2022-23 Farm Machinery
Custom and Rental Rate Guide

This guide has been established to provide approximate costs for renting equipment or obtaining custom farming operations from another farmer. It is not intended for establishing rates for individuals or companies that rent equipment or contract custom farming operations as a business.

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Introduction

This guide has been created to provide approximate costs for renting equipment or obtaining custom farming operations from another farmer. It is updated every two years.

The guide is applicable for two different situations. One is to suggest a fair price when one farmer either rents a piece of equipment from another farmer or hires the other to do a farming operation (e.g. seeding, spraying, harvesting, etc.).

This situation is different than obtaining the services of someone who rents equipment or does custom operations as a business. In those cases, prices will be set by the business and those in need of the services are encouraged to obtain quotes to compare options. The rates in this guide are to be used as a guideline for cost recovery of equipment from farmer to farmer. These are not calculations for costing a business. Commercial custom operations will have additional business costs, such as extra liability insurance, overhead, skilled labour, etc.
The other situation this guide should be used for is when farmers share equipment and need to establish the value that each farm is receiving.

New Information in the 2022-23 Guide

The assumptions and calculations for the 2022-2023 guide are generally the same as those used in the previous guide, with the following exceptions based on the current market and industry practices:

- Diesel fuel price updated to $1.268/L.
- Labour rate increased from $26.40/hr. to $27.00/hr.

Caution

Nearly every situation has unique circumstances and conditions. This guide does not address every situation. Individuals must make suitable adjustments to cover their unique situation. The assumptions in this guide can have an impact on the suggested rental and custom rates (e.g. annual hours of use, financing costs, etc.). It is the responsibility of both parties to agree to acceptable terms before entering into a contract.

The equipment prices used in this guide are manufacturer's suggested retail price (MSRP). All custom and rental rates are derived using the MSRP. However, purchasers may pay different prices for equipment depending on their negotiating skills and dealer incentives. Often, the final price paid is below the MSRP. Users are encouraged to use actual purchase prices when determining their rates.

Methodology

One critical step in establishing a rental rate is defining the cost of equipment ownership and the cost of operating and maintaining equipment. A brief description on the methodology used in calculating ownership and operating cost is presented below.

Cost of Ownership includes the cost of depreciation of the equipment due to use and years in service. Cost of ownership also includes an investment cost (i.e. the cost to borrow money to purchase the equipment and/or the lost interest revenue if that money had been invested), as well as housing and insurance costs. The cost of ownership also includes a 15 per cent margin to cover unexpected incidentals or fluctuations in equipment costs. To generate a suggested rental rate on a $/hr basis, the cost of ownership was tallied for the life of the equipment, then the total hours of use over the life of the equipment was estimated to generate a rental rate on a $/hr basis.

Operating Costs include repair and maintenance (broken and worn parts, oil, filters, and labour for repair and service) and fuel use. In addition, labour costs and a 15 per cent margin to cover unexpected incidentals that affect operating costs is also included.

Assumptions

In all cases, it is reasonable to assume that rented machinery is in good repair and can perform the intended task in the same manner and at the same productive rate as similar machines of equal specification, ratings or category, regardless of age.

Cost of Ownership

Equipment Depreciation: The cost of equipment depreciation accounts for purchase price, salvage value and years of service (also called optimal life). In this guide, the purchase price is based on the average of the base list price and the list price for that machine with all available options. For each piece of equipment and size category listed, efforts were made to gather information from a minimum of two manufacturers. Please note that equipment prices used are manufacturer's suggested retail prices (MSRP).

The optimal life of an equipment is the number of years of service before the equipment value declines to one third of its original value. Therefore, the salvage value is assumed to always be 33 per cent of the original purchase price, but the years of service varies for each piece of equipment. Appendix D lists the optimal life and estimated annual hours of use for all equipment used in this guide. The depreciated value (purchase price minus salvage value) is split equally among the years of service of the equipment. This is because after the first year of use, most machinery depreciates at a consistent rate over the next 10 to 15 years with typical use.

This method of depreciation is different than what is often used for tax purposes (capital cost allowance). While the capital cost allowance method may be preferable for estimating depreciation for capital recovery purposes, the method used in this guide allows for the calculation of consistent custom and rental rates regardless of the age and value of the equipment. The assumption is the depreciated value will be split evenly over the years the equipment can be rented.

Financing Cost: It has been assumed that 25 per cent of the initial price is covered by the value of a trade-in and/or a cash payment, with the remaining 75 per cent is financed. This is a change from previous guides but reflects feedback from agricultural lenders. It is also assumed the loan will be paid back through equal biannual installments over seven years. The cost to borrow 75 per cent of the purchase price was based on an average interest rate for equipment loans with a seven-year amortization. This annual borrowing rate is set at five per cent. The financing cost also includes an opportunity cost on the interest This could be earned if the down payment was invested in the markets rather than equipment. The opportunity rate is set at 1.5 per cent annually and is compounded monthly. Many producers are able to secure lower interest rates or have different payback schedules. These parameters can be accommodated in the online calculator that allows producers to enter user-specific information to generate more accurate rental and custom rates. Visit saskatchewan.ca and search Custom Rate and Rental Guide to access the calculator.

Insurance and Housing: It is reasonable to expect that equipment owners will carry suitable insurance against accidental damage and for liability. Suitable housing (equipment storage) also helps maintain equipment value and performance. These annual costs have been set at one per cent of the original purchase price of the machine.

Operating Costs

Repair and Maintenance (R&M): Each machine's annual usage is typically measured in hours. Routine maintenance, such as oil, lubricants and filters, as well as component wear or damage, is associated with hours of use regardless of when they occur over the machine's life. Averaging the lifetime maintenance costs on a per hour basis provides a fair distribution of the repair costs. The average yearly basic maintenance and repairs have been added to what would be considered one major repair during the equipment's optimal life. These repair costs are represented as a rate (percentage) of purchase price. This repair rate is then divided by the hours accumulated over its optimal life to represent these costs on a $/hr. basis.

Note that average repair and maintenance costs do not include extraordinary events brought about by extreme conditions, abuse, or accident leading to large equipment damage.

Fuel Costs: Fuel cost is dependent upon fuel market price and can fluctuate dramatically. In this guide, the diesel fuel price is set to $1.268/L based on current market prices and the removal of the five per cent Goods and Services Tax (GST) as this is an allowable business deduction. This fuel cost accounts for the removal of a portion of the provincial fuel tax, which farmers and custom operators are both eligible for as a fuel permit exemption holder. Fuel costs do not include a carbon tax because most activities would be in the guide would be considered exempt.

Fuel prices are determined using past and futures markets and can become quickly outdated.
You are encouraged to use the on-line calculator to input your own estimated price to determine rates.

Any power unit's fuel use is highly dependent upon the load (percentage of available power being used) and duty cycle (percentage of time at particular loads). To determine the cost based on average fuel efficiency, a 75 per cent load is assumed.

For alternative loads, fuel usage can be determined by using the charts in Appendix E.

The type of power unit and the operating conditions (yield, moisture, soil type, terrain, etc.) will also affect fuel use. For similar tasks, there can be a wide variation in fuel cost. For this reason, it is fair if the renter supplies or purchases fuel separately from the rental rate. A fuel cost estimate has been included based upon typical use and should be used only as a ball-park indication of what fuel cost might be.

Labour Rate: The labour rate has been set at $27.00 per hour based on the labour market in the agricultural sector in western Canada. This rate will vary depending upon availability and the individual's experience and skills. If more accurate labour costs are needed to reflect the skill levels required for different operations, producers can use the online calculator to input their own values.

Margin: When performing custom farming operations, conditions can be unpredictable. To account for unexpected cost increases brought about by difficult situations, a margin (or cushion) is included in the estimated custom rate. This margin has been set at 15 per cent to coincide with typical industry practices. For machinery rental, the margin is applied to both the ownership and repair and maintenance costs. For custom rates, the margin is also applied to labour and fuel costs. Note this margin does not cover overhead costs or other costs associated with business endeavors, nor does it cover the costs of a catastrophic breakdown.

Work Rate: Instantaneous work rates are calculated based upon the implement's working width and its travel speed. However, in all field operations, there is a difference between the instantaneous work rate and the average work rate accomplished over several hours. This is referred to as field efficiency. Field efficiency can vary greatly depending upon working conditions (field size and topography, soil or crop conditions, suitability of the equipment for the task and availability of support equipment). For this guide, a field efficiency of 80 per cent has been applied to all tasks.

Using the Guide

Per Acre Rate: Equipment rental or custom rates are determined by adding all yearly costs together and then divided the result by the estimated annual hours of use. The hourly rate ($/hr.) is then divided by the work rate (acre/hr.) to calculate a cost per acre rate. The $/acre rate is often used because it fixes the renter's cost and allows the owner/operator to adjust the operation to the conditions.

Hours of Use Impact: When machinery is shared between cooperating farmers, a cost often needs to be assigned for the usage of each machine to define the value of its contribution. The annual hours of use will greatly influence the $/hr. rate. When yearly costs are divided by low hours of use, the $/hr. increases significantly. High hours of usage will reduce the $/hr. This method tends to exaggerate the difference because it does not consider the effect on retained value, which is often determined by the machine's total hours. To achieve a fair evaluation, the effect of varying annual hours of use on the salvage value must be considered.

Additional Information

A downloadable copy of this guide can be found on saskatchewan.ca/agriculture. Copies can also be requested from the Agriculture Knowledge Centre at 1-866-457-2377, or from your nearest Saskatchewan Agriculture Regional Office.

Online Calculator: An online calculator is also available on ***saskatchewan.ca/agriculture***. The online calculator allows producers to enter user-specific information that may have a large impact on the rental or custom rate (e.g. interest rate, purchase price, annual hours of use, labour rate, etc.). The calculator can be used for any piece of equipment (not just those listed in the guide or in the drop-down menus), as long as the user has values for purchase price, salvage value, annual hours of use, etc.

Factors to Consider When Custom Hiring

Custom hiring is a business arrangement. The terms of the arrangement should be written in a formal agreement. If unwritten, the terms are more likely to be misunderstood, which may lead to a dispute. The following factors should be considered in a custom hiring agreement.

Timeliness: Significant loss can occur if an operation is not started or completed on time. To facilitate planning, a custom hiring agreement should include a schedule of operations for both parties. For example, when the custom combiner is picking up swathed grain, the schedule would outline time periods for swathing by the owner and time period for combining by the custom operator. Such a schedule would be subject to weather conditions and crop maturity.

Operations: The parties should write into the agreement the exact operations to be performed by each party and the machine, materials and labour to be supplied by each.

Rate Schedule: The custom operator should stipulate the rate for each operation to be performed on the basis of acreage, time (hour, day, and week), or total operation performed.

Management: A custom hiring agreement should ensure that the custom operator will employ acceptable management practices in his/her operations.

Terms Of Payment: A custom hiring agreement should stipulate terms of payment. As well, the custom operator should bill the client upon the completion of each custom operation. The bill should indicate actual units completed (e.g. hours, acres, etc.), the rate charged per unit, the total charge and payment due date.

Termination: A minimum period for notice of termination should be included in a custom hiring agreement. A penalty should be stipulated for unjustified termination within the term of the agreement.

Insurance: A custom operator may be considered differently than a farmer when insuring. It is advised this point be clarified with an insurance company if a farmer considers doing custom work or renting equipment.

Summary

Equipment	Description	Rental Rate ($ per hour)			Custom Rate ($ per hour)			Custom Rate* ($ per acre or bale)		
Tractors	Two wheel drive	$33.53	to	$44.16	$99.58	to	$116.03			
	Front wheel assist	$55.40	to	$108.37	$124.36	to	$209.41			
	Four wheel drive	$116.00	to	$154.86	$238.91	to	$314.23			
	Tracked	$134.74	to	$222.04	$235.78	to	$420.78			
Combine	Rotary	$238.20	to	$424.47	$331.95	to	$586.75	$27.94	to	$43.32
Combine Header		$12.78	to	$250.90						
Swather		$128.22	to	$169.05	$191.35	to	$252.59	$12.63	to	$17.40
Grain Cart		$30.02	to	$72.59	$185.17	to	$349.66			
Grain Auger	Powered	$16.21	to	$28.56						
Grain Auger	PTO	$5.43	to	$66.87	$129.79	to	$222.02			
Grain Vac		$73.52	to	$101.07	$173.10	to	$217.11			
Grain Dryer		$59.93	to	$267.27						
SP Forage Harvester		$311.60	to	$444.55	$457.84	to	$652.04	$28.41	to	$79.69
SP Forage Header		$25.05	to	$95.18						
Mower Conditioner	Self Propelled	$167.15	to	$441.02	$244.86	to	$565.39	$22.87	to	$27.21
Mower Conditioner	Pull Type	$25.86	to	$51.86	$125.44	to	$151.44	$12.62	to	$31.73
Hay Rakes		$30.02	to	$77.47	$129.60	to	$177.04	$9.32	to	$13.50
Baler	Small Square	$19.07	to	$25.00	$118.65	to	$124.58	$0.68	to	$0.71
	Large Square	$120.12	to	$168.77	$244.48	to	$323.92	$6.11	to	$8.10
	Round	$35.56	to	$58.43	$135.14	to	$158.01	$7.95	to	$13.17
Bale Mover	Pull Type	$29.28	to	$48.77	$153.64	to	$229.16			
Bale Mover	Self Propelled		$318.99			$390.87				
Air Drills		$242.86	to	$400.32	$481.77	to	$677.39	$19.35		$30.11
Air Hoe Drills		$258.50	to	$380.65	$497.42	to	$657.71	$23.49		$27.63
Air Disc Drills		$319.27	to	$506.39	$558.18	to	$745.30	$26.62		$31.01
Air Seeders		$212.61	to	$401.44	$451.52	to	$678.50	$22.62		$30.10
Row Crop Planters		$285.92	to	$507.46	$410.28	to	$716.87	$23.44		$37.73
Cultivators	Field	$43.38	to	$84.06	$198.53	to	$239.21	$7.25		$11.68
Cultivators	Heavy duty	$41.99	to	$71.67	$251.40	to	$310.59	$9.41		$13.97
Harrows	Mid, Heavy	$65.59	to	$80.67	$275.00	to	$319.58	$5.39		$7.10
Harrows	Packers		$14.87			$170.02			$5.31	
Vertical Tillage Tools	Compact, high speed	$93.38	to	$150.29	$302.79	to	$427.36	$10.96		$15.94
Vertical Tillage Tools	Heavy duty	$121.63	to	$178.24	$331.04	to	$455.31	$14.23		$19.47
Land Roller		$34.10	to	$113.16	$158.46	to	$322.57	$6.55		$17.61
Land Scraper		$106.28	to	$235.70	$261.42	to	$549.93			
Sprayers	High Clearance	$359.45	to	$551.49	$450.29	to	$684.61	$4.41	to	$6.71
Post Pounder		$15.34	to	$43.54	$114.92	to	$143.12			
Vertical Feed Mixers		$23.17	to	$53.89	$147.53	to	$178.25			
Grinder Mixer		$42.63	to	$52.03	$166.99	to	$207.18			
Feed Mixer			$26.87			$151.23				
Bale Processor		$22.62	to	$34.61	$146.98	to	$189.76			
Manure Spreaders	Chain Unload	$37.04	to	$59.30	$161.40	to	$183.66			
	Side Discharge	$80.29	to	$142.77	$204.65	to	$297.91			
	Hydraulic Push	$89.83	to	$119.40	$214.19	to	$243.76			
Hauling grain from field to yard	$0.33 per bushel for first 3 miles (please refer appendix A for details)									

Rental rates includes value of equipment only. Custom rates include value of equipment, power unit (if required), fuel and labor.
*Exercise caution when using custom rate per acre as the combination of machinery and equipment used in this guide may not reflect actual situations. They should be used as a guideline only.

Power Units

Two Wheel Drive Tractors

Machine Size	MSRP	Litre/Hour	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership & R&M ($/hr.)	Rental Rate ($/hr.)	Fuel Cost ($/hr.)	Labour Cost ($/hr.)	Margin on labour & fuel ($/hr.)	Custom Rate ($/hr.)
100-119 hp.	$118,000	24	20.50	8.65	4.37	33.53	30.43	27.00	8.61	99.58
120+ hp.	$155,400	28	27.00	11.40	5.76	44.16	35.50	27.00	9.38	116.03

Annual hours of use: 300
Fuel type is diesel, with a 75% load assumption. To calculate fuel consumption with alternative load refer to Appendix E.
Power rating represents PTO power. If tractor rating is given in net engine power, multiply by 0.88 to get PTO power.

Front Wheel Assist Tractors

Machine Size	MSRP	Litre/Hour	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Fuel Cost ($/hr.)	Labour Cost ($/hr.)	Margin on Labour and Fuel ($/hr.)	Custom Rate ($/hr.)
Small (average) 100-159 hp.	$235,200	26	34.58	13.59	7.23	55.40	32.97	27.00	9.00	124.36
Medium (average) 160-224 hp.	$304,000	36	44.70	17.56	9.34	71.60	45.65	27.00	10.90	155.15
Large (average) 225+ hp.	$460,100	48	67.65	26.58	14.13	108.37	60.86	27.00	13.18	209.41

Annual hours of use: 450
Fuel type is diesel, with a 75% load assumption. To calculate fuel consumption with alternative load refer to Appendix E.
Power rating represents PTO power. If tractor rating is given in net engine power, multiply by 0.88 to get PTO power.

Four Wheel Drive Tractors

Machine Size	MSRP	Litre/Hour	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Fuel Cost ($/hr.)	Labour Cost ($/hr.)	Margin on Labour and Fuel ($/hr.)	Custom Rate ($/hr.)
Small (average) 350-449 hp.	$497,900	63	73.21	27.66	15.13	116.00	79.88	27.00	16.03	238.91
Medium (average) 450-549 hp.	$580,300	76	85.32	32.24	17.63	135.20	96.37	27.00	18.51	277.07
Large (average) 550+ hp.	$664,700	88	97.73	36.93	20.20	154.86	111.58	27.00	20.79	314.23

Annual hours of use: 450
Fuel type is diesel, with a 75% load assumption. To calculate fuel consumption with alternative load refer to Appendix E.
Power rating represents engine power.

Tracked Tractors

Machine Size	MSRP	Litre/Hour	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Fuel Cost ($/hr.)	Labour Cost ($/hr.)	Margin on Labour and Fuel ($/hr.)	Custom Rate ($/hr.)
300-359 hp.	$537,100	48	78.97	38.19	17.57	134.74	60.86	27.00	13.18	235.78
360-449 hp.	$621,600	77	91.39	44.20	20.34	155.94	97.64	27.00	18.70	299.27
450-549 hp.	$731,200	110	107.51	52.00	23.93	183.43	139.48	27.00	24.97	374.88
550-599 hp.	$797,700	112	117.29	56.73	26.10	200.11	142.02	27.00	25.35	394.48
600+ hp.	$885,100	115	130.14	62.94	28.96	222.04	145.82	27.00	25.92	420.78

Annual hours of use: 450
Fuel type is diesel, with a 75% load assumption. To calculate fuel consumption with alternative load refer to Appendix E.
Power rating represents engine power.

Harvesting Grain

SP Combines

Machine Size	MSRP	Litre/Hour	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Fuel Cost ($/hr.)	Labour Cost ($/hr.)	Margin on Labour and Fuel ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)
Class 5 Rotary ≤ 300 hp.	$492,200	43	157.91	49.22	31.07	238.20	54.52	27.00	12.23	331.95	8
Class 6 Rotary 301 - 360 hp.	$655,000	51	210.14	65.50	41.35	316.98	64.67	27.00	13.75	422.40	10
Class 7 Rotary 361 - 420 hp.	$711,600	55	228.30	71.16	44.92	344.37	69.74	27.00	14.51	455.62	12
Class 8 Rotary 421 - 500 hp.	$756,600	71	242.73	75.66	47.76	366.15	90.03	27.00	17.55	500.73	15
Class 9 Rotary 501 - 560 hp.	$810,600	82	260.06	81.06	51.17	392.28	103.98	27.00	19.65	542.91	17
Class 10 Rotary 561+ hp.	$877,100	90	281.39	87.71	55.37	424.47	114.12	27.00	21.17	586.75	21

Rotary annual hours of use (based on seperator annual hours of usage): 250
Fuel type is diesel, with a 75% load assumption. To calculate fuel consumption with alternative load refer to Appendix E.

Combine Headers

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)
Pickup Headers					
12 ft.	$41,400	8.63	2.48	1.67	12.78
15 ft.	$45,100	9.40	2.71	1.82	13.93
Rigid Headers					
20-25 ft.	$54,800	11.43	4.38	2.37	18.18
30-35 ft.	$71,000	14.80	5.68	3.07	23.56
Flex Headers					
20 ft.	$49,900	13.21	4.99	2.73	20.93
25 ft.	$55,800	14.77	5.58	3.05	23.40
30 ft.	$65,200	17.26	6.52	3.57	27.34
35 ft.	$74,700	19.77	7.47	4.09	31.33
Draper Headers					
25 ft.	$99,100	26.23	9.91	5.42	41.56
30 ft.	$120,800	31.97	12.08	6.61	50.66
35 ft.	$126,600	33.51	12.66	6.92	53.09
40-45 ft.	$134,200	35.52	13.42	7.34	56.28
Corn Header					
6 row, 30" spacing	$81,100	53.66	22.71	11.46	87.82
8 row, 30" spacing	$105,200	69.60	29.46	14.86	113.92
12 row, 30" spacing	$163,100	107.91	45.67	23.04	176.62
16-18 row, 20-30" spacing	$231,700	153.30	64.88	32.73	250.90

Pick-up header annual hours of use: 250
Rigid header annual hours of use: 250
Flex header annual hours of use: 250
Draper header annual hours of use: 250
Corn header annual hours of use: 100

Rigid, flex, and draper headers include pickup reels.

Calculation to determine the custom rate ($/acre) for a combine using a specific combine header:

$$\text{Custom Rate ($/acre)} = \frac{\text{Combine Custom Rate ($/hr)} + \text{Header Rental Rate ($/hr)}}{\text{Work Rate (acre/hr)}}$$

Example: For a Class 8 Rotary combine with a 30 ft. flex header:

$$\text{Custom Rate ($/acre)} = \frac{\$500.73 + \$27.34}{15} = \$35.20/\text{acre}$$

Swathers

Machine Size	MSRP	Litre/Hour	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Fuel Cost ($/hr.)	Labour Cost ($/hr.)	Margin on Labour and Fuel ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
SP Swathers - Draper Header												
18-22 ft.	$258,800	22	85.62	25.88	16.72	128.22	27.90	27.00	8.23	191.35	11	17.40
25 ft.	$282,400	22	93.42	28.24	18.25	139.91	27.90	27.00	8.23	203.04	13	15.62
30 ft.	$317,600	32	105.07	31.76	20.52	157.35	40.58	27.00	10.14	235.07	16	14.69
35-40 ft.	$341,200	36	112.88	34.12	22.05	169.05	45.65	27.00	10.90	252.59	20	12.63

Annual hours of use: 200
Fuel type is diesel, with a 75% load assumption. To calculate fuel consumption with alternative load refer to Appendix E.
Fuel efficiency is based on 126 hp (18-22' swather), 126 hp (25' swather), 190 hp (30' swather), and 226 hp (35' and higher swather).

Harvesting Grain cont'd

Grain Cart

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)
Small 500-1000 bu.	$90,500	18.87	7.24	3.92	30.02	210 hp.. 155.15	185.17
Medium 1050-1600 bu.	$144,900	30.21	11.59	6.27	48.07	300 hp. 209.41	257.48
Large 2000 bu.	$218,800	45.62	17.50	9.47	72.59	460 hp. 277.07	349.66

Annual hours of use: 250
Power unit cost includes fuel, labour and margin. The power units for small and medium grain carts are FWA tractors. The power unit for the large grain cart is a 4WD tractor.
To obtain a total cost for grain cart, power unit, and fuel (but not labour), subtract $31.05 from the Custom Rate ($27/hr labour plus 15% margin).

Powered Auger

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)
8" 30-39 ft., 20 hp. engine	$21,000	10.95	3.15	2.11	16.21
8" 40-49 ft., 20 hp. engine	$21,000	10.95	3.15	2.11	16.21
8" 50-59 ft., 25 hp. engine	$21,000	10.95	3.15	2.11	16.21
10" 40-49 ft., 35 hp. engine	$25,500	13.29	3.83	2.57	19.68
10" 50-59 ft., 38 hp. engine	$28,100	14.65	4.22	2.83	21.69
12-13" 39-40 ft., 38-50 hp. engine	$37,000	19.29	5.55	3.73	28.56

Annual hours of use: 100
Value of engine is included in rental rate. Rate does not include fuel or maintenance costs for engine.

Grain Auger (PTO)

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)
8" 30-69 ft. 2,700-3,200 bu./hr.	$7,600	3.96	0.76	0.71	5.43	50 hp. 124.36	129.79
10" 40-89 ft. 5,400 bu./hr.	$17,700	9.23	1.77	1.65	12.65	75 hp. 124.36	137.01
12" 70+ ft. 8,400 bu./hr.	$42,900	22.36	4.29	4.00	30.65	75 hp. 124.36	155.01
13" 70-100 ft. 9,700 bu./hr.	$49,300	25.70	4.93	4.59	35.22	100 hp. 124.36	159.58
16" 80+ ft. 21,000 bu./hr.	$93,600	48.79	9.36	8.72	66.87	200 hp. 155.15	222.02

Annual hours of use: 100
The power units for all PTO augers are front wheel assist tractors. Note that the smallest front wheel assist tractor available in this guide is 100 hp., so the power unit cost for equipment that requires a smaller power unit may be over-estimated. Power unit cost includes fuel, labour and margin. To obtain a total cost for auger, power unit, and fuel (but not labour), subtract $31.05 from the Custom Rate ($27/hr labour plus 15% margin).

Grain Vac

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)
2400-5000 bu./hr.	$37,100	49.09	14.84	9.59	73.52	70 hp. 99.58	173.10
6000-10,000 bu./hr.	$51,000	67.49	20.40	13.18	101.07	120 hp. 116.03	217.11

Annual hours of use: 50
The power units for all grain vacs are two wheel drive tractors. Note that the smallest front wheel assist tractor available in this guide is 100 hp, so the power unit cost for equipment that requires a smaller power unit may be over-estimated. Power unit cost includes fuel, labour and margin. To obtain a total cost for auger, power unit, and fuel (but not labour), subtract $31.05 from the Custom Rate ($27/hr labour plus 15% margin).

Harvesting Grain cont'd

Harvesting Grain
Grain Dryers

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership & R&M ($/hr.)	Rental Rate ($/hr.)
275-370 bu./hr.	$100,000	44.11	8.00	7.82	59.93
420-610 bu./hr.	$119,000	52.49	9.52	9.30	71.31
710-910 bu./hr.	$144,000	63.52	11.52	11.26	86.29
1060-1180 bu./hr.	$234,000	103.22	18.72	18.29	140.23
1440-2380 bu./hr.	$288,000	127.03	23.04	22.51	172.59
3000-4000 bu./hr.	$446,000	196.73	35.68	34.86	267.27

Annual hours of use: 150

*Rental rate refers to equipment only. Power and fuel (propane or natural gas) consumption is highly dependent on ambient temperature, grain type and required moisture reduction. Energy requirements require a separate calculation by specialized calculators that are not included in this guide.

Harvesting Hay

SP Forage Harvester

Machine Size	MSRP	Litre/Hour	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Fuel Cost ($/hr.)	Labour Cost ($/hr.)	Margin on Labour and Fuel ($/hr.)	Custom Rate ($/hr.)
Small 400-599 hp.	$622,000	79	146.55	124.40	40.64	311.60	100.17	27.00	19.08	457.84
Medium 600-799 hp.	$792,300	103	186.68	158.46	51.77	396.91	130.60	27.00	23.64	578.15
Large 800-899 hp.	$887,400	121	209.08	177.48	57.98	444.55	153.43	27.00	27.06	652.04

Annual hours of use: 400
Fuel type is diesel, with a 75% load assumption. To calculate fuel consumption with alternative load refer to Appendix E.

Headers for SP Forage Harvester

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Work Rate (acre/hr.)	Rental Rate ($/acre)
Windrow Pickup, 12-17 ft. width	$50,000	11.78	10.00	3.27	25.05	17	1.47
Corn, 14-20 ft. width	$130,000	30.63	26.00	8.49	65.12	9	7.24
Corn, 21-30 ft. width	$190,000	44.77	38.00	12.42	95.18	13	7.32

Annual hours of use: 400

Calculation to determine the custom rate ($/acre) for a SP or PT forage harvester using a specific header:

$$\text{Custom Rate (\$/acre)} = \frac{\text{Forage Harvester Custom Rate (\$/hr)} + \text{Header Rental Rate (\$/hr)}}{\text{Work Rate (acre/hr.)}}$$

Example: For a 500 hp SP Forage Harvester with a 15 FT windrow pickup header:

$$\text{Custom Rate (\$/acre)} = \frac{\$457.84 + \$25.05}{17}$$

SP Mower/Conditioners

Machine Size	MSRP	Litre/Hour	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Fuel Cost ($/hr.)	Labour Cost ($/hr.)	Margin on Labour and Fuel ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
Disc Mower Conditioner 13-19 ft.	$253,600	36	111.86	54.10	24.89	190.86	45.65	27.00	10.90	274.40	12	22.87
Disc Mower Conditioner 30 ft.	$586,000	64	258.48	125.01	57.52	441.02	81.15	27.00	16.22	565.39	23	24.58
Sickle Mower Conditioner 14-18 ft.	$222,100	32	97.97	47.38	21.80	167.15	40.58	27.00	10.14	244.86	9	27.21

Annual hours of use: 150
Fuel type is diesel, with a 75% load assumption. To calculate fuel consumption with alternative load refer to Appendix E.
Fuel efficiency is based on 226 hp (16' disc), 400 hp (30' disc), and 190 hp (18' sickle).

Harvesting Hay cont'd

PT Mower/Conditioners

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
Sickle									
7-9 ft. side pull	$41,400	18.26	5.52	3.57	27.35	50 hp. 99.58	126.92	4	31.73
14 ft.	$64,800	28.58	8.64	5.58	42.81	80 hp. 99.58	142.38	8	17.80
16-18 ft.	$74,300	32.77	9.91	6.40	49.08	100 hp. 99.58	148.66	9	16.52
Disc									
9-10 ft.	$37,000	16.32	6.17	3.37	25.86	60 hp. 99.58	125.44	7	17.92
11-13 ft.	$74,200	32.73	12.37	6.76	51.86	90 hp. 99.58	151.44	9	16.83
14-16 ft.	$74,200	32.73	12.37	6.76	51.86	100 hp. 99.58	151.44	12	12.62

Sickle annual hours of use: 150
Disc annual hours of use: 150
The power units for all PT mower/conditioners are two wheel drive tractors. Note that the smallest two wheel drive tractor available in this guide is 100 hp., so the power unit cost for equipment that requires a smaller power unit may be over-estimated. Power unit cost includes fuel, labour and margin for tractor .

Hay Rakes (Wheel)

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
16-20 ft. wheel	$18,100	18.87	7.24	3.92	30.02	50 hp. 99.58	129.60	9.6	13.50
21-30 ft. wheel	$29,200	30.44	11.68	6.32	48.44	50 hp. 99.58	148.01	13.5	10.96
31-40 ft. wheel	$46,700	48.68	18.68	10.10	77.47	50 hp. 99.58	177.04	19.0	9.32

Annual hours of use: 50
The power units for all PT mower/conditioners are two wheel drive tractors. Note that the smallest two wheel drive tractor available in this guide is 100 hp, so the power unit cost for equipment that requires a smaller power unit may be over-estimated. Power unit cost includes fuel, labour and margin for tractor.

Balers

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (bale/hr.)	Custom Rate ($/bale)
Large Round Balers									
4x4 ft. bales	$38,100	25.21	5.72	4.64	35.56	50 hp. 99.58	135.14	17	7.95
4x5 ft. bales	$41,700	27.59	6.26	5.08	38.92	60 hp. 99.58	138.50	15	9.23
4x6 ft. bales	$59,500	39.37	8.93	7.24	55.54	70 hp. 99.58	155.11	15	10.34
5x5 ft. bales	$45,100	29.84	6.77	5.49	42.10	70 hp. 99.58	141.67	12	11.81
5x6 ft. bales	$62,600	41.42	9.39	7.62	58.43	80 hp. 99.58	158.01	12	13.17
Large Square Balers									
Small (35x31x108")	$188,400	83.10	21.35	15.67	120.12	145 hp. 124.36	244.48	40	6.11
Medium (35x47x108")	$211,700	93.38	23.99	17.61	134.98	145 hp. 124.36	259.34	40	6.48
Large (50x47x108")	$264,700	116.76	30.00	22.01	168.77	180 hp. 155.15	323.92	40	8.10
Small Square Baler									
14x18x52" bales	$26,700	13.92	2.67	2.49	19.07	50 hp. 99.58	118.65	175	0.68
16x18x52" bales	$35,000	18.24	3.50	3.26	25.00	50 hp. 99.58	124.58	175	0.71

Large Round Balers annual hours of use: 100
Large Square Balers annual hours of use: 150
Small Square Balers annual hours of use: 100
Cost of twine is not included in above rates. For the cost of twine add $0.27/bale for 4' diameter, $0.40/bale for 5' diameter and $0.76/bale for 6' diameter. Add $0.78/bale for large square and $0.05/bale for small square. For the cost of mesh add $1.25/bale.
Power units for round and small square balers are two wheel drive tractors and power units for large square balers are front wheel assist tractors. Note that the smallest two wheel drive tractor available in this guide is 100 hp, so the power unit cost for equipment that requires a smaller power unit may be over-estimated. Power unit cost includes fuel, labour and margin for tractor.

Harvesting Hay cont'd

PT Bale Movers (Self Load/Unload)

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)
Round Bale 7-12 bale	$29,900	19.78	7.48	4.09	31.35	120 hp. 124.36	155.71
Round Bale 12-18 bale	$70,600	46.71	17.65	9.65	74.02	180 hp. 155.15	229.16
Large Square 4-6 bale	$70,600	18.40	7.06	3.82	29.28	120 hp. 124.36	153.64
Large Square 6-12 bale	$94,100	24.52	9.41	5.09	39.02	180 hp. 155.15	194.17
Large Square 12-20 bale	$117,600	30.65	11.76	6.36	48.77	220 hp. 155.15	203.92

Annual hours of use: 100
Power units for all PT bale movers are front wheel assist tractors. Power unit cost includes fuel, labour and margin for

SP Bale Mover

Machine Size	MSRP	Litre/Hour	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Fuel Cost ($/hr.)	Labour Cost ($/hr.)	Margin on Labour and Fuel ($/hr.)	Custom Rate ($/hr.)
Self propelled small square bale wagon	$456,400	28	201.31	76.07	41.61	318.99	35.50	27.00	9.38	390.87

Annual hours of use: 150
Fuel type is diesel, with a 75% load assumption. To calculate fuel consumption with alternative load refer to Appendix E.
Fuel efficiency is based on 173 hp. engine.

Seeding

Air Drills with Independent Openers

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
Small 25-45 ft.	$417,500	138.12	73.06	31.68	242.86	300 hp. 238.91	481.77	16	30.11
Medium 46-65 ft.	$558,800	184.86	97.79	42.40	325.05	400 hp. 238.91	563.96	26	21.69
Large 66-86 ft.	$688,200	227.67	120.44	52.22	400.32	525+ hp. 277.07	677.39	35	19.35

Annual hours of use: 200
Includes appropriately sized air tank (<550 bu for small, 550 bu. for medium and >550 bu for large drills). Approximately 10 bushels of air cart capacity to 1 ft. of air drill (i.e. 40 ft. wide air drill would require about a 400 bushel capacity air cart).

The power units for all air drills with independent openers are four-wheel drive tractors. Note that the smallest four-wheel drive tractor available in this guide is 350 hp., so the power unit cost for equipment that requires a smaller power unit may be over-estimated. Power unit cost includes fuel, labour and margin for tractor. Power unit size (horsepower and hydraulic pressure requirements) will vary for each condition (e.g. soil type, implement type, etc.), so ensure that the power unit size and cost is appropriate.

Air Hoe Drills

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
Small 27-50 ft.	$467,500	154.66	70.13	33.72	258.50	350 hp. 238.91	497.42	18	27.63
Large 51-72 ft.	$688,400	227.74	103.26	49.65	380.65	450+ hp. 277.07	657.71	28	23.49

Annual hours of use: 200
Includes appropriately sized air tank (<550 bu. for small and >550 bu for large drills). The power units for all air hoe drills are four wheel drive tractors. Power unit cost includes fuel, labour and margin for tractor. Power unit size (horsepower and hydraulic pressure requirements) will vary for each condition (soil type, implement type, etc.), so ensure that the power unit size and cost is appropriate.

Air Disc Drills

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
Small 30 - 49 ft.	$577,400	191.02	86.61	41.64	319.27	200 hp. 238.91	558.18	18	31.01
Large 50-70 ft.	$915,800	302.96	137.37	66.05	506.39	300+ hp. 238.91	745.30	28	26.62

Annual hours of use: 200
Includes appropriately sized air tank (<550 bu for small and 550 bu. for large drills).
The power units for all air disc drills are four wheel drive tractors. Note that the smallest four wheel drive tractor available in this guide is 350 hp, so the power unit cost for equipment that requires a smaller power unit may be over-estimated. Power unit cost includes fuel, labour and margin for tractor. Power unit size (horsepower and hydraulic pressure requirements) will vary for each condition (soil type, implement type, etc.), so ensure that the power unit size and cost is appropriate.

Air Seeders

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
Small 25-40 ft.	$384,500	127.20	57.68	27.73	212.61	275 hp. 238.91	451.52	15	30.10
Medium 41-59ft.	$610,500	201.97	91.58	44.03	337.57	400 hp. 238.91	576.49	23	25.06
Large 60-70 ft.	$726,000	240.18	108.90	52.36	401.44	450+ hp. 277.07	678.50	30	22.62

Annual hours of use: 200
Includes appropriately sized air tank (<550 bu for small, 550 bu. for medium and >550 bu. for large seeders). The power units for all air seeders are four wheel drive tractors. Note the smallest four wheel drive tractor available in this guide is 350 hp., so the power unit cost for equipment that requires a smaller power unit may be over-estimated. Power unit cost includes fuel, labour and margin for tractor.

Seeding cont'd

Other Row Crop Planters

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
12 row planter	$185,200	174.54	74.08	37.29	285.92	150 hp. 124.36	410.28	15	27.35
16 row planter	$231,400	218.09	92.56	46.60	357.24	180 hp. 155.15	512.39	19	26.97
24 row planter	$304,700	287.17	121.88	61.36	470.40	230 hp. 209.41	679.82	29	23.44
12/24 split row planter	$266,000	250.69	106.40	53.56	410.66	210 hp. 155.15	565.80	15	37.72
16/32 split row planter	$328,700	309.79	131.48	66.19	507.46	250 hp. 209.41	716.87	19	37.73

Annual hours of use: 100
The power units for all row crop planters are front wheel assist tractors. Power unit cost includes fuel, labour and margin for tractor.

Soil Preparation

Cultivators

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
Cultivators, field (with tine harrows)									
Small 24-35 ft.	$112,400	29.29	8.43	5.66	43.38	160 hp. 155.15	198.53	17	11.68
Medium 36-49 ft.	$175,900	45.84	13.19	8.86	67.89	185 hp. 155.15	223.04	25	8.92
Large 50-62 ft.	$217,800	56.76	16.34	10.96	84.06	220 hp. 155.15	239.21	33	7.25
Cultivators, heavy duty (with tine harrows)									
Small 23-40 ft.	$108,800	28.35	8.16	5.48	41.99	230 hp. 209.41	251.40	18	13.97
Medium 41-50 ft.	$157,900	41.15	11.84	7.95	60.94	315 hp. 238.91	299.86	26	11.53
Large 51-62 ft.	$185,700	48.40	13.93	9.35	71.67	385 hp. 238.91	310.59	33	9.41

Annual hours of use: 200
Power units for cultivators are front wheel assist tractors except for medium and large heavy duty cultivators where a four wheel drive tractor is selected. Power unit cost includes fuel, labour and margin for tractor.

Harrows

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
Harrows, mid 50-90 ft.	$76,800	44.75	12.29	8.56	65.59	225 hp. 209.41	275.00	51	5.39
Harrows, heavy 40-84 ft.	$104,500	54.47	15.68	10.52	80.67	375 hp. 238.91	319.58	45	7.10
Harrow packers 25-62 ft.	$53,100	11.60	1.33	1.94	14.87	175 hp. 155.15	170.02	32	5.31

Mid harrows annual hours of use: 75
Heavy harrows annual hours of use: 100
Packer harrows annual hours of use: 200
The power units for mid and packer harrows are front wheel assist tractors. The power unit for heavy harrows is a four wheel drive tractor. Power unit cost includes fuel, labour and margin for tractor

Soil Preparation cont'd

Vertical Tillage Tools

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
Compact, high-speed disk									
Small						225+ hp.			
10-30 ft.	$93,200	48.58	32.62	12.18	93.38	209.41	302.79	19	15.94
Large						500 hp.			
31-50 ft.	$150,000	78.18	52.50	19.60	150.29	277.07	427.36	39	10.96
Heavy duty, compact high-speed disk									
Small						225+ hp.			
10-25 ft.	$121,400	63.28	42.49	15.87	121.63	209.41	331.04	17	19.47
Large						500 hp.			
26-40 ft.	$177,900	92.73	62.27	23.25	178.24	277.07	455.31	32	14.23

Compact annual hours of use: 100
Heavy duty annual hours of use: 100
Power units for small compact and small heavy duty disks are front wheel assist tractors. Power units for large compact and l arge heavy duty disks are four wheel drive tractors. Power unit cost includes fuel, labour and margin for tractor.

Land Roller

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
						50 hp.			
11-35 ft. fixed or 3 PT	$35,800	24.88	4.77	4.45	34.10	124.36	158.46	9	17.61
						200 hp.			
46-85 ft. (5 roller sections)	$98,500	68.45	13.13	12.24	93.83	155.15	248.97	38	6.55
						240 hp.			
65-89 ft. (7 roller sections)	$118,800	82.56	15.84	14.76	113.16	209.41	322.57	45	7.17

Annual hours of use: 75
Power units for all land rollers are front wheel assist tractors. Note that the smallest front wheel assist tractor available in this guide is 100 hp, so the power unit cost for equipment that requires a smaller power unit may be over-estimated. Power unit cost includes fuel, labour and margin for tractor.

Land Scraper

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)
						220 hp.	
10.0-15.0 CU. yard	$62,000	73.04	19.38	13.86	106.28	155.15	261.42
						550 hp.	
15.0+ CU. yard	$90,100	106.14	28.16	20.15	154.45	314.23	468.68
						400 hp.	
Pull Dozer 15.0-20.0 CU. Yard	$111,100	130.88	34.72	24.84	190.44	238.91	429.36
						550 hp.	
Pull Dozer 21.01+ CU. Yard	$137,500	161.99	42.97	30.74	235.70	314.23	549.93
						400 hp.	
Rotary Ditcher	$101,700	119.81	31.78	22.74	174.33	238.91	413.24

Annual hours of use: 80
The power units for all land scrapers front wheel assist tractors. Power unit cost includes fuel, labour and margin for tractor.

Sprayers

High Clearance Sprayer

Machine Size	MSRP	Litre/Hour	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Fuel Cost ($/hr.)	Labour Cost ($/hr.)	Margin on Labour and Fuel ($/hr.)	Custom Rate ($/hr.)	Work Rate (acre/hr.)	Custom Rate ($/acre)
800 U.S. gal, 90 ft. boom	$415,900	41	239.78	72.78	46.88	359.45	51.99	27.00	11.85	450.29	102	4.41
1000 U.S. gal, 100 ft. boom	$499,700	52	288.10	87.45	56.33	431.87	65.94	27.00	13.94	538.75	102	5.28
1200 U.S. gal, 120 ft. boom	$607,300	61	350.13	106.28	68.46	524.87	77.35	27.00	15.65	644.87	102	6.32
1600 U.S. gal, 130 ft. boom	$638,100	70	367.89	111.67	71.93	551.49	88.76	27.00	17.36	684.61	102	6.71

Annual hours of use: 200
Fuel type is diesel, with a 75% load assumption. To calculate fuel consumption with alternative load refer to Appendix E.
These rates are not intended to be compared to commercial custom spraying rates. Refer to the introduction of this guide for more information.

Miscellaneous

Post Pounders

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)
Post pounder 3PT hitch mount	$10,100	13.16	5.05	2.73	20.94	55 hp. 99.58	120.52
Post pounder trailer mounted with engine	$21,000	27.36	10.50	5.68	43.54	55 hp. 99.58	143.12
Post pounder skid steer mounted	$7,400	9.64	3.70	2.00	15.34	55 hp. 99.58	114.92

Annual hours of use: 40
The power units for all post pounders are two wheel drive tractors. Note that the smallest two wheel drive tractor available in t his guide is 100 hp, so the power unit cost for equipment that requires a smaller power unit may be over-estimated. Power unit cost includes fuel, labour and margin for tractor.

Vertical Feed Mixer

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)
280-360 CU. ft.	$44,200	14.62	5.53	3.02	23.17	110 hp. 124.36	147.53
500-750 CU. ft.	$73,300	24.25	9.16	5.01	38.42	135 hp. 124.36	162.78
830-1150 CU. ft.	$102,800	34.01	12.85	7.03	53.89	150 hp. 124.36	178.25

Annual hours of use: 200
The power units for all vertical feed mixers are front wheel assist tractors. Power unit cost includes fuel, labour and margin for tractor.

Grinder Mixers, Feed Mixers, and Bale Processors

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)
Grinder Mixers							
360-440 CU. ft.	$77,100	25.51	11.57	5.56	42.63	120 hp. 124.36	166.99
550-750 CU. ft.	$94,100	31.13	14.12	6.79	52.03	200 hp. 155.15	207.18
Feed Mixers							
Two 6 ft. Bale, 40 bu. grain	$48,600	16.08	7.29	3.51	26.87	100 hp. 124.36	151.23
Bale Processors							
Two 6 ft. Round Bale	$40,900	13.53	6.14	2.95	22.62	155 hp. 124.36	146.98
Six 6 ft. Round Bale	$62,600	20.71	9.39	4.51	34.61	175 hp. 155.15	189.76

Annual Hours of Use: 200
The power units for all grinder mixers, feed mixers, and bale processors are front wheel assist tractors. Power unit cost includes fuel, labour and margin for tractor.

Manure Spreader (Solid)

Machine Size	MSRP	Ownership Cost ($/hr.)	Repair & Maintenance Cost ($/hr.)	Margin on Ownership and R&M ($/hr.)	Rental Rate ($/hr.)	Power Unit Cost ($/hr.)	Custom Rate ($/hr.)
250-299 CU. ft. level chain unload	$23,300	21.96	10.25	4.83	37.04	120 hp. 124.36	161.40
300-399 CU. ft. level chain unload	$32,500	30.63	14.30	6.74	51.67	125 hp. 124.36	176.03
400-500 CU. ft. level chain unload	$37,300	35.15	16.41	7.73	59.30	150 hp. 124.36	183.66
300-399 CU. ft. level side discharge	$50,500	47.59	22.22	10.47	80.29	150 hp. 124.36	204.65
400-500 CU. ft. level side discharge	$70,100	66.07	30.84	14.54	111.45	180 hp. 155.15	266.59
500+ CU. ft. level side discharge	$89,800	84.63	39.51	18.62	142.77	200 hp. 155.15	297.91
250-300 CU. ft., hydraulic push, vertical beaters	$56,500	53.25	24.86	11.72	89.83	120 hp. 124.36	214.19
400-500 CU. ft., hydraulic push, vertical beaters	$75,100	70.78	33.04	15.57	119.40	150 hp. 124.36	243.76

Annual hours of use: 100
Power units for all manure spreaders are front wheel assist tractors. Power unit cost includes fuel, labour and margin for tractor.

Appendix A: Cost of Hauling Grain from Field to Yard

Truck cost: excluding labour	$157.79	/hour*
Auger cost: 8 inch x 60' with gas engine (excluding labour)	$16.21	/hour
Labour cost:	$27.00	/hour

Distance from Field to Yard (miles)	0.5	1	1.5	2	3	4	6	10
Time Use (minutes)								
(A) Time unload twice from one combine or once from each of two combines	10	10	10	10	10	10	10	10
(B) Travel time to yard and return	4	6.5	8.5	10	12	15	21	33
(C) Time truck running during unload	4	4	4	4	4	4	4	4
(D) Truck running time per trip	18	20.5	22.5	24	26	29	35	47
(E) Total unload time at bin	7	7	7	7	7	7	7	7
Wait Time in Field (truck not running)								
(F) Hauling from one combine	47	44.5	42.5	41	39	36	30	18
(G) Hauling from two combines	11	8.5	6.5	5	3	0	0	0
Total Time per Trip								
(H) Hauling from one combine	68	68	68	68	68	68	68	68
(I) Hauling from two combines	32	32	32	32	32	32	38	50
Component Costs Per Trip								
(J) Truck costs per trip	$47.34	$53.91	$59.17	$63.12	$68.38	$76.27	$92.04	$123.60
(K) Auger costs per trip	$1.89	$1.89	$1.89	$1.89	$1.89	$1.89	$1.89	$1.89
(L) Labour costs per trip (one combine)	$30.60	$30.60	$30.60	$30.60	$30.60	$30.60	$30.60	$30.60
(M) Labour costs per trip (two combines)	$14.40	$14.40	$14.40	$14.40	$14.40	$14.40	$17.10	$22.50
Custom Rate ($/hr.) (includes 15% margin)								
(N) Hauling from one combine	$81.00	$87.67	$93.01	$97.01	$102.35	$110.36	$126.37	$158.39
(O) Hauling from two combines	$137.20	$151.37	$162.72	$171.22	$182.56	$199.57	$201.62	$204.23
Custom Rate ($/bu.) (includes 15% margin)								
(P) Hauling from one combine (bu./hr. = 300)	$0.27	$0.29	$0.31	$0.32	$0.34	$0.37	$0.42	$0.53
(Q) Hauling from two combines (bu./hr. = 600)	$0.23	$0.25	$0.27	$0.29	$0.30	$0.33	$0.34	$0.34

Calculations used to determine costs:
D = A + B + C
H = A + B + E + F
I = A + B + E + G

J = D/(60 min/hr)*(truck cost)
K = E/(60 min/hr)*(auger cost)
L = H/(60 min/hr)*(labour cost)
M = I/(60 min/hr)*(labour cost)

# trips/hr one combine = (60 min/hr)/H
# trips/hr two combines = (60 min/hr)/I
N = (J + K + L)*(60 min/hr)/H*1.15
O = (J + K + M)*(60 min/hr)/I*1.15

P = N/(300 bu/hr)
Q = O/(600 bu/hr)

*Truck cost based on $180,000.00 purchase price, 150 hours of annual usage, 2.5% repair and maintenance rate, $1.268/L diesel, 27 L/hr. fuel usage, 15% fuel margin, and 15 year optimal life.

Appendix B: Rental Rates for Farm Buildings and Bins

To determine the fair rental rate for farm buildings, consider:

	Your Value	Example
Replacement cost of building		$20,000
Retained value of building (at end of years of service)		$8,000
Interest rate (opportunity cost not included)		5.00%
Repair rate (% of replacement cost)*		0.50%
Annual insurance premium		$60
Optimal life		30

Calculate:

A. Depreciation:
(Replacement cost - Retained Value) / Optimal Life = ($20,000 - $8,000) / 30 = $400

B. Interest Cost:
Annual interest cost = Total interest cost /Optimal Life
Asssumes 75% financing and 7 years loan payback period
98.76

C. Insurance:
Annual insurance premiums = $60

D. Repairs:
Annual repair rate x Replacement cost = $100

Total = A + B + C + D $659 per year / 3000 bu. = 0.22 per year bu.

Repair rates are difficult to estimate. Steel buildings (bins and quonsets) might be 0.5% of replacement cost per year. Aeration fans may be higher. Wood buildings might be 1 to 3% of the replacement cost.

For bins with aeration or natural air drying, include the purchase cost of the fan and air distribution system in the replacement cost value. Add $0.52/hr. for a 7 hp. fan, $0.37/hr. for a 5 hp. fan and $0.22/hr. for a 3 hp. fan for electricity costs.

Appendix C: Combine Classifications

Size	Acre/Hour	Manufacturer	Model
Class 5	≤ 300 hp. 250 bushel hopper	John Deere	S650
Class 6	301-360 hp. 300-390 bushel hopper	CNH	CR6.80
		CNH	CR6.90
		John Deere	S660
		John Deere	S760
		Case IH	6140/50
		Gleaner	S68/96
		Claas Lexion	730
		Massey Ferguson	9520
Class 7	361-420 hp. 300-390 bushel hopper	CNH	CR7.90
		John Deere	S670
		John Deere	S770
		Case IH	7140/50
		Case IH	7240/50
		Gleaner	S78/97
		Claas Lexion	740
		Massey Ferguson	9540
		Massey Ferguson	9545
Class 8	421-500 hp. 330-410 bushel hopper	CNH	CR8.90
		John Deere	S680
		John Deere	S780
		Case IH	8240/50
		Gleaner	S88/98
		Claas Lexion	L 750
		Massey Ferguson	9560
		Massey Ferguson	9565
Class 9	501-560 hp. 360-410 bushel hopper	CNH	CR9.90
		John Deere	S690
		John Deere	S790
		Case IH	9240/50
		Claas Lexion	760
Class 10	≥ 561 hp. 360-410 bushel hopper	CNH	CR10.90
		Claas Lexion	780

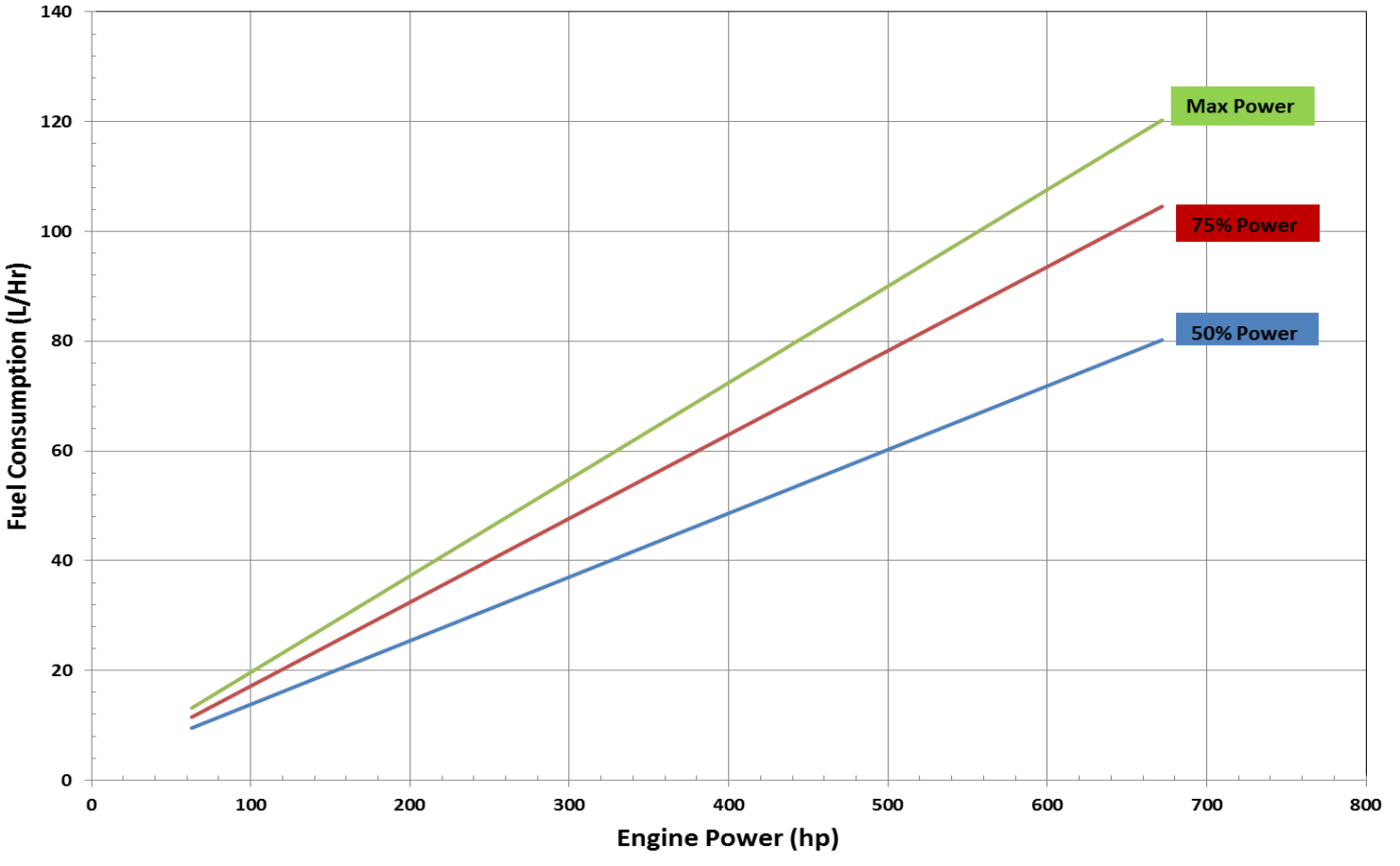
Appendix D: Assumptions for Machinery Cost Calculations

Appendix D: Assumptions for Machinery Cost Calculations

Machine	Annual Hours of Usage	Optimal Life (years)	Repair Rate (% of purchase price)	Average Field Speed (m.p.h.)
Tractors				
2WD	300	20	2.2	
Front wheel assist	450	15	2.6	
4WD	450	15	2.5	
Tracked	450	15	3.2	
Combines				
SP Rotary	250	12	2.5	
Combine headers				
Rigid headers	250	20	2.0	
Pickup headers	250	20	1.5	
Flex headers	250	15	2.5	
Draper headers	250	15	2.5	
Corn headers	100	15	2.8	
Swathers SP	200	15	2.0	5.5
Grain Carts	250	20	2.0	
Powered Augers	100	20	1.5	
PTO Augers	100	20	1.5	
Grain Vac	50	15	2.0	
SP Forage Harvester	400	10	8.0	6.5
SP Forage Harvester Header	400	10	8.0	
SP Mower/conditioner	150	15	3.2	8.0
PT Mower/conditioner (sickle)	150	15	2.0	5.75
PT Mower/conditioner (disc)	150	15	2.5	8.0
Hay Rakes (Wheel)	50	20	2.0	
Balers				
Round	100	15	1.5	
Large square	150	15	1.7	
Small square	100	20	1.0	
Bale movers				
PT Round	100	15	2.5	
PT Large square	200	20	2.0	
SP Small square	150	15	2.5	
Air drills (independent openers)	200	15	3.5	4.75
Air hoe drills	200	15	3.0	4.75
Air disk drills	200	15	3.0	4.75
Air seeder	200	15	3.0	4.75
Row crop planters	100	10	4.0	5.0
Cultivators	200	20	1.5	6.0
Standard harrows	75	25	1.2	7.5
Heavy harrows	100	20	1.5	7.5
Harrow packers	200	25	0.5	7.5
Vertical tillage tools	100	20	3.5	10.0
Land roller	75	20	1.0	6.0
Land scraper	80	10	2.5	
High clearance sprayers	200	8	3.5	10.0
Post pounder	40	20	2.0	
Vertical feed mixer	200	15	2.5	
Grinder mixers and feed mixers	200	15	3.0	
Bale Processors	200	15	3.0	
Manure spreader	100	10	4.4	

Appendix E: Fuel Consumption Based on Engine Size

Appendix E: Fuel Consumption Based on Engine Size



Appendix F: Conversion Tables

Dollars Per Hectare Or Acre													
Hectares or acres per hour	Dollars Per Hour												
	$20.00	$30.00	$40.00	$50.00	$60.00	$70.00	$80.00	$90.00	$100.00	$110.00	$120.00	$130.00	$140.00
2.0	$10.00	$15.00	$20.00	$25.00	$30.00	$35.00	$40.00	$45.00	$50.00	$55.00	$60.00	$65.00	$70.00
2.5	$8.00	$12.00	$16.00	$20.00	$24.00	$28.00	$32.00	$36.00	$40.00	$44.00	$48.00	$52.00	$56.00
3.0	$6.67	$10.00	$13.33	$16.67	$20.00	$23.33	$26.67	$30.00	$33.33	$36.67	$40.00	$43.33	$46.67
3.5	$5.71	$8.57	$11.43	$14.29	$17.14	$20.00	$22.86	$25.71	$28.57	$31.43	$34.29	$37.14	$40.00
4.0	$5.00	$7.50	$10.00	$12.50	$15.00	$17.50	$20.00	$22.50	$25.00	$27.50	$30.00	$32.50	$35.00
4.5	$4.44	$6.67	$8.89	$11.11	$13.33	$15.56	$17.78	$20.00	$22.22	$24.44	$26.67	$28.89	$31.11
5.0	$4.00	$6.00	$8.00	$10.00	$12.00	$14.00	$16.00	$18.00	$20.00	$22.00	$24.00	$26.00	$28.00
5.5	$3.64	$5.45	$7.27	$9.09	$10.91	$12.73	$14.55	$16.36	$18.18	$20.00	$21.82	$23.64	$25.45
6.0	$3.33	$5.00	$6.67	$8.33	$10.00	$11.67	$13.33	$15.00	$16.67	$18.33	$20.00	$21.67	$23.33
6.5	$3.08	$4.62	$6.15	$7.69	$9.23	$10.77	$12.31	$13.85	$15.38	$16.92	$18.46	$20.00	$21.54
7.0	$2.86	$4.29	$5.71	$7.14	$8.57	$10.00	$11.43	$12.86	$14.29	$15.71	$17.14	$18.57	$20.00
7.5	$2.67	$4.00	$5.33	$6.67	$8.00	$9.33	$10.67	$12.00	$13.33	$14.67	$16.00	$17.33	$18.67
8.0	$2.50	$3.75	$5.00	$6.25	$7.50	$8.75	$10.00	$11.25	$12.50	$13.75	$15.00	$16.25	$17.50
8.5	$2.35	$3.53	$4.71	$5.88	$7.06	$8.24	$9.41	$10.59	$11.76	$12.94	$14.12	$15.29	$16.47
9.0	$2.22	$3.33	$4.44	$5.56	$6.67	$7.78	$8.89	$10.00	$11.11	$12.22	$13.33	$14.44	$15.56
9.5	$2.11	$3.16	$4.21	$5.26	$6.32	$7.37	$8.42	$9.47	$10.53	$11.58	$12.63	$13.68	$14.74
10.0	$2.00	$3.00	$4.00	$5.00	$6.00	$7.00	$8.00	$9.00	$10.00	$11.00	$12.00	$13.00	$14.00
10.5	$1.90	$2.86	$3.81	$4.76	$5.71	$6.67	$7.62	$8.57	$9.52	$10.48	$11.43	$12.38	$13.33
11.0	$1.82	$2.73	$3.64	$4.55	$5.45	$6.36	$7.27	$8.18	$9.09	$10.00	$10.91	$11.82	$12.73
11.5	$1.74	$2.61	$3.48	$4.35	$5.22	$6.09	$6.96	$7.83	$8.70	$9.57	$10.43	$11.30	$12.17
12.0	$1.67	$2.50	$3.33	$4.17	$5.00	$5.83	$6.67	$7.50	$8.33	$9.17	$10.00	$10.83	$11.67
12.5	$1.60	$2.40	$3.20	$4.00	$4.80	$5.60	$6.40	$7.20	$8.00	$8.80	$9.60	$10.40	$11.20
13.0	$1.54	$2.31	$3.08	$3.85	$4.62	$5.38	$6.15	$6.92	$7.69	$8.46	$9.23	$10.00	$10.77
13.5	$1.48	$2.22	$2.96	$3.70	$4.44	$5.19	$5.93	$6.67	$7.41	$8.15	$8.89	$9.63	$10.37
14.0	$1.43	$2.14	$2.86	$3.57	$4.29	$5.00	$5.71	$6.43	$7.14	$7.86	$8.57	$9.29	$10.00
14.5	$1.38	$2.07	$2.76	$3.45	$4.14	$4.83	$5.52	$6.21	$6.90	$7.59	$8.28	$8.97	$9.66
15.0	$1.33	$2.00	$2.67	$3.33	$4.00	$4.67	$5.33	$6.00	$6.67	$7.33	$8.00	$8.67	$9.33
15.5	$1.29	$1.94	$2.58	$3.23	$3.87	$4.52	$5.16	$5.81	$6.45	$7.10	$7.74	$8.39	$9.03
16.0	$1.25	$1.88	$2.50	$3.13	$3.75	$4.38	$5.00	$5.63	$6.25	$6.88	$7.50	$8.13	$8.75
16.5	$1.21	$1.82	$2.42	$3.03	$3.64	$4.24	$4.85	$5.45	$6.06	$6.67	$7.27	$7.88	$8.48
17.0	$1.18	$1.76	$2.35	$2.94	$3.53	$4.12	$4.71	$5.29	$5.88	$6.47	$7.06	$7.65	$8.24
17.5	$1.14	$1.71	$2.29	$2.86	$3.43	$4.00	$4.57	$5.14	$5.71	$6.29	$6.86	$7.43	$8.00
18.0	$1.11	$1.67	$2.22	$2.78	$3.33	$3.89	$4.44	$5.00	$5.56	$6.11	$6.67	$7.22	$7.78

Dollars per Hectare or Acre													
Hectares or acres per hour	Dollars Per Hour												
	$150.00	$160.00	$170.00	$180.00	$190.00	$200.00	$210.00	$220.00	$230.00	$240.00	$250.00	$260.00	$270.00
4.0	$37.50	$40.00	$42.50	$45.00	$47.50	$50.00	$52.50	$55.00	$57.50	$60.00	$62.50	$65.00	$67.50
4.5	$33.33	$35.56	$37.78	$40.00	$42.22	$44.44	$46.67	$48.89	$51.11	$53.33	$55.56	$57.78	$60.00
5.0	$30.00	$32.00	$34.00	$36.00	$38.00	$40.00	$42.00	$44.00	$46.00	$48.00	$50.00	$52.00	$54.00
5.5	$27.27	$29.09	$30.91	$32.73	$34.55	$36.36	$38.18	$40.00	$41.82	$43.64	$45.45	$47.27	$49.09
6.0	$25.00	$26.67	$28.33	$30.00	$31.67	$33.33	$35.00	$36.67	$38.33	$40.00	$41.67	$43.33	$45.00
6.5	$23.08	$24.62	$26.15	$27.69	$29.23	$30.77	$32.31	$33.85	$35.38	$36.92	$38.46	$40.00	$41.54
7.0	$21.43	$22.86	$24.29	$25.71	$27.14	$28.57	$30.00	$31.43	$32.86	$34.29	$35.71	$37.14	$38.57
7.5	$20.00	$21.33	$22.67	$24.00	$25.33	$26.67	$28.00	$29.33	$30.67	$32.00	$33.33	$34.67	$36.00
8.0	$18.75	$20.00	$21.25	$22.50	$23.75	$25.00	$26.25	$27.50	$28.75	$30.00	$31.25	$32.50	$33.75
8.5	$17.65	$18.82	$20.00	$21.18	$22.35	$23.53	$24.71	$25.88	$27.06	$28.24	$29.41	$30.59	$31.76
9.0	$16.67	$17.78	$18.89	$20.00	$21.11	$22.22	$23.33	$24.44	$25.56	$26.67	$27.78	$28.89	$30.00
9.5	$15.79	$16.84	$17.89	$18.95	$20.00	$21.05	$22.11	$23.16	$24.21	$25.26	$26.32	$27.37	$28.42
10.0	$15.00	$16.00	$17.00	$18.00	$19.00	$20.00	$21.00	$22.00	$23.00	$24.00	$25.00	$26.00	$27.00
10.5	$14.29	$15.24	$16.19	$17.14	$18.10	$19.05	$20.00	$20.95	$21.90	$22.86	$23.81	$24.76	$25.71
11.0	$13.64	$14.55	$15.45	$16.36	$17.27	$18.18	$19.09	$20.00	$20.91	$21.82	$22.73	$23.64	$24.55
11.5	$13.04	$13.91	$14.78	$15.65	$16.52	$17.39	$18.26	$19.13	$20.00	$20.87	$21.74	$22.61	$23.48
12.0	$12.50	$13.33	$14.17	$15.00	$15.83	$16.67	$17.50	$18.33	$19.17	$20.00	$20.83	$21.67	$22.50
12.5	$12.00	$12.80	$13.60	$14.40	$15.20	$16.00	$16.80	$17.60	$18.40	$19.20	$20.00	$20.80	$21.60
13.0	$11.54	$12.31	$13.08	$13.85	$14.62	$15.38	$16.15	$16.92	$17.69	$18.46	$19.23	$20.00	$20.77
13.5	$11.11	$11.85	$12.59	$13.33	$14.07	$14.81	$15.56	$16.30	$17.04	$17.78	$18.52	$19.26	$20.00
14.0	$10.71	$11.43	$12.14	$12.86	$13.57	$14.29	$15.00	$15.71	$16.43	$17.14	$17.86	$18.57	$19.29
14.5	$10.34	$11.03	$11.72	$12.41	$13.10	$13.79	$14.48	$15.17	$15.86	$16.55	$17.24	$17.93	$18.62
15.0	$10.00	$10.67	$11.33	$12.00	$12.67	$13.33	$14.00	$14.67	$15.33	$16.00	$16.67	$17.33	$18.00
15.5	$9.68	$10.32	$10.97	$11.61	$12.26	$12.90	$13.55	$14.19	$14.84	$15.48	$16.13	$16.77	$17.42
16.0	$9.38	$10.00	$10.63	$11.25	$11.88	$12.50	$13.13	$13.75	$14.38	$15.00	$15.63	$16.25	$16.88
16.5	$9.09	$9.70	$10.30	$10.91	$11.52	$12.12	$12.73	$13.33	$13.94	$14.55	$15.15	$15.76	$16.36
17.0	$8.82	$9.41	$10.00	$10.59	$11.18	$11.76	$12.35	$12.94	$13.53	$14.12	$14.71	$15.29	$15.88
17.5	$8.57	$9.14	$9.71	$10.29	$10.86	$11.43	$12.00	$12.57	$13.14	$13.71	$14.29	$14.86	$15.43
18.0	$8.33	$8.89	$9.44	$10.00	$10.56	$11.11	$11.67	$12.22	$12.78	$13.33	$13.89	$14.44	$15.00
18.5	$8.11	$8.65	$9.19	$9.73	$10.27	$10.81	$11.35	$11.89	$12.43	$12.97	$13.51	$14.05	$14.59
19.0	$7.89	$8.42	$8.95	$9.47	$10.00	$10.53	$11.05	$11.58	$12.11	$12.63	$13.16	$13.68	$14.21
19.5	$7.69	$8.21	$8.72	$9.23	$9.74	$10.26	$10.77	$11.28	$11.79	$12.31	$12.82	$13.33	$13.85
20.0	$7.50	$8.00	$8.50	$9.00	$9.50	$10.00	$10.50	$11.00	$11.50	$12.00	$12.50	$13.00	$13.50

Appendix F: Conversion Tables cont'd

Dollars per Bale													
	Dollars Per Hour												
Bales per hour	$40.00	$50.00	$60.00	$70.00	$80.00	$90.00	$100.00	$110.00	$120.00	$130.00	$140.00	$150.00	$160.00
10	$4.00	$5.00	$6.00	$7.00	$8.00	$9.00	$10.00	$11.00	$12.00	$13.00	$14.00	$15.00	$16.00
12	$3.33	$4.17	$5.00	$5.83	$6.67	$7.50	$8.33	$9.17	$10.00	$10.83	$11.67	$12.50	$13.33
14	$2.86	$3.57	$4.29	$5.00	$5.71	$6.43	$7.14	$7.86	$8.57	$9.29	$10.00	$10.71	$11.43
16	$2.50	$3.13	$3.75	$4.38	$5.00	$5.63	$6.25	$6.88	$7.50	$8.13	$8.75	$9.38	$10.00
18	$2.22	$2.78	$3.33	$3.89	$4.44	$5.00	$5.56	$6.11	$6.67	$7.22	$7.78	$8.33	$8.89
20	$2.00	$2.50	$3.00	$3.50	$4.00	$4.50	$5.00	$5.50	$6.00	$6.50	$7.00	$7.50	$8.00
22	$1.82	$2.27	$2.73	$3.18	$3.64	$4.09	$4.55	$5.00	$5.45	$5.91	$6.36	$6.82	$7.27
24	$1.67	$2.08	$2.50	$2.92	$3.33	$3.75	$4.17	$4.58	$5.00	$5.42	$5.83	$6.25	$6.67
26	$1.54	$1.92	$2.31	$2.69	$3.08	$3.46	$3.85	$4.23	$4.62	$5.00	$5.38	$5.77	$6.15
28	$1.43	$1.79	$2.14	$2.50	$2.86	$3.21	$3.57	$3.93	$4.29	$4.64	$5.00	$5.36	$5.71
30	$1.33	$1.67	$2.00	$2.33	$2.67	$3.00	$3.33	$3.67	$4.00	$4.33	$4.67	$5.00	$5.33
100	$0.40	$0.50	$0.60	$0.70	$0.80	$0.90	$1.00	$1.10	$1.20	$1.30	$1.40	$1.50	$1.60
110	$0.36	$0.45	$0.55	$0.64	$0.73	$0.82	$0.91	$1.00	$1.09	$1.18	$1.27	$1.36	$1.45
120	$0.33	$0.42	$0.50	$0.58	$0.67	$0.75	$0.83	$0.92	$1.00	$1.08	$1.17	$1.25	$1.33
130	$0.31	$0.38	$0.46	$0.54	$0.62	$0.69	$0.77	$0.85	$0.92	$1.00	$1.08	$1.15	$1.23
140	$0.29	$0.36	$0.43	$0.50	$0.57	$0.64	$0.71	$0.79	$0.86	$0.93	$1.00	$1.07	$1.14
150	$0.27	$0.33	$0.40	$0.47	$0.53	$0.60	$0.67	$0.73	$0.80	$0.87	$0.93	$1.00	$1.07
160	$0.25	$0.31	$0.38	$0.44	$0.50	$0.56	$0.63	$0.69	$0.75	$0.81	$0.88	$0.94	$1.00
170	$0.24	$0.29	$0.35	$0.41	$0.47	$0.53	$0.59	$0.65	$0.71	$0.76	$0.82	$0.88	$0.94
180	$0.22	$0.28	$0.33	$0.39	$0.44	$0.50	$0.56	$0.61	$0.67	$0.72	$0.78	$0.83	$0.89
190	$0.21	$0.26	$0.32	$0.37	$0.42	$0.47	$0.53	$0.58	$0.63	$0.68	$0.74	$0.79	$0.84
200	$0.20	$0.25	$0.30	$0.35	$0.40	$0.45	$0.50	$0.55	$0.60	$0.65	$0.70	$0.75	$0.80
210	$0.19	$0.24	$0.29	$0.33	$0.38	$0.43	$0.48	$0.52	$0.57	$0.62	$0.67	$0.71	$0.76
220	$0.18	$0.23	$0.27	$0.32	$0.36	$0.41	$0.45	$0.50	$0.55	$0.59	$0.64	$0.68	$0.73
230	$0.17	$0.22	$0.26	$0.30	$0.35	$0.39	$0.43	$0.48	$0.52	$0.57	$0.61	$0.65	$0.70
240	$0.17	$0.21	$0.25	$0.29	$0.33	$0.38	$0.42	$0.46	$0.50	$0.54	$0.58	$0.63	$0.67
250	$0.16	$0.20	$0.24	$0.28	$0.32	$0.36	$0.40	$0.44	$0.48	$0.52	$0.56	$0.60	$0.64

Hectares per Hour (at 80% field efficiency)													
	Width in Metres												
Speed in km/h	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0
2	0.32	0.48	0.64	0.80	0.96	1.12	1.28	1.44	1.60	1.76	1.92	2.08	2.24
4	0.64	0.96	1.28	1.60	1.92	2.24	2.56	2.88	3.20	3.52	3.84	4.16	4.48
5	0.80	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00	4.40	4.80	5.20	5.60
6	0.96	1.44	1.92	2.40	2.88	3.36	3.84	4.32	4.80	5.28	5.76	6.24	6.72
7	1.12	1.68	2.24	2.80	3.36	3.92	4.48	5.04	5.60	6.16	6.72	7.28	7.84
8	1.28	1.92	2.56	3.20	3.84	4.48	5.12	5.76	6.40	7.04	7.68	8.32	8.96
9	1.44	2.16	2.88	3.60	4.32	5.04	5.76	6.48	7.20	7.92	8.64	9.36	10.08
10	1.60	2.40	3.20	4.00	4.80	5.60	6.40	7.20	8.00	8.80	9.60	10.40	11.20
11	1.76	2.64	3.52	4.40	5.28	6.16	7.04	7.92	8.80	9.68	10.56	11.44	12.32
12	1.92	2.88	3.84	4.80	5.76	6.72	7.68	8.64	9.60	10.56	11.52	12.48	13.44
13	2.08	3.12	4.16	5.20	6.24	7.28	8.32	9.36	10.40	11.44	12.48	13.52	14.56
14	2.24	3.36	4.48	5.60	6.72	7.84	8.96	10.08	11.20	12.32	13.44	14.56	15.68
15	2.40	3.60	4.80	6.00	7.20	8.40	9.60	10.80	12.00	13.20	14.40	15.60	16.80
16	2.56	3.84	5.12	6.40	7.68	8.96	10.24	11.52	12.80	14.08	15.36	16.64	17.92
17	2.72	4.08	5.44	6.80	8.16	9.52	10.88	12.24	13.60	14.96	16.32	17.68	19.04
18	2.88	4.32	5.76	7.20	8.64	10.08	11.52	12.96	14.40	15.84	17.28	18.72	20.16

Acres per Hour (at 80% field efficiency)													
	Width in Feet												
Speed in m.p.h.	6.0	10.0	14.0	18.0	22.0	26.0	30.0	34.0	38.0	42.0	46.0	50.0	54.0
3	1.75	2.91	4.07	5.24	6.40	7.56	8.73	9.89	11.05	12.22	13.38	14.55	15.71
4	2.33	3.88	5.43	6.98	8.53	10.08	11.64	13.19	14.74	16.29	17.84	19.39	20.95
5	2.91	4.85	6.79	8.73	10.67	12.61	14.55	16.48	18.42	20.36	22.30	24.24	26.18
6	3.49	5.82	8.15	10.47	12.80	15.13	17.45	19.78	22.11	24.44	26.76	29.09	31.42
7	4.07	6.79	9.50	12.22	14.93	17.65	20.36	23.08	25.79	28.51	31.22	33.94	36.65
8	4.65	7.76	10.86	13.96	17.07	20.17	23.27	26.38	29.48	32.58	35.68	38.79	41.89
9	5.24	8.73	12.22	15.71	19.20	22.69	26.18	29.67	33.16	36.65	40.15	43.64	47.13
10	5.82	9.70	13.58	17.45	21.33	25.21	29.09	32.97	36.85	40.73	44.61	48.48	52.36
11	6.40	10.67	14.93	19.20	23.47	27.73	32.00	36.27	40.53	44.80	49.07	53.33	57.60
12	6.98	11.64	16.29	20.95	25.60	30.25	34.91	39.56	44.22	48.87	53.53	58.18	62.84

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