota)

Operating Expense: Fuel cost is calculated by multiplying the fuel consumption by the price of fuel, with fuel consumption assumed to be .06 gallons of diesel fuel per horsepower hour. The price of farm fuel is assumed to be \$1.00 per gallon for diesel. All power units, tractors, combines, trucks, etc., are assumed to be diesel powered. An estimate of gasoline consumption can be made by multiplying the diesel fuel consumption by a factor of 1.36. Lubrication cost is assumed to be 10 percent of fuel cost. Supplies such as twine, wrapping or preservatives are not included.

The formulas for estimating the repair and maintenance costs estimate total accumulated repair costs according to the accumulated hours of use; the total costs are then broken down to a per hour cost estimate. The amount of annual use of a machine is an estimate of the number of hours a typical commercial farmer would likely use that particular machine in one year.

Labor Costs are kept separate from the operating expenses. Labor is charged at an hourly wage rate, which includes 30 percent of benefits, of \$7.00 per hour for unskilled labor and \$9.50 per hour for skilled labor. Labor per acre for an operation such as plowing and disking is calculated by using the work performance rate on the implement. Therefore, plows and disks using the same tractor have different per acre labor requirements. Less labor per acre is used in a disking operation that covers more acres per hour than in a plowing operation.

Machine function or average cost per acre worked increased from 1990 estimates. The following table compares the machinery function costs per acre for four selected items from 1988 to 1991.

Field operation	1988	1989	1990	1991
plow 6-16's	\$10.12	\$12.26	12.61	\$13.19
corn planter 6 - 30	9.44	10.96	11.28	11.40
combine sm grain med	16.47	18.40	19.43	19.82
combine corn 6-30	24.80	28.75	30.42	31.71

These estimates are not necessarily representative of any one individual's cost, but can help plan the cropping operation if other data are not available. Differences in buying power, repair programs, average annual use, and overall replacement programs should be considered. Machinery costs are substantial; control of them is important. Custom charges are often based upon them.

No one should do custom work unless the charge will cover operating costs including labor. Ideally all allocated per acre or hour overhead costs should also be covered by anyone offering to do custom work. The market for custom work usually does not cover all costs. The market is usually somewhere in between the operating costs and the total of operating and allocated overhead. See the current issue of Ag-FS-3200 for reported farm custom rates.

The following tables provide the 1991 machinery function costs broken down into several categories. Some relevant supporting data also are included.

Fuller and Lazarus are extension economists, farm management. Carrigan is a research assistant in the Department of Agricultural and Applied Economics. Special thanks to Jack True, agricultural engineer, for his assistance, and the machinery companies and extension agents that provided data for this project.

TRACTORS AND COMBINES (WITHOUT HEADS)

Tractor Combine or Truck Size	Net Cost of The New Power Unit	Annual Hours of Use	-- Overhead -- Cost per		-- Operating -- Expense per		-- Total Cost -- per Year of Use	-- Total Cost -- / Hour of Use	Maintenance & Repair Cost/Hr.	Diesel Use/Hr. Gallons
			Year	Hour	Hour	Year				
40 Hp	14,280	500	2,216	4.43	3.19	1,594	3,810	7.62	0.86	2.1
60 Hp	19,690	500	3,048	6.10	4.68	2,340	5,388	10.78	1.18	3.2
75 Hp	22,915	500	3,545	7.09	5.75	2,876	6,422	12.84	1.37	4.0
100 Hp	39,060	550	6,020	10.95	8.41	4,624	10,645	19.35	2.58	5.3
120 Hp	41,300	550	6,364	11.57	9.72	5,347	11,711	21.29	2.73	6.4
140 Hp	49,600	550	7,658	13.92	11.44	6,290	13,947	25.36	3.27	7.4
160 Hp	58,125	600	8,962	14.94	13.51	8,108	17,070	28.45	4.18	8.5
180 Hp	69,750	600	10,742	17.90	15.52	9,310	20,051	33.42	5.02	9.5
190 HP	70,900	600	10,921	18.20	16.18	9,709	20,630	34.38	5.10	10.1
225 Hp 4Wd	73,430	500	11,321	22.64	16.79	8,397	19,719	39.44	3.67	11.9
250 Hp 4Wd	88,760	500	13,668	27.34	19.01	9,507	23,174	46.35	4.44	13.3
275 Hp 4Wd	99,690	500	15,341	30.68	21.02	10,511	25,852	51.70	4.98	14.6
300 Hp 4Wd	103,750	500	15,962	31.92	22.68	11,339	27,301	54.60	5.19	15.9
320 Hp 4Wd	110,100	500	16,934	33.87	24.16	12,081	29,014	58.03	5.51	17.0
350 Hp 4Wd	119,975	500	18,445	36.89	26.40	13,202	31,647	63.29	6.00	18.5
Sml Combine	63,600	300	10,078	33.59	31.38	9,415	19,493	64.98	25.55	5.3
Med Combine	73,890	300	11,725	39.08	36.69	11,006	22,731	75.77	29.69	6.4
Lrg Combine	91,750	300	14,560	48.53	45.32	13,597	28,158	93.86	36.87	7.7
Jmb Combine	106,630	300	16,922	56.41	54.50	16,351	33,273	110.91	42.84	10.6
Pickup Truck	13,925	500	2,256	4.51	4.00	1,998	4,254	8.51	0.70	3.0
Medium Truck	40,670	500	6,499	13.00	6.43	3,217	9,716	19.43	2.03	4.0
Tandem Truck	46,000	500	7,356	14.71	7.47	3,735	11,091	22.18	2.30	4.7

TILLAGE EQUIPMENT

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed		Total Cost Acre	Total Cost Hour	Operating Expense /Acre	-- Total Cost / Acre --			Diesel Fuel Gal/Ac
			Acres/hr	Ac/yr				Tractor	Machine	Labor Charge	
Moldboard Plow 2-16	40	1,635	1.16	139	15.33	17.80	3.45	6.57	2.62	6.15	1.83
Moldboard Plow 3-16	60	2,880	1.75	209	13.33	23.27	3.50	6.17	3.07	4.09	1.82
Moldboard Plow 4-16	75	6,955	2.33	279	14.09	32.77	3.96	5.52	5.50	3.07	1.71
Moldboard Plow 5-16	100	8,415	2.91	349	14.45	42.00	4.33	6.66	5.34	2.46	1.82
Moldboard Plow 6-16	120	9,935	3.49	454	13.19	46.06	4.29	6.10	5.05	2.05	1.82
Moldboard Plow 7-16	140	11,670	4.07	529	13.06	53.17	4.33	6.23	5.08	1.75	1.82
Moldboard Plow 8-16	160	14,290	4.65	605	13.08	60.85	4.53	6.12	5.43	1.53	1.82
Moldboard Plow 9-18	225	17,725	5.89	884	12.91	76.06	4.64	6.69	5.01	1.21	2.03
Moldboard Plow 10-18	225	19,700	6.55	982	12.12	79.33	4.36	6.03	5.00	1.09	1.82
Moldboard Plow 12-18	275	21,850	7.85	1,178	12.12	95.22	4.33	6.58	4.63	0.91	1.86
Chisel Plow 10 Ft	75	3,060	4.36	436	6.10	26.62	1.58	2.94	1.52	1.64	0.91
Chisel Plow 15 Ft	120	3,880	6.55	655	5.62	36.75	1.71	3.25	1.27	1.09	0.97
Chisel Plow 17 Ft	140	4,335	7.42	742	5.64	41.81	1.76	3.42	1.25	0.96	1.00
Chisel Plow 20 Ft	160	8,990	8.73	873	6.20	54.14	1.94	3.26	2.13	0.82	0.97
Chisel Plow Wing 24 Ft	225	10,111	10.47	1,047	6.39	66.95	1.97	3.77	1.95	0.68	1.14
Chisel Plow Wing 29 Ft	250	12,300	12.65	1,265	6.18	78.17	1.87	3.66	1.95	0.56	1.05
Chisel Plow Wing 35 Ft	300	13,310	15.27	1,527	5.79	88.40	1.82	3.58	1.75	0.47	1.04
Field Cultivator 12 Ft	75	2,575	6.06	727	4.07	24.67	1.09	2.12	0.77	1.18	0.66
Field Cultivator 18 Ft	100	4,510	8.73	1,047	3.94	34.41	1.13	2.22	0.91	0.82	0.61
Field Cultivator 28 Ft	160	9,360	13.58	1,629	3.79	51.43	1.22	2.10	1.17	0.53	0.62

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated --		Total Cost Acre	Total Cost Hour	Operating Expense /Acre	-- Total Cost / Acre --		Diesel Fuel Gal/Ac	
			Work Performed Acres/hr	Ac/yr				Equipment Tractor	Labor Charge Machine		
Field Cultivator 37 Ft	225	12,070	17.94	2,153	3.73	66.85	1.15	2.20	1.13	0.40	0.67
Field Cultivator 50 Ft	250	16,485	24.24	2,909	3.34	80.97	1.00	1.91	1.13	0.29	0.55
Disk Chisel 9 Ft	100	6,625	3.82	382	10.07	38.44	2.51	5.07	3.13	1.87	1.39
Disk Chisel 11 Ft	120	7,290	4.91	638	7.96	39.09	2.30	4.34	2.17	1.45	1.30
Disk Chisel 14 Ft	140	9,095	6.00	1,200	7.08	42.48	2.35	4.23	1.66	1.19	1.24
Tandem Disk 10 Ft	60	4,575	4.85	485	5.43	26.32	1.13	2.22	1.73	1.47	0.66
Tandem Disk 16 Ft	75	6,335	7.76	776	4.09	31.70	0.89	1.66	1.51	0.92	0.51
Tandem Disk 17 Ft	75	9,775	8.24	824	4.56	37.62	0.91	1.56	2.14	0.87	0.48
Tandem Disk 20 Ft	100	10,050	9.70	970	4.63	44.87	1.05	2.00	1.90	0.74	0.55
Tandem Disk 21 Ft	100	13,245	10.18	1,018	4.95	50.38	1.06	1.90	2.35	0.70	0.52
Tandem Disk 24 Ft	120	14,380	11.64	1,164	4.67	54.31	1.06	1.83	2.22	0.61	0.55
Tandem Disk 28 Ft	140	20,700	13.58	1,358	5.12	69.49	1.12	1.87	2.72	0.53	0.55
Tandem Disk 32 Ft	160	23,385	15.52	1,552	4.98	77.29	1.14	1.83	2.69	0.46	0.55
Tandem Disk 40 Ft	180	30,295	19.39	1,939	4.87	94.44	1.08	1.72	2.78	0.37	0.49
Offset Disk 14 Ft	140	10,070	6.11	611	8.32	50.85	2.17	4.15	3.00	1.17	1.21
Offset Disk 16 Ft	160	10,710	6.98	698	7.90	55.16	2.21	4.07	2.80	1.02	1.21
Offset Disk 18 Ft	180	11,430	7.85	785	7.83	61.49	2.24	4.25	2.66	0.91	1.21
Offset Wing Disk 21 Ft	225	12,810	9.16	916	7.61	69.76	2.08	4.30	2.53	0.78	1.30
Offset Wing Disk 23 Ft	225	16,905	10.04	1,004	7.67	76.94	1.98	3.93	3.03	0.71	1.19
Landplane 45-12 Ft	180	7,945	6.40	480	9.71	62.15	2.76	5.22	3.31	1.18	1.49
Landplane 55-14 Ft	225	17,040	8.00	600	11.36	90.86	2.67	4.93	5.48	0.94	1.49
Landplane 70-14 Ft	225	18,070	7.47	560	12.60	94.05	2.90	5.28	6.30	1.01	1.60
Springtooth Drag 30	60	2,205	16.00	480	1.93	30.89	0.32	0.67	0.78	0.47	0.20
Springtooth Drag 48	75	2,755	27.93	977	1.26	35.06	0.23	0.46	0.52	0.27	0.14
Spring Tooth Drag 58 Ft	100	4,285	33.75	3,375	1.05	35.40	0.30	0.57	0.27	0.21	0.16

PLANTING EQUIPMENT

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated --		Total Cost Acre	Total Cost Hour	Operating Expense /Acre	-- Total Cost / Acre --		Diesel Fuel Gal/Ac	
			Work Performed Acres/hr	Ac/yr				Equipment Tractor	Labor Charge Machine		
Corn Planter 4-36	40	9,060	3.93	275	10.95	43.02	1.65	1.94	6.21	2.81	0.54
Corn Planter 6-36	60	14,620	5.89	412	10.33	60.84	1.70	1.83	6.63	1.87	0.54
Corn Planter 6-30	60	12,780	4.91	344	11.40	55.98	1.90	2.19	6.96	2.24	0.65
Corn Planter 8-30	75	17,550	6.55	458	10.79	70.65	1.86	1.96	7.15	1.68	0.61
Corn Planter 12-30	100	26,760	9.82	687	10.36	101.70	1.85	1.97	7.26	1.12	0.54
Min-Til Planter 4-36	60	9,950	3.05	214	15.88	48.50	2.72	3.53	8.74	3.61	1.04
Min-Til Planter 6-36	75	14,470	4.58	321	13.64	62.51	2.41	2.80	8.44	2.41	0.87
Min-Til Planter 6-30	75	13,265	3.82	267	15.54	59.32	2.77	3.36	9.29	2.89	1.04

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated --		Total Cost Acre	Total Cost Hour	Operating Expense /Acre	-- Total Cost / Acre --		Labor Charge	Diesel Fuel Gal/Ac
			Work Performed Acres/hr	Ac/yr				Tractor	Machine		
Min-Til Planter 8-30	100	19,110	5.09	356	15.96	81.24	3.02	3.80	9.99	2.16	1.04
Min-Til Planter 8-36	100	23,505	6.11	428	15.18	92.72	2.78	3.17	10.21	1.80	0.87
Min-Til Planter 12-30	160	27,440	7.64	535	14.70	112.29	3.08	3.73	9.54	1.44	1.11
Seed Potato Filler		6,725	5.75	322	3.75	21.54	0.30	0.00	3.75	0.00	0.02
Potato Row Marker 4 Row	120	8,470	4.98	214	13.08	65.16	2.09	4.28	6.44	2.37	1.28
Potato Row Marker 6 Row	140	12,860	7.47	321	11.50	85.87	1.67	3.40	6.52	1.58	0.99
Potato Planter 4 Row	120	26,260	3.83	214	32.20	123.34	4.49	5.56	21.30	5.34	1.66
Potato Planter 6 Row	140	36,765	5.75	322	27.87	160.10	3.82	4.41	19.89	3.56	1.29
Beet Planter 12 Row	100	22,255	4.67	280	20.82	97.17	3.27	4.15	14.15	2.52	1.14
Grain Drill Pw 12 Ft	40	7,190	4.78	382	7.50	35.84	1.30	1.59	3.70	2.21	0.44
Grain Drill Pw 14 Ft	40	7,740	5.57	446	6.67	37.19	1.16	1.37	3.41	1.89	0.38
Grain Drill Pw 16 Ft	60	11,140	6.37	510	7.62	48.55	1.47	1.69	4.27	1.66	0.50
Grain Drill Pw 20 Ft	75	13,380	7.96	637	7.05	56.12	1.43	1.61	4.11	1.32	0.50
Grain Drill Pw 24 Ft	75	16,880	9.56	765	6.76	64.62	1.35	1.34	4.32	1.10	0.42
Grain Drill Pw 28 Ft	100	19,125	11.15	892	6.88	76.66	1.48	1.74	4.19	0.95	0.48

MAINTENANCE EQUIPMENT

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated --		Total Cost Acre	Total Cost Hour	Operating Expense /Acre	-- Total Cost / Acre --		Labor Charge	Diesel Fuel Gal/Ac
			Work Performed Acres/hr	Ac/yr				Tractor	Machine		
Cultivator 4-36	40	3,050	4.65	465	4.44	20.65	0.83	1.64	1.24	1.56	0.46
Cultivator 6-36	60	4,455	6.98	698	3.79	26.46	0.81	1.54	1.20	1.04	0.46
Cultivator 6-30	60	3,235	5.82	582	4.16	24.19	0.93	1.85	1.05	1.25	0.55
Cultivator 8-30	75	4,350	7.76	776	3.66	28.39	0.86	1.66	1.07	0.94	0.51
Cultivator 12-30	140	6,495	11.64	1,164	3.85	44.75	1.11	2.18	1.04	0.63	0.64
Ridge-Cultivator 4-36	75	4,550	4.65	465	6.15	28.63	1.45	2.76	1.81	1.58	0.86
Ridge-Cultivator 6-36	100	6,715	6.98	698	5.61	39.16	1.42	2.77	1.78	1.05	0.76
Ridge-Cultivator 6-30	100	5,550	5.82	582	6.35	36.92	1.65	3.33	1.77	1.25	0.91
Ridge-Cultivator 8-36	100	9,020	9.31	931	4.66	43.34	1.12	2.08	1.79	0.79	0.57
Ridge-Cultivator 8-30	100	7,745	7.76	776	5.27	40.92	1.30	2.49	1.84	0.94	0.68
Ridge-Cultivator 12-30	160	12,800	11.64	1,164	5.18	60.30	1.40	2.44	2.02	0.72	0.73
Rotary Hoe 16 Ft	40	2,935	10.86	434	2.55	27.71	0.34	0.70	1.20	0.64	0.20
Potato Cultivator 4 Row	75	3,395	6.13	889	4.09	25.04	1.13	2.10	0.80	1.19	0.65
Potato Cultivator 6 Row	75	5,335	9.19	1,287	3.05	28.08	0.82	1.40	0.87	0.79	0.43
Beet Cultivator 12 Ro	100	7,955	6.00	360	8.21	49.27	1.56	3.23	3.77	1.21	0.88
Sprayer 30 Ft	40	3,350	14.18	1,135	1.97	27.99	0.32	0.54	0.60	0.84	0.15
Sprayer 50 Ft	60	4,225	23.64	2,364	1.34	31.69	0.27	0.46	0.38	0.50	0.13
Sprayer Hi Pres 50 Ft	60	18,425	23.64	2,364	2.53	59.85	0.52	0.46	1.57	0.50	0.13

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated --		Total Cost Acre	Total Cost Hour	Operating Expense /Acre	-- Total Cost / Acre --			Diesel Fuel Gal/Ac
			Work Performed Acres/hr	Ac/yr				Tractor	Equipment Machine	Labor Charge	
Anhydrous Applicator	160	14,315	12.73	509	8.30	105.59	1.87	2.24	5.33	0.73	0.67
Fert. Sprd. 40 Ft.&4 T.	60	7,455	38.79	1,164	1.68	65.00	0.25	0.28	1.16	0.24	0.08
Stalk Chopper 12 Ft	60	6,970	4.36	436	7.02	30.64	1.44	2.47	2.95	1.60	0.73
Manure Spreader 150 Bu	75	3,525	3.49	349	8.33	29.09	2.61	3.68	2.61	2.05	1.14
Manure Spreader 225 Bu	100	5,700	3.49	349	11.79	41.16	3.96	5.54	4.20	2.05	1.52
Manure Spreader 400 Bu	100	10,230	4.65	465	11.32	52.69	3.89	4.16	5.63	1.53	1.14
Gravity Box 185 Bu	60	1,510	1.65	215	12.54	20.75	3.21	6.51	1.80	4.23	1.92
Gravity Box 240 Bu	75	1,960	1.65	215	14.25	23.58	3.98	7.76	2.26	4.23	2.41
Baled Hay Wagon	40	1,760	3.78	945	6.34	23.96	1.10	2.02	0.62	3.70	0.56
Forage Wagon 14 Ft	40	5,790	1.65	215	14.87	24.60	3.40	4.61	6.03	4.23	1.28
Forage Wagon 16 Ft	40	7,370	1.65	215	16.35	27.06	3.81	4.61	7.52	4.23	1.28
Rock Picker	75	12,310	1.42	85	44.47	63.07	11.13	9.06	30.48	4.94	2.81

HARVESTING EQUIPMENT

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated --		Total Cost Acre	Total Cost Hour	Operating Expense /Acre	-- Total Cost / Acre --			Diesel Fuel Gal/Ac
			Work Performed Acres/hr	Ac/yr				Tractor	Equipment Machine	Labor Charge	
Mower-Conditioner 9 Ft.	40	8,880	4.09	327	8.62	35.27	1.27	1.86	4.88	1.88	0.52
Rotary Mower 6 Ft.	40	4,260	2.73	273	8.61	23.47	1.89	2.79	3.25	2.57	0.78
Rotary Mow/Cond. 9 Ft.	75	9,685	4.64	371	9.04	41.91	1.72	2.77	4.68	1.59	0.86
Rake (Hyd) 9 Ft	40	3,045	3.49	698	5.37	18.73	1.35	2.18	1.18	2.01	0.61
Swather-Cond 12 Ft		32,175	5.45	436	14.23	77.61	1.16	0.00	12.94	1.28	0.51
Swather-Cond 15 Ft		34,765	6.82	545	12.25	83.53	1.01	0.00	11.22	1.03	0.45
Swather 12 Ft		20,435	5.82	465	9.06	52.73	0.79	0.00	7.86	1.20	0.40
Swather 15 Ft		21,240	7.27	582	7.59	55.17	0.72	0.00	6.62	0.96	0.38
Swather 18 Ft		24,715	8.73	698	7.17	62.58	0.64	0.00	6.37	0.80	0.32
Swather 20 Ft		25,080	9.70	776	6.58	63.81	0.61	0.00	5.86	0.72	0.32
1 Ton Hay Stacker	60	13,625	4.15	829	9.11	37.78	2.44	2.60	3.97	2.54	0.77
3 Ton Hay Stacker	75	19,980	4.84	1,064	9.65	46.66	2.97	2.66	4.81	2.18	0.82
6 Ton Hay Stacker	100	32,155	5.53	1,548	11.80	65.22	4.57	3.50	6.39	1.91	0.96
Hay Baler Pto Twine	40	8,700	3.78	756	7.62	28.82	1.76	2.02	2.82	2.79	0.56
Round Baler 1000 Lb	60	11,855	3.01	603	10.89	32.81	3.13	3.58	4.73	2.58	1.06
Round Baler 1500 Lb	60	14,155	4.64	927	7.66	35.50	2.22	2.32	3.66	1.68	0.69
Rd Baler/Wrapper 1000 L	60	12,935	3.01	603	11.31	34.09	3.27	3.58	5.16	2.58	1.06
Bale Wrapper Silage	60	10,370	2.48	372	16.09	39.94	6.37	4.34	8.93	2.82	1.28
Bale Wrapper Dry Hay	40	4,625	2.48	372	9.90	24.58	3.28	3.07	4.01	2.82	0.85
Forage Harvester 1 Row	60	14,950	0.95	95	51.50	48.69	8.59	11.40	28.95	11.15	3.36
Forage Harvester 2 Row	100	17,885	1.65	165	37.89	62.69	7.57	11.70	19.82	6.37	3.20

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed Acres/hr	Ac/yr	Total Cost Acre	Total Cost Hour	Operating Expense /Acre	-- Total Cost / Acre -- Equipment Labor Charge		Diesel Fuel Gal/Ac	
Forage SP Harvstr 2 Row		76,325	2.04	305	53.72	109.39	8.87	0.00	48.54	5.18	2.41
Forage SP Harvstr 3 Row		87,590	3.05	458	40.86	124.80	7.03	0.00	37.40	3.45	2.06
Large Forage Blower	60	4,095	1.00	50	31.36	31.36	5.22	10.78	13.59	7.00	3.18
Corn Picker 2-36	40	18,765	1.42	213	30.08	42.66	5.39	5.37	17.27	7.44	1.49
Picker-Shellor 2-Row	60	16,730	1.49	223	29.01	43.19	5.81	7.24	14.69	7.08	2.14
Combine Sm Grain Sm1	Sm1	6,515	4.10	819	20.13	82.45	8.07	15.86	1.69	2.57	1.29
Combine Sm Grain Med	Med	6,950	4.73	945	19.82	93.71	8.14	16.03	1.57	2.23	1.35
Combine Sm Grain Lge	Lrg	7,725	6.30	1,261	17.87	112.63	7.51	14.89	1.31	1.67	1.22
Combine Soybeans Sm1	Sm1	8,710	3.58	717	23.64	84.76	9.38	18.13	2.58	2.94	1.48
Combine Soybeans Med	Med	9,275	4.14	827	23.24	96.15	9.45	18.32	2.38	2.55	1.54
Combine Soybeans Lge	Lrg	10,250	4.96	993	23.23	115.30	9.66	18.91	2.20	2.12	1.55
Combine Corn 3-30 Sm	Sm1	9,320	2.07	414	41.29	85.40	16.33	31.42	4.77	5.10	2.56
Combine Corn 2-38 Sm	Sm1	5,945	1.74	347	47.11	81.85	18.95	37.40	3.64	6.07	3.05
Combine Corn 3-38 Sm	Sm1	10,680	2.62	524	33.14	86.82	13.03	24.80	4.31	4.03	2.02
Combine Corn 4-36 Md	Med	13,045	3.12	624	32.09	100.13	12.83	24.29	4.43	3.38	2.04
Combine Corn 4-30 Md	Med	12,775	2.60	520	38.39	99.81	15.37	29.14	5.19	4.06	2.45
Combine Corn 6-30 Lg	Lrg	18,215	3.90	780	31.71	123.66	12.82	24.07	4.94	2.70	1.97
Combine Corn 8-30 Lg	Lrg	23,695	4.73	945	27.38	129.46	10.88	19.85	5.30	2.23	1.63
Combine Corn 12-30 Jmb	Jmb	34,510	7.09	1,418	22.26	157.82	8.94	15.64	5.13	1.49	1.49
Potato Windrower 2 Row	75	8,485	1.42	142	29.58	41.95	9.74	9.06	15.59	4.94	2.81
Potato Harvester Seed 2	120	50,860	1.49	320	67.55	100.91	17.12	14.25	35.83	17.46	4.26
Potato Harvester 2 Row	120	45,860	1.99	319	53.01	105.57	11.27	10.69	29.22	13.10	3.19
Rotary Disk Bean Cutter	100	9,975	5.20	416	9.92	51.59	1.94	3.72	4.17	2.03	1.02
Beet Lifter 4 Row	100	36,025	3.47	277	31.38	108.72	4.61	5.59	22.75	3.04	1.53
Beet Lifter 6 Row	120	45,625	5.20	416	25.34	131.74	3.72	4.09	19.21	2.03	1.22
Beet Topper 6 Row	75	14,980	4.67	373	11.84	55.26	1.85	2.75	7.05	2.04	0.85
Beet Topper 12 Row	140	28,355	9.33	747	10.40	97.07	1.81	2.72	6.67	1.02	0.79
Beet Wagon 8 Ton	75	7,810	3.47	277	10.81	37.47	2.09	3.71	5.09	2.02	1.15

SPECIALTY CROP EQUIPMENT

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed Acres/hr	Ac/yr	Total Cost Acre	Total Cost Hour	Operating Expense /Acre	-- Total Cost / Acre -- Equipment Labor Charge		Diesel Fuel Gal/Ac	
Spec. Crop Planter 1 Row	40	2,175	1.94	136	11.15	21.62	2.60	3.93	3.61	3.61	1.09
Spec. Crop Cult. 1 Row	40	1,300	1.94	136	9.74	18.90	2.22	3.93	2.20	3.61	1.09
Transplanter 1 Row	40	2,090	1.94	136	11.01	21.35	2.56	3.93	3.47	3.61	1.09
Transplanter 4 Row	60	5,890	2.18	327	14.08	30.73	5.04	4.94	5.94	3.21	1.46
Precision Seeder 4 Unit	160	8,270	1.42	284	36.59	51.89	16.35	20.06	11.59	4.94	5.98