2026/2027 Cost of Production

Farm Machinery

Manitoba

Cost of Production Farm Machinery

The surest way to reach a business goal is to plan on it. Successful Manitoba farmers are focused business people. They have clear, flexible, short and long term business plans – and they monitor their plans regularly.

Whether you're starting, growing or passing along your business, you need a solid business plan. Manitoba Agriculture can help you build a plan for success.

Farm machinery makes up a significant part of the fixed and variable costs for any farm operation. *The Cost of Production Farm Machinery* can help estimate these costs and provide the information you need to maximize farm profitability.

This guide is also available as an online calculator at **www.manitoba.ca/agriculture**.

Use this guide to help you prepare your plan for success.

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Introduction

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

The guide is applicable for two different situations. One is to suggest an equitable price for both parties when one farmer either rents a piece of equipment from another farmer or hires the other to do a farming operation (seeding, spraying, harvesting, etc.). In this situation, the period of rented operation is usually relatively small in proportion to the use by the owner. The other use is when farmers share equipment and need to establish the value of the machinery and/or farming operation that is being contributed to each farm.

CAUTION

Nearly every situation has circumstances and conditions that are unique. This guide cannot address every situation. It is up to the individuals to recognize special circumstances and make suitable adjustments to cover the differences. This guide also makes many assumptions that can have a large 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.

METHODOLOGY

One of the most critical steps in establishing a rental rate is defining the cost of equipment ownership and the cost of operating and maintaining the equipment. Since it is likely that some factors will change for every situation, it was necessary to develop the following set of assumptions that form the basis for calculating costs.

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), and housing/insurance costs. The cost of ownership also includes a 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, there are operating labour costs and a margin to cover unexpected incidentals and specific conditions that affect operating costs.

Introduction

ASSUMPTIONS

In all cases, it is reasonable to assume that rented machinery is in good repair and is capable of performing 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 upon 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 in this guide, a minimum of two manufacturers were surveyed to collect representative purchase price information.

The years of service (or optimal life) is defined as when the equipment value has declined to 1/3 of its original value.

Therefore, the salvage value is assumed to always be 33% of the original purchase price, but the years of service varies for each piece of equipment.

In reality, a machine's years of service depends on many factors and may vary greatly in years and hours. The optimal life and estimated annual hours of use for all equipment used in this guide are listed in **Appendix D.**

For this guide, the depreciated value (purchase price – salvage value) is split equally among the years of service of the equipment because after the first year of use, most machinery depreciates at a fairly consistent rate over the next 10 to 15 years (with typical use). Note that when calculating the depreciated value for tax purposes (capital cost allowance), the depreciated value changes from year to year depending on the allowable rate for each class of equipment. Most farm equipment falls under class 8 or class 10, which allows an annual depreciation rate of 20% and 30%, respectively. This means that the depreciated value is relatively high over the first few years of ownership and steadily decreases until the equipment has little value. This length of time (optimal life of equipment) is not defined by the capital cost allowance. The total depreciated value using either method (equally split among the years of optimal life or based on capital cost allowance rates) will be relatively close if a reasonable optimal life of the equipment is assumed.

Financing Cost:

It has been assumed that 50% of the initial price is covered by the value of a trade-in and/or a cash payment with the remaining 50% financed.

It is also assumed that the loan will be paid back through equal biannual installments over 7 years. The cost to borrow 50% of the purchase price was based on an average interest rate for equipment loans with a 7 year payback.

This annual borrowing rate is set at 6.25%. The financing cost also includes an opportunity cost on the interest that could be earned if the down payment was invested in the markets rather than equipment.

This opportunity rate is set at 1.5% 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.

Insurance and Housing: It is reasonable to expect that equipment owners will carry suitable insurance against accidental damage and for liability. Suitable housing is also a reasonable measure for maintaining equipment value and performance.
These annual costs have been set at 1% 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 its life. Early in its life repairs due to component failure are not usually as high as later. However, during its life, repair expenses will occur. Averaging the lifetime maintenance costs on a per-hour basis provides a fair distribution of the repair costs. For this document, the average yearly basic maintenance and repairs have been added to what would be considered one major repair during the equipment's optimal life. In the guide, these repair costs are represented as a repair rate (%). This repair rate is the total cost of repairs and maintenance over the optimal life of the equipment divided by the purchase price. The repair costs are 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.

Fuel costs: Fuel cost is dependent upon fuel market price and can fluctuate dramatically.
In this guide, the diesel fuel price is set to $1.20/L based on current market prices and the removal of the 5% Goods and Services Tax (GST), as this is an allowable business deduction for fuel. This fuel cost also accounts for the removal of a portion of the provincial fuel tax that farmers and custom operators are both eligible for as a *Fuel Permit Exemption Holder.*

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% load is assumed. For alternative loads, fuel usage can be determined by using charts in **Appendix E**.

The selection of the power unit and the operating conditions (yield, moisture, soil type, terrain, etc.) will also affect fuel use. This means that 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.

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Labour Rate:
The labour rate has been set at $28 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 varying skill levels required for different operations, producers can use the online calculator that allows users to input specific values for the labour rate for each operation.

Margin: When performing custom farming operations, conditions can be unpredictable. To account for unexpected cost increases brought about by difficult situations, it is customary to include a margin (or cushion) in the estimated custom rate.
This margin has been set at 15% 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. **It should be noted that 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 easily 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 work 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% has been chosen and applied to all tasks.
The estimated work rate is the product of the implement width (or average width if a range is provided), average field speed (assumed field speed values can be found in **Appendix D**) and the field efficiency (80%).

Field Efficiency for Sprayers: The field efficiency accounts for time spent filling the sprayer, turning, moving the sprayer to the field, and cleaning the equipment. The average field efficiency for sprayers has been estimated at (64%).

Field Efficiency for Seeding Equipment: The field efficiency accounts for time spent filling the drill, setting the drill, calibrating the drill and checking drill runs. The average field efficiency for seeding equipment has been estimated at 70%.

USING THE GUIDE
Per acre rate: Equipment rental or custom rates are based upon the addition of all yearly costs divided by the estimated annual hours of use. The hourly rate ($/hr) divided by the work rate (acre/hr) yields a cost per acre rate ($/acre). The work rate accounts for equipment width, travel speed, and the field efficiency of the operation. 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. This may mean either going slower to minimize machine damage and operator stress in difficult conditions or being able to go faster in favorable conditions without losing revenue.

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 and high hours of usage reduces 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 taken into account. Again, producers wishing to use their own value for annual hours of use or salvage value can do so in the online calculator.

ADDITIONAL INFORMATION

This publication can be printed from the Manitoba Agriculture website at www.manitoba.ca/agriculture or copies can be picked up at your local Manitoba Agriculture and MASC Service Centre.

Online calculator: An online calculator is also available on the Manitoba Agriculture website, which allows the user to enter individual information. Using 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) provided 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 in case of 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 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.

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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 for custom operations. As well, the custom operator should bill the client upon the completion of each custom operation. The bill should indicate actual units (hours, acres, etc.) completed, 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 that this point be clarified with the insurance company if one considers doing custom work or renting equipment.

NEW INFORMATION FOR 2026-27 GUIDE

The custom rates presented in this guide are not valid for commercial custom operators (e.g., custom sprayers). The rates in this guide are to be used as a guideline for cost recovery of equipment from farmer to farmer, not as a guideline for costing for a business. Business costs include extra liability insurance, overhead, skilled labour, etc. that will add to the cost for commercial custom operations.

The assumptions and calculation methods for the 2026-27 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 decreased from $1.40/L to $1.20/L.
- Annual interest rate for equipment loans decreased from 8.5% to 6.25%
- Labour rate increased from $27/hr to $28/hr

Additionally, some small implements (e.g., manure spreaders, post pounders, etc.) require less than 100 hp for operation but the power unit cost used for these small implements in this guide is based on the smallest available power unit (100 hp two-wheel drive). Therefore, the custom rates for some small implements will be over-estimated because of the power unit cost. These situations are noted in the footnotes for these implements.

Again, the online calculator can be used for any piece of equipment not listed in this guide provided the user has information related to purchase price, salvage value, annual hours of use, etc. The calculator can also be used to determine custom rates with appropriately sized power units if the user knows or can determine the hourly rate for a smaller power unit.

Equipment Summary

Equipment	Description	Rental Rate (per hour)			Custom Rate (per hour)			Average Custom Rate*			
Tractors	Two-Wheel Drive	$46	to	$51	$111	to	$122				
	Front Wheel Assist	$60	to	$129	$128	to	$227				
	Four-Wheel Drive	$142	to	$184	$261	to	$338				
	Tracked	$160	to	$237	$279	to	$428				
Combine	Rotary	$295	to	$565	$398	to	$735	$31	to	$40	per acre
Combine Header		$14	to	$364							
Swather		$138	to	$176	$201	to	$258	$12	to	$15	per acre
Grain Cart		$37	to	$116	$298	to	$454				
Grain Auger	Powered	$20	to	$34							
Grain Auger	PTO	$10	to	$101	$138	to	$267				
Grain Conveyor	PTO	$74	to	$114	$185	to	$242				
Grain Vac		$105	to	$145	$216	to	$267				
SP Forage Harvester		$360	to	$514	$501	to	$713	$29	to	$79	per acre
SP Forage Header		$31	to	$116							
Mower Conditioner	Self Propelled	$230	to	$518	$306	to	$639	$27	to	$34	per acre
Mower Conditioner	Pull Type	$23	to	$57	$134	to	$168	$14	to	$34	per acre
Hay Rakes		$34	to	$110	$145	to	$221	$11.00	to	$15	per acre
Baler	Small Square	$30	to	$35	$141	to	$146	$0.81	to	$0.83	per bale
Baler	Large Square	$142	to	$207	$270	to	$373	$6.75	to	$9.25	per bale
Baler	Round	$71	to	$104	$182	to	$232	$13	to	$18	per bale
Bale Mover	Pull Type - Round	$64	to	$75	$192	to	$241				
Bale Mover	SP - Small Square		$245			$316					
Air Drills with independent openers		$297	to	$623	$558	to	$961	$32	to	$40	per acre
Air Hoe Drills		$197	to	$479	$458	to	$817	$29	to	$34	per acre
Air Disc Drills		$380	to	$591	$683	to	$929	$33	to	$36	per acre
Row Crop Planters		$314	to	$755	$442	to	$982	$34	to	$42	per acre
Cultivators	Field, heavy duty	$45	to	$88	$272	to	$426	$14	to	$21	per acre
Harrows	Mid, Heavy	$117	to	$118	$378	to	$456	$7.50	to	$9.00	per acre
Harrows	Packers		$24			$190			$6.00		per acre
Vertical Tillage Tools	Compact, High Speed	$133	to	$236	$394	to	$574	$19	to	$25	per acre
Vertical Tillage Tools	Heavy Duty	$169	to	$282	$472	to	$620	$24	to	$34	per acre
Land Roller	Multi Section	$82	to	$120	$309	to	$381	$10	to	$12	per acre
Land Scraper		$165	to	$330	$426	to	$668				
Sprayers	High Clearance	$577	to	$828	$666	to	$957	$11	to	$11	per acre
Granular Applicator	Spin		$43			$154			$8.00		per acre
Granular Applicator	Boom		$228			$455			$13		per acre
Post Pounder		$27	to	$53	$138	to	$164				
Vertical Feed Mixers		$30	to	$67	$158	to	$294				
Grinder Mixer		$70	to	$104	$198	to	$270				
Feed Mixer			$37			$165					
Bale Processor		$27	to	$42	$155	to	$208				
Manure Spreaders		$99	to	$162	$227	to	$328				

Hauling grain from field to yard estimated at $.37 per bushel for first 3 miles plus $.03 per bushel for each additional mile.

Rental rates include value of equipment only. Custom rates include value of equipment, power unit (if required), fuel, and labour.

*** Exercise caution when using these average figures as they may not reflect actual situations. They should be used as a guideline only.**

Power Units

Two Wheel Drive Tractors										
Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)
100-119 hp	$160,000	24	27.92	12.32	6.04	46	28.80	28.00	8.52	111
120+ hp	$175,000	28	30.54	13.48	6.60	51	33.60	28.00	9.24	122

Annual hours of use: 300

Notes: 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	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)
Small (100-159 hp)	$250,000	26	36.92	15.17	7.81	60	31.20	28.00	8.88	128
Medium (160-224 hp)	$350,000	36	51.69	21.23	10.94	84	43.20	28.00	10.68	166
Large (225+ hp)	$540,000	48	79.76	32.76	16.88	129	57.60	28.00	12.84	227

Annual hours of use: 450

Notes: 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.

Power Units

Four-Wheel Drive Tractors										
Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)
Small (350-449 hp)	$600,000	63	88.62	35.07	18.55	142	75.60	28.00	15.54	261
Medium (450-549 hp)	$700,000	76	103.39	40.91	21.64	166	91.20	28.00	17.88	303
Large (550+ hp)	$775,000	88	114.47	45.29	23.96	184	105.60	28.00	20.04	338

Annual hours of use: 450

Notes: 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	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)
Two Track (350-449 hp)	$625,000	63	92.31	46.67	20.85	160	75.60	28.00	15.54	279
Two Track (450-570 hp)	$775,000	80	114.47	57.87	25.85	198	96.00	28.00	18.60	341
Four Track (400-474 hp)	$750,000	100	110.77	56.00	25.02	192	120.00	28.00	22.20	362
Four Track (475-549 hp)	$850,000	110	125.54	63.47	28.35	217	132.00	28.00	24.00	401
Four Track (550-650 hp)	$925,000	115	136.62	69.07	30.85	237	138.00	28.00	24.90	428

Annual hours of use: 450

Notes: 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	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
Class 6 Rotary (301-360 hp)	$600,000	51	193.39	63.12	38.48	295
Class 7 Rotary (361-420 hp)	$700,000	55	225.62	73.64	44.89	344
Class 8 Rotary (421-500 hp)	$800,000	71	257.86	84.16	51.30	393
Class 9 Rotary (501-560 hp)	$900,000	82	290.09	94.68	57.72	442
Class 10 Rotary (561-625 hp)	$1,000,000	90	322.32	105.20	64.13	492
Class 10+ Rotary (626+ hp)	$1,150,000	100	370.67	120.98	73.75	565

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

SP Combines (continued)							
Machine Size	Purchase Price	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/ac)
Class 6 Rotary (301-360 hp)	$600,000	61.20	28.00	13.38	398	10	40
Class 7 Rotary (361-420 hp)	$700,000	66.00	28.00	14.10	452	12	38
Class 8 Rotary (421-500 hp)	$800,000	85.20	28.00	16.98	523	15	35
Class 9 Rotary (501-560 hp)	$900,000	98.40	28.00	18.96	587	17	35
Class 10 Rotary (561-625 hp)	$1,000,000	108.00	28.00	20.40	648	21	31
Class 10+ Rotary (626+ hp)	$1,150,000	120.00	28.00	22.20	735	24	31

Rotary annual hours of use*: 250
*Based on seperator annual hours of usage. Does not include header.
Notes: Fuel type is diesel, with a 75% load assumption. To calculate fuel consumption with alternative load, refer to **Appendix E.**

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

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

Example: For a Class 9 rotary combine with a 35 ft flex auger header:

$$\textbf{Custom Rate (\$/acre)} = \frac{\$587 + \$34}{17}$$

Custom Rate ($/acre) = $37/acre

Harvesting Grain

Combine Headers					
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
Pickup Headers					
15 FT	$45,000	9.42	2.84	1.84	14
Rigid Draper Headers					
30 FT	$135,000	28.27	11.34	5.94	46
35 FT	$175,000	36.64	14.70	7.70	59
40 FT	$195,000	40.83	16.38	8.58	66
Flex Auger Headers					
25 FT	$60,000	15.95	6.31	3.34	26
30 FT	$70,000	18.61	7.36	3.90	30
35 FT	$80,000	21.27	8.42	4.45	34
Flex Draper Headers					
30 FT	$155,000	41.21	18.23	8.92	68
35 FT	$175,000	46.52	20.58	10.07	77
40 FT	$190,000	50.51	22.34	10.93	84
45 FT	$200,000	53.17	23.52	11.50	88
50 FT	$220,000	58.49	25.87	12.65	97
Corn Header					
Corn (6 row, 30" spacing)	$100,000	66.46	29.40	14.38	110
Corn (8 row, 30" spacing)	$125,000	83.08	36.75	17.97	138
Corn (12 row folding, 30" spacing)	$240,000	159.51	70.56	34.51	265
Corn (16-18 row folding , 30" spacing)	$330,000	219.33	97.02	47.45	364

Pickup header annual hours of use: 250
Rigid draper header annual hours of use: 250
Flex auger header annual hours of use: 250
Flex 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 9 rotary combine with a 35 ft flex auger header:

$$\text{Custom Rate (\$/acre)} = \frac{\$587 + \$34}{17}$$

Custom Rate ($/acre) = $37/acre

Swathers							
Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)
SP Swathers - Draper Header							
25 FT	$275,000	22	91.39	28.88	18.04	138	26.40
30 FT	$300,000	32	99.70	31.50	19.68	151	38.40
35 FT	$325,000	36	108.00	34.13	21.32	163	43.20
40 FT	$350,000	36	116.31	36.75	22.96	176	43.20

Swathers (continued)							
Machine Size	Purchase Price	Litre / Hour	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
SP Swathers - Draper Header							
25 FT	$275,000	22	28.00	8.16	201	13	15
30 FT	$300,000	32	28.00	9.96	227	16	14
35 FT	$325,000	36	28.00	10.68	245	19	13
40 FT	$350,000	36	28.00	10.68	258	21	12

Annual hours of use: 200

Notes: 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'+ swather).

Grain Cart							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
Small							
1,000 bu	$110,000	23.03	9.24	4.84	37	261 (350 hp)	298
Medium							
1,400 bu	$245,000	51.30	20.58	10.78	83	303 (450 hp)	386
Large							
2,000 bu	$345,000	72.24	28.98	15.18	116	338 (550+ hp)	454

Annual hours of use: 250

Notes: Power unit cost includes fuel, labour, and margin.
The power unit for the medium large grain cart is a 4WD tractor.
To obtain a total cost for grain cart, power unit, and fuel (but not labour), subtract $32.20 from the Custom Rate ($28/hr labour plus 15% margin).

Harvesting Grain

Powered Auger					
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
8 in. (30-39 FT, 20 hp engine)	$25,000	13.09	3.95	2.56	20
8 in. (40-49 FT, 20 hp engine)	$27,000	14.13	4.27	2.76	21
8 in. (50-59 FT, 25 hp engine)	$28,000	14.66	4.42	2.86	22
10 in. (40-49 FT, 35 hp engine)	$32,000	16.75	5.06	3.27	25
10 in. (50-59 FT, 38 hp engine)	$36,000	18.85	5.69	3.68	28
12-13 in. u trough (39-40 FT, 38-50 hp engine)	$44,000	23.03	6.95	4.50	34

Annual hours of use: 100

Notes: Value of engine is included in rental rate. Rate does not include fuel or maintenance costs for engine.

Grain Auger (PTO)							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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	$14,000	7.33	1.47	1.32	10	128 (50 hp)	138
10" 40-89 FT 5,400 bu/hr	$30,000	15.70	3.15	2.83	22	128 (75 hp)	150
13" 70-120 FT 9,700 bu/hr	$70,000	36.64	7.35	6.60	51	128 (100 hp)	179
16" 80-100 FT 21,000 bu/hr	$100,000	52.35	10.50	9.43	72	166 (200 hp)	238
16" 100+ FT 21,000 bu/hr	$140,000	73.29	14.70	13.20	101	166 (200 hp)	267

Annual hours of use: 100

Notes: 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 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 $32.20 from the Custom Rate ($28/hr labour plus 15% margin).

Grain Vac							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
2,400-5,000 bu/hr	$52,000	69.12	21.84	13.64	105	111 (70 hp)	216
6,000-10,000 bu/hr	$72,000	95.71	30.24	18.89	145	122 (120 hp)	267

Annual hours of use: 50

Notes: The power units for all grain vacs are two-wheel drive tractors. Note that the smallest two-wheel drive tractor available in this guide is 100 hp, so 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 $32.20 from the Custom Rate ($28/hr labour plus 15% margin).

SP Forage Harvester										
Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)
Small 400-599 hp	$700,000	79	165.72	147.00	46.91	360	94.80	28.00	18.42	501
Medium 600-799 hp	$820,000	103	194.13	172.20	54.95	421	123.60	28.00	22.74	595
Large 800-899 hp	$1,000,000	121	236.74	210.00	67.01	514	145.20	28.00	25.98	713

Annual hours of use: 400
Notes: 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	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/acre)	Work Rate (acre/hr)	Rental Rate ($/hr)
Windrow Pickup, 12-17 FT	$60,000	14.20	12.60	4.02	1.75	17	31
Corn (14-20 FT width)	$175,000	41.43	36.75	11.73	7.00	9	90
Corn (21-30 FT width)	$225,000	53.27	47.25	15.08	9.00	13	116

Annual hours of use: 400

Calculation to determine the custom rate ($/acre) for an 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 700 hp SP Forage Harvester with a corn header:

$$\text{Custom Rate ($/acre)} = \frac{\$595 + \$90}{9}$$

$$= \$76 \text{ /acre}$$

Hay Rakes									
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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 bar	$20,000	20.94	8.40	4.40	34	111 (50 hp)	145	10	15
21-30 FT wheel	$40,000	41.88	16.80	8.80	67	111 (50 hp)	178	13	14
31-40 FT wheel	$65,000	68.05	27.30	14.30	110	111 (50 hp)	221	20	11.00

Annual hours of use: 50
Notes: Power unit cost includes fuel, labour and margin for two wheel drive tractor.

Harvesting Hay

SP Mower/Conditioners							
Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)
Disc Mower Conditioner (13-19 FT)	$310,000	36	137.36	69.44	31.02	238	43.20
Disc Mower Conditioner (30 FT)	$675,000	64	299.09	151.20	67.54	518	76.80
Sickle Mower Conditioner (14-18 FT)	$300,000	32	132.93	67.20	30.02	230	38.40

SP Mower/Conditioners (continued)							
Machine Size	Purchase Price	Litre / Hour	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
Disc Mower Conditioner (13-19 FT)	$310,000	36	28.00	10.68	320	12	27
Disc Mower Conditioner (30 FT)	$675,000	64	28.00	15.72	639	23	28
Sickle Mower Conditioner (14-18 FT)	$300,000	32	28.00	9.96	306	9	34

Annual hours of use: 150

Notes: 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).

PT Mower/Conditioners									
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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									
9-10 FT	$35,000	15.51	4.90	3.06	23	111 (50 hp)	134	4	34
14-16 FT	$65,000	28.80	9.10	5.69	44	111 (100 hp)	155	8	19
Disc									
7-9 FT side pull	$50,000	22.15	8.77	4.64	36	111 (60 hp)	147	7	21
14 FT	$70,000	31.02	12.27	6.49	50	111 (90 hp)	161	9	18
16-18 FT	$80,000	35.45	14.03	7.42	57	111 (100 hp)	168	12	14

Sickle annual hours of use: 150

Disc annual hours of use: 150

Notes: 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 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	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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									
4x5 FT bale	$75,000	49.85	11.85	9.25	71	111 (80 hp)	182	15	12
5x5 FT bale	$80,000	53.17	12.64	9.87	76	128 (135 hp)	204	12	17
5x6 FT bale	$100,000	66.46	15.80	12.34	95	128 (135 hp)	223	13	17
5x5 FT bale (silage / net wrap)	$90,000	59.82	14.22	11.11	85	128 (135 hp)	213	16	13
5x6 FT bale (silage / net wrap)	$110,000	73.11	17.38	13.57	104	128 (135 hp)	232	17	14
Large Square Balers									
Small 35x31x108" bale	$220,000	97.48	26.25	18.56	142	128 (145 hp)	270	40	6.75
Medium 35x47x108" bale	$275,000	121.85	32.82	23.20	178	128 (145 hp)	306	40	7.75
Large 50x47x108" bale	$320,000	141.79	38.19	27.00	207	166 (180 hp)	373	40	9.25
Small Square Baler									
14x18x52" bale	$42,000	21.99	4.41	3.96	30	111 (50 hp)	141	175	0.81
16x18x52" bale	$48,000	25.13	5.04	4.53	35	111 (50 hp)	146	175	0.83

Large Round Balers annual hours of use: 100
Large Square Balers annual hours of use: 150
Small Square Balers annual hours of use: 100

Notes: Cost of twine is not included in above rates. For the cost of twine, $1.10/bale for 5' diameter,and $1.30/bale for 6' diameter.
Add $1.30/bale for large square and $0.13/bale for small square. For the cost of mesh, add $2.00 to $2.25/bale.
Power units for small round and small square balers are two-wheel drive tractors and power units for large round and large square balers are front wheel assist tractors. Note that the smallest two-wheel drive tractor available in this guide is 100 hp, so 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

PT Bale Movers (Self Load/Unload)							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
Round Bale 7-12 bale (requires 120 hp)	$60,000	39.88	15.78	8.35	64	128 (120 hp)	192
Round Bale 12-18 bale (requires 180 hp)	$70,000	46.52	18.41	9.74	75	166 (180 hp)	241
Large Square 4-6 bale (requires 120 hp)	$80,000	20.94	8.40	4.40	34	128 (120 hp)	162
Large Square 6-12 bale (requires 180 hp)	$95,000	24.87	9.98	5.23	40	166 (180 hp)	206
Large Square 12-20 bale (requires 220 hp)	$130,000	34.03	13.65	7.15	55	166 (220 hp)	221

Round bale mover annual hours of use: 100

Square bale mover annual hours of use: 200

Notes: Power units for all PT bale movers are front wheel assist tractors. Power unit cost includes fuel, labour, and margin for tractor.

SP Bale Mover						
Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
Self propelled Small Square Bale Wagon	$345,000	28	152.87	60.49	32.00	245

SP Bale Mover (continued)						
Machine Size	Purchase Price	Litre / Hour	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)
Self propelled Small Square Bale Wagon	$345,000	28	33.60	28.00	9.24	316

Annual hours of use: 150

Notes: 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.

Air Drills with Independent Openers									
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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	$500,000	166.16	92.00	38.72	297	261 (400 hp)	558	14	40
Medium 46-65 FT	$850,000	282.47	156.40	65.83	505	303 (500 hp)	808	23	35
Large 66-86 FT	$1,050,000	348.94	193.20	81.32	623	338 (550+ hp)	961	30	32

Annual hours of use: 200
Notes: Includes appropriately sized air tank (<400 bu for small, 400-600 bu for medium and >600 bu for large drills).

The power units for all air drill with independent openers 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.

Small air drills have single shoot delivery with one hydraulic cart fan with no fertilizer mid row banding equipment. Medium and large air drills have dual shoot delivery with two hydraulic cart fans with fertilizer mid row banding equipment.

An air drill with independent depth control openers utilizes a tool bar frame supported by wheels ahead of and behind the main frame, a towed commodity metering cart, and pneumatic seed and fertilizer delivery. Hydraulic, independently controlled shank assemblies complete with gauge wheel packers are fixed to the toolbar frame. Seed/fertilizer placement depth is controlled through adjustment of the gauge wheels, and packing pressure is regulated with hydraulic force. Either hoe or disk openers can be mounted to the shank assemblies depending on the manufacturer of the implement. Independent depth control openers offer the advantage of improved ground-following capabilities and precision seed/fertilizer placement depth control.

Air Hoe Drills									
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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	$350,000	116.31	55.13	25.72	197	261 (350 hp)	458	16	29
Large 51-72 FT	$850,000	282.47	133.88	62.45	479	338 (550+ hp)	817	24	34

Annual hours of use: 200
Notes: Includes appropriately sized air tank (<400 bu for small and >600 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 the power unit size and cost is appropriate.

Air hoe drills are air drills that use soil engagement tools to plow an opening into the soil for seed and/or fertilizer placement. There are several different types of tools on the market that fall into the hoe drill category. The specific type of tool used depends on the shank or tool holder used, the amount of allowable soil disturbance, and seed placement options.
Small air drills have single shoot delivery with one hydraulic cart fan with no fertilizer mid row banding equipment. Large air drills have dual shoot delivery with two hydraulic cart fans with fertilizer mid row banding equipment.

Seeding

Air Disc Drills									
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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	$675,000	224.32	106.31	49.59	380	303 (450 hp)	683	19	36
Large 50-70 FT	$1,050,000	348.94	165.38	77.15	591	338 (550+ hp)	929	28	33

Annual hours of use: 200

Notes: Includes appropriately sized air tank (<400 bu for small and >600 bu for large drills).

The power units for all air disc 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 are air drills that use a soil engagement tool to cut an opening into the soil for seed and/or fertilizer placement. The tool is typically a circular disk or coulter blade. Several variants of the disk are on the market with or without waves or notches, and/or may utilize a multiple disk arrangement or cleaner wheel options.

Small air drills have single shoot delivery with one hydraulic cart fan with no fertilizer mid row banding equipment. Large air drills have dual shoot delivery with two hydraulic cart fans with fertilizer mid row banding equipment.

Anhydrous Ammonia Fertilizer Applicators					
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
30-60 FT	$35,000	11.63	3.68	2.30	18

Annual hours of use: 200

Notes: Less tillage tool, nurse tank and trailer.

Liquid Fertilizer Applicators					
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
25-40 FT, 1600-1800 gal.tank	$55,000	18.28	5.78	3.61	28
40-60 FT, 2400-3200 gal.tank	$80,000	26.59	8.40	5.25	40
60-75 FT, 4300 gal.tank	$130,000	43.20	13.65	8.53	65

Annual hours of use: 200

Notes: Less tillage tool, includes cart.

Other Row Crop Planters									
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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	$200,000	189.39	84.00	41.01	314	128 (150 hp)	442	13	34
16 row planter	$350,000	331.44	147.00	71.77	550	166 (180 hp)	716	17	42
24 row planter	$480,000	454.54	201.60	98.42	755	227 (230 hp)	982	25	39
12/24 split row planter	$380,000	359.85	159.60	77.92	597	166 (210 hp)	763	19	40
16/32 split row planter	$450,000	426.13	189.00	92.27	707	227 (250 hp)	934	25	37

Annual hours of use: 100

Notes: The power units for all row crop planters are front wheel assist tractors. Power unit cost includes fuel, labour, and margin for tractor. Both 12/24 and 16/32 are high speed planters based on 7.5 mph travel speed.

Granular Fertilizer Applicators									
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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)
6-10 ton, spin 40 FT	$55,000	28.79	8.69	5.62	43	111 (100 hp)	154	19	8.00
10-12 ton, boom 60 FT	$225,000	117.78	80.55	29.75	228	227 (225+ hp)	455	35	13

Annual hours of use: 100

Notes: Power unit cost includes fuel, labour, and margin for tractor.

Rock Pickers							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
1.5-2.5 CU. yard	$45,000	39.49	9.45	7.34	56	111 (75 hp)	167
3.0-3.3 CU. yard	$55,000	48.27	11.55	8.97	69	111 (85 hp)	180

Annual hours of use: 50

Notes: Power unit cost includes fuel, labour, and margin for tractor.

Soil Preparation

Cultivators									
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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	$115,000	30.10	9.09	5.88	45	227 (225+ hp)	272	15	18
Medium									
36-49 FT	$150,000	39.26	11.85	7.67	59	261 (400 hp)	320	21	15
Large									
50-62 FT	$200,000	52.35	15.80	10.22	78	303 (500 hp)	381	27	14
Cultivators, heavy-duty (with tine harrows)									
Small									
23-40 FT	$135,000	35.33	10.67	6.90	53	261 (400 hp)	314	15	21
Medium									
41-50 FT	$200,000	52.35	15.80	10.22	78	303 (500 hp)	381	22	17
Large									
51-62 FT	$225,000	58.89	17.78	11.50	88	338 (550+ hp)	426	27	16

Annual hours of use: 200

Notes: 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	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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 60-90 FT	$135,000	78.98	22.68	15.25	117.00	261 (400 hp)	378.00	51	7.50
Harrows, heavy 60-90 FT	$150,000	78.52	23.70	15.33	118.00	338 (550+ hp)	456.00	51	9.00
Harrow packers 25-62 FT	$85,000	18.65	2.25	3.14	24.00	166 (175 hp)	190.00	32	6.00

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

Vertical Tillage Tools									
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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 10-30 FT	$130,000	68.05	47.84	17.38	133	261 (400 hp)	394	16	25
Large 31-50 FT	$230,000	120.40	84.64	30.76	236	338 (550+ hp)	574	31	19
Heavy duty, compact high-speed disk									
Small 10-25 FT	$165,000	86.37	60.72	22.06	169	303 (500 hp)	472	14	34
Large 26-40 FT	$275,000	143.96	101.20	36.77	282	338 (550+ hp)	620	26	24

Compact annual hours of use: 100
Heavy duty annual hours of use: 100
Notes: Power units are four-wheel drive tractors.
Power unit cost includes fuel, labour, and margin for tractor.

Soil Preparation

Land Roller									
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/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)
20 FT (Fixed)	$35,000	24.43	4.90	4.40	34	128 (100 hp)	162	9	18
40-50 FT (3 section)	$85,000	59.33	11.90	10.68	82	227 (225+ hp)	309	26	12
55-75 FT (5 section)	$125,000	87.25	17.50	15.71	120	261 (400 hp)	381	38	10

Annual hours of use: 75
Notes: Power unit cost includes fuel, labour, and margin for tractor.

Land Scraper							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
10.0-15.0 CU. yard	$95,000	112.45	31.23	22	165	261 (400 hp)	426
15.0+ CU. yard	$155,000	183.47	50.96	35	270	338 (550 hp)	608
Pull Dozer 15.0-20.0 CU. yard	$125,000	147.96	41.09	28	217	261 (400 hp)	478
Pull Dozer 21.0+ CU. yard	$190,000	224.90	62.46	43	330	338 (550 hp)	668
Rotary Ditcher	$115,000	136.13	37.81	26	200	261 (400 hp)	461

Annual hours of use: 80
Notes: Power unit cost includes fuel, labour, and margin for tractor.

Sprayers

High Clearance Sprayer							
Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)
800 US gal, 90 FT boom	$575,000	41	380.72	120.91	75.24	577	49.20
1000 US gal, 100 FT boom	$625,000	52	413.82	131.43	81.79	627	62.40
1200 US gal, 120 FT boom	$725,000	61	480.03	152.46	94.87	727	73.20
1600 US gal, 130 FT boom	$825,000	70	546.25	173.49	107.96	828	84.00

High Clearance Sprayer (continued)							
Machine Size	Purchase Price	Litre / Hour	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)	Work Rate (acre/hr)	Custom Rate ($/acre)
800 US gal, 90 FT boom	$575,000	41	28.00	11.58	666	70	9.50
1000 US gal, 100 FT boom	$625,000	52	28.00	13.56	731	78	9.25
1200 US gal, 120 FT boom	$725,000	61	28.00	15.18	843	93	9.00
1600 US gal, 130 FT boom	$825,000	70	28.00	16.80	957	101	9.50

Annual hours of use: 175
Notes: Fuel type is diesel with a 75% load assumption. To calculate fuel consumption with alternative load, refer to **Appendix E.**

The cost of hauling water is not included in the above rates. For 10 gallons/acre add $1.50/acre, and for 20 gallons/acre add $3.00/acre. Estimated custom rates at 10 gallons/acre with water hauling included are $10.50/acre to $11.00/acre.
These rates are not intended to be compared to commercial custom spraying rates. Refer to the introduction of this guide for more information.

Water Hauling							
Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Custom Rate ($/acre)
Water Truck - 5 gallons/ac	$160,000	27	86.58	28.80	32.40	28.00	0.75
Water Truck - 10 gallons/ac	$160,000	27	86.58	28.80	32.40	28.00	1.50
Water Truck - 20 gallons/ac	$160,000	27	86.58	28.80	32.40	28.00	3.00

Annual hours of use: 175
Based on truck and equipment cost of $160,000, $20 cost and 75 minutes per 2,400 gallon load of water, incl. labour and fuel costs.

Miscellaneous

Post Pounders							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
3-point hitch mount	$13,000	17.01	6.83	3.58	27	111 (55 hp)	138
Trailer mounted with engine	$25,000	32.72	13.13	6.88	53	111 (55 hp)	164
Skid steer mounted	$17,500	22.90	9.19	4.81	37	111 (55 hp)	148

Annual hours of use: 40

Notes: The power units for all post pounders are two-wheel drive tractors. Note that the smallest two-wheel drive tractor available in this guide is 100hp so 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	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
280-360 cubic FT	$57,000	18.94	7.50	3.97	30	128 (110 hp)	158
500-750 cubic FT	$100,000	33.23	13.15	6.96	53	166 (160 hp)	219
830-1,150 cubic FT	$125,000	41.54	16.44	8.70	67	227 (225+ hp)	294

Annual hours of use: 200

Notes: 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	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
Grinder Mixers							
140-165 bu	$125,000	41.54	19.69	9.18	70	128 (120 hp)	198
200-275 bu	$185,000	61.48	29.14	13.59	104	166 (200 hp)	270
Feed Mixers							
Two 6 FT bale, 40 bu grain	$65,000	21.60	10.24	4.78	37	128 (100 hp)	165
Bale Processors							
Two 6 FT round bale	$48,000	15.95	7.56	3.53	27	128 (155 hp)	155
Six 6 FT round bale	$75,000	24.92	11.81	5.51	42	166 (175 hp)	208

Grinder / Feed mixer annual Hours of Use: 200 Bale processor annual Hours of Use: 200

Note: 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.

Grain Bag Loader							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
10 FT Bagger	$70,000	56.41	14.70	10.67	82	111 (60 hp)	193
12 FT Bagger	$90,000	72.52	18.90	13.71	105	122 (125 hp)	227

Annual Hours of Use: 100

Note: Power unit cost includes fuel, labour, and margin for tractor. Additional labour to operate bagger should be added if required.

Grain Bag Extractor							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
10 FT Unloader	$70,000	56.41	14.70	10.67	82	111 (60 hp)	193
12 FT Unloader	$90,000	72.52	18.90	13.71	105	122 (100 hp)	227

Annual Hours of Use: 100

Note: Power unit cost includes fuel, labour, and margin for tractor. Additional labour to operate extractor should be added if required.

Belt Grain Conveyor (PTO)							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
20-24 in. (90 FT, non swing)	$55,000	52.08	12.16	9.64	74	111 (100 hp)	185
20-24 in. (100+ FT, swing away)	$85,000	80.49	18.79	14.89	114	128 (130 hp)	242

Annual Hours of Use: 100

Power unit cost includes fuel, labour, and margin. To obtain a total cost for auger, power unit, and fuel (but not labour), subtract $32.20 from the Custom Rate ($28/hr labour plus 15% margin).

Grain Trucks										
Machine Size	Purchase Price	Litre / Hour	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Fuel Cost ($/hr)	Labour Cost ($/hr)	Margin on Labour & Fuel ($/hr)	Custom Rate ($/hr)
Tandem	$230,000	27	101.91	40.33	21.34	164	32.40	28.00	9.06	233
Truck and 40FT Straight Trailer	$320,000	32	141.79	56.11	29.68	228	38.40	28.00	9.96	304

Annual hours of use: 150

Miscellaneous

Manure Spreader (Solid)							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
250-299 cubic FT chain unload	$61,000	57.76	28.18	12.89	99	128 (120 hp)	227
300-399 cubic FT chain unload	$65,000	61.55	30.03	13.74	105	128 (125 hp)	233
400-500 cubic FT chain unload	$74,000	70.08	34.19	15.64	120	128 (150 hp)	248
300-399 cubic FT side discharge	$70,000	66.29	32.34	14.79	113	128 (150 hp)	241
400-500 cubic FT side discharge	$90,000	85.23	41.58	19.02	146	166 (180 hp)	312
500+ cubic FT side discharge	$100,000	94.70	46.20	21.13	162	166 (200 hp)	328
250-300 cubic FT, hyd. push, vert. beaters (requires 150 hp)	$80,000	75.76	36.96	16.91	130	128 (150 hp)	258
400-500 cubic FT, hyd. push, vert. beaters (requires 200 hp)	$100,000	94.70	46.20	21.13	162	166 (200hp)	328

Annual hours of use: 100

Notes: Power units for all manure spreaders are front wheel assist tractors. Power unit cost includes fuel, labour, and margin for tractor.

Front End Loader							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
For 100-159 hp tractor	$28,000	14.66	9.72	3.66	28	128	156
For 160-224 hp tractor	$49,000	25.65	17.00	6.40	49	166	215

Annual hours of use: 100

Notes: The power unit cost includes fuel, labour, and margin for front wheel assist tractors.

Livestock Trailer					
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)
20 FT gooseneck	$28,000	18.61	5.88	3.67	28
24 FT gooseneck	$52,000	34.56	10.92	6.82	52

Annual hours of use: 100

Snow Blower							
Machine Size	Purchase Price	Ownership Cost ($/hr)	Repair & Maint. (R&M) Cost ($/hr)	Margin on Ownership and R&M ($/hr)	Rental Rate ($/hr)	Power Unit Cost ($/hr)	Custom Rate ($/hr)
Rear mount, 96 in. (requires 110 hp)	$11,000	11.52	2.31	2.07	16	128	144
Rear mount, 108 in. (requires 130 hp)	$18,000	18.85	3.78	3.39	26	128	154

Annual Hours of Use: 50

Notes: The power units for snow blowers are front wheel assist tractors. Note that the smallest front wheel assist tractor available in this guide is 100 hp, so power unit cost for equipment that requires a smaller power unit may be over-estimated.

Appendix A

Hauling Grain from Field to Yard

Truck cost - excluding labour	$175 /hour*
Auger cost - 8 inch x 55' with gas engine (excluding labour)	$22 /hour
Labour cost	$28 /hour

Distance from Field to Yard (miles)	0.5	1	1.5	2	3	4	6	10
TIME USE								
(A) Time unload twice from one combine or once from each of two combines (min)	10	10	10	10	10	10	10	10
(B) Travel time to yard and return (min)	4	6.5	8.5	10	12	15	21	33
(C) Time truck running during unload (min)	4	4	4	4	4	4	4	4
(D) Truck running time per trip (min)	18	20.5	22.5	24	26	29	35	47
(E) Total unload time at bin (min)	7	7	7	7	7	7	7	7
Wait Time in Field ***(truck not running) (min)***								
(F) Hauling from one combine (min)	47	44.5	42.5	41	39	36	30	18
(G) Hauling from two combines (min)	11	8.5	6.5	5	3	0	0	0
Total Time per Trip								
(H) Hauling from one combine (min)	68	68	68	68	68	68	68	68
(I) Hauling from two combines (min)	32	32	32	32	32	32	38	50
COMPONENT COSTS PER TRIP								
(J) Truck costs per trip	$52.52	$59.81	$65.65	$70.03	$75.86	$84.61	$102.12	$137.13
(K) Auger costs per trip	$2.57	$2.57	$2.57	$2.57	$2.57	$2.57	$2.57	$2.57
(L) Labour costs per trip (one combine)	$31.73	$31.73	$31.73	$31.73	$31.73	$31.73	$31.73	$31.73
(M) Labour costs per trip (two combines)	$14.93	$14.93	$14.93	$14.93	$14.93	$14.93	$17.73	$23.33
CUSTOM RATE ($/hr) (includes 15% margin)								
(N) Hauling from one combine	$88.10	$95.50	$101.42	$105.86	$111.78	$120.66	$138.43	$173.95
(O) Hauling from two combines	$150.98	$166.71	$179.29	$188.73	$201.31	$220.18	$222.29	$224.99
CUSTOM RATE ($/bu) (includes 15% margin)								
(P) Hauling from one combine (bu/hr = 300)	$0.29	$0.32	$0.34	$0.35	$0.37	$0.40	$0.46	$0.58
(Q) Hauling from two combines (bu/hr = 600)	$0.25	$0.28	$0.30	$0.31	$0.34	$0.37	$0.37	$0.37

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 $230,000 purchase price, 150 hours of annual usage, 2.63% repair and maintenance rate, $1.20/L diesel, 27 L/hr fuel usage, 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)		5.50%
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:

(Replacement cost) x (1.98 (Interest Rate) - 0.0054) / Years of Loan = This assumes 50% borrowed and seven-year loan		($20,000 x ((1.98 x 0.055) - 0.0054)) / 7 = $296

C. Insurance:

Annual insurance premiums =		$60

D. Repairs:

Annual repair rate x Replacement cost =		(0.005 x $20,000) = $100
Total = A + B + C + D		($400 + $296 + $60 + $100) = $856 per year
Total (per bushel)		$856 per year / 3000 bu = $0.29/year per bu

Repair rates are difficult to estimate. Steel buildings (bins and quonsets) might be 0.5% of replacement cost per year. Aeration fans might 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 approximately $0.10 / hp / hr for electricity costs.

Appendix C

Work Rate Calculation Worksheet

The work rate (acres/hr) is the sum of the implement working width (ft), the average ground speed (mph), the field efficiency and the acres per foot per mile. Formula below:

$$\text{Work Rate}\left(\frac{acre}{hr}\right) = Width\ (ft)\ x\ Speed\ (mph)\ x\ Field\ Efficiency\ x\ \frac{5280\ ft/mile}{43560\ ft^2/acre}$$

The field efficiency accounts for time spent turning, filling, and emptying equipment. Average field efficiency for operations is 80%. Average field efficiency for spraying is 64% and seeding is 70%.

The field efficiency must be presented as a decimal (e.g., 80% = 0.80)

	Your Value	Example
Impement Width (feet)		35
Average ground speed (mph)		5
Field Efficiency (%)		80%
Feet / mile		5,280
Feet^2 / acre		43,560

Calculate:

A. Implement Width (feet)**:**		35
B. Average ground speed (mph)**:**		5
C. Field Efficiency (%)**:**		0.80
D. Acres per foot per mile: (Feet per mile) / (Square feet per acre)		(5,280 / 43,560) = 0.1212
Total = A x B x C x D Workrate (acres/hour)		(35 x 5 x 0.80 x 0.1212) = 16.97 acres per hour

Appendix D

Assumptions for Machinery Cost Calculations

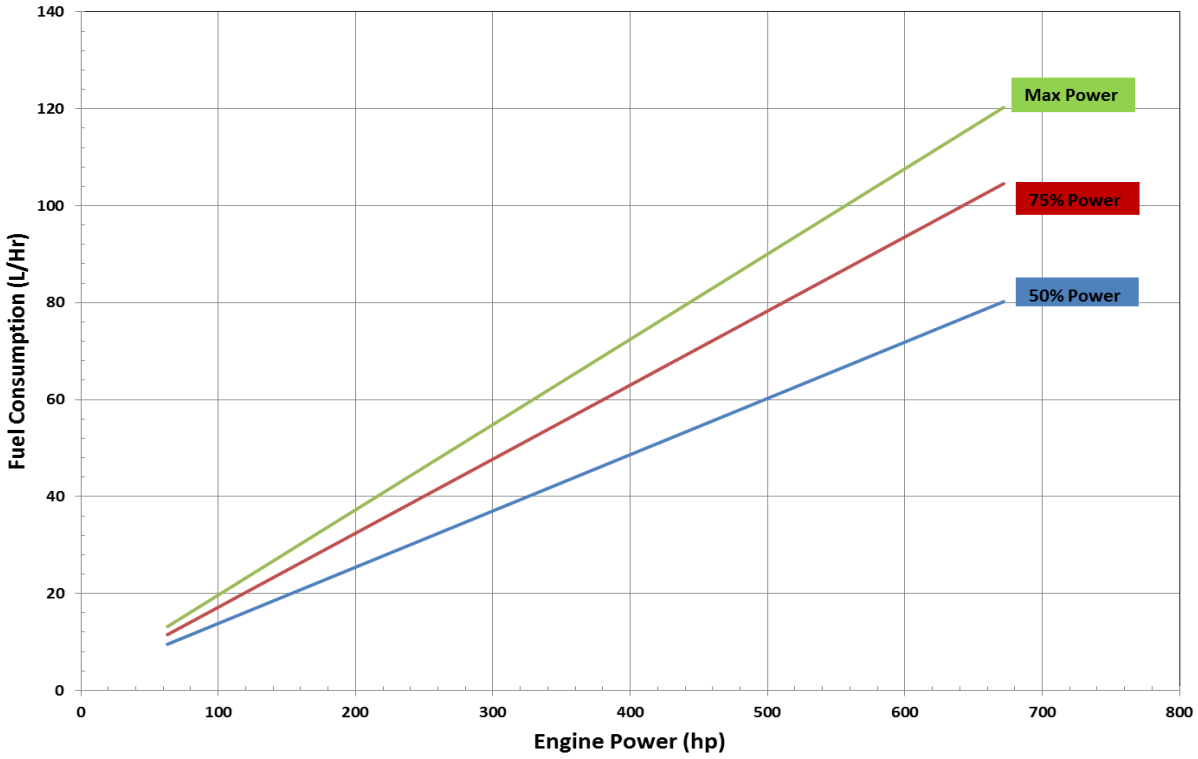
Machine	Column A Annual Hours of Usage	Column B Optimal Life (years)	Column C Repair Rate (% of purchase price)	Column D Average Field Speed (mph)
Tractors				
Two-wheel drive	300	20	2.31	
Front wheel assist	450	15	2.73	
Four-wheel drive	450	15	2.63	
Tracked	450	15	3.36	
Combines				
SP Rotary	250	12	2.63	
Combine headers				
Rigid headers	250	20	2.10	
Pickup headers	250	20	1.58	
Flex headers	250	15	2.63	
Draper headers	250	15	2.94	
Corn headers	100	15	2.94	
Swathers SP	200	15	2.10	5.5
Grain Carts	250	20	2.10	
Powered Augers	100	20	1.58	
PTO Augers	100	20	1.05	
Belt Grain Conveyor	100	10	2.21	
Grain Vac	50	15	2.10	
Grain Baggers	100	12	2.10	
Grain Trucks	150	15	2.63	
SP Forage Harvester	400	10	8.40	6.5
SP Forage Harvester Header	400	10	8.40	
SP Mower/conditioner	150	15	3.36	8.0
PT Mower/conditioner (sickle)	150	15	2.10	5.0
PT Mower/conditioner (disc)	150	15	2.63	8.0
Balers				
Round	100	15	1.58	
Large square	150	15	1.79	
Small square	100	20	1.05	
Bale movers				
PT Round	100	15	2.63	
PT Large square	200	20	2.10	
SP Small square	150	15	2.63	
Air drills (independent openers)	200	15	3.68	4.75
Air hoe drills	200	15	3.15	4.75
Air disk drills	200	15	3.15	5.5
Row crop planters	100	10	4.20	5.0
Row crop planters - split row	100	10	4.20	7.5

Appendix D

Machine	Column A Annual Hours of Usage	Column B Optimal Life (years)	Column C Repair Rate (% of purchase price)	Column D Average Field Speed (mph)
Cultivators	200	20	1.58	5.0
Standard harrows	75	25	1.26	7.5
Heavy harrows	100	20	1.58	7.5
Harrow packers	200	25	0.53	7.5
Vertical tillage tools	100	20	3.68	8.0
Land roller	75	20	1.05	6.0
Rock picker	50	25	1.05	
Land scrapers and ditchers	80	10	2.63	
High clearance sprayers	175	8	3.68	10.0
Granular spin spreaders	100	20	1.58	5.0
Granular boom spreaders	100	20	3.58	6.0
Post pounder	40	20	2.10	
Vertical feed mixer	200	15	2.63	
Grinder mixers and feed mixers	200	15	3.15	
Bale processors	200	15	3.15	
Manure spreader	100	10	4.62	

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

Appendix F

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

Dollars per Bale													
Bales per hour	Dollars 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

Appendix F

Hectares per Hour (at 80% field efficiency)													
Speed in km/h	Width in Metres												
	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
3	0.48	0.72	0.96	1.20	1.44	1.68	1.92	2.16	2.40	2.64	2.88	3.12	3.36
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)													
Speed in mph	Width in Feet												
	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
13	7.56	12.61	17.65	22.69	27.73	32.78	37.82	42.86	47.90	52.95	57.99	63.03	68.07
14	8.15	13.58	19.01	24.44	29.87	35.30	40.73	46.16	51.59	57.02	62.45	67.88	73.31
15	8.73	14.55	20.36	26.18	32.00	37.82	43.64	49.45	55.27	61.09	66.91	72.73	78.55

Appendix G

Formulas Used in Calculations

A) Ownership costs per hour are the sum of (i) Depreciation, (ii) Investment costs, (iii) Insurance and Housing.

i) Depreciation represents the "value" of equipment over the hours it is owned.

Depreciation Cost ($/hr)= ((Purchase Price-Retained Value)/(Optimal Life))/(Annual hrs of use)

Where:

- Purchase price = average purchase price of manufacturer's base list price and the list price with all available options
- Retained value = value of equipment at end of ownership ($) (also known as salvage value)
- Optimal Life = number of years before trade-in or 2/3 useful life (yr)
- Annual hours of use = typical number of hours equipment is used in one year (hr)

For example, for a combine with a purchase price of $600,000, a retained value of $200,000 at the end of its 12 year optimal life, and 250 annual hours of usage, the depreciation cost is:

Depreciation Cost ($/hr)= (($600,000-$200,000)/12)/250=$133.33/hr

ii) Investment represents the interest cost of borrowing money to purchase the equipment along with the opportunity cost of the down payment.

It is assumed that 50% of the purchase price is financed over a 7 year term. The interest is compounded biannually, so each year includes two payment periods.

In the printed and online guides, amortization tables were used to determine the total interest paid over the seven-year loan. This total interest cost was divided by the optimal life and annual hours of use to determine an interest cost per hour.

To estimate the investment cost, you to calculate the total interest plus opportunity cost over the life for each piece of equipment (which has a unique purchase price, optimal life and annual hours of use). Note that this equation still assumes that 50% of the purchase price is borrowed:

Investment Cost ($/hr)= (Interest Cost + Opportunity Cost)/(Optimal Life))/(Annual hrs of Use)

For example, for a combine (borrowing rate = 6.25%, opportunity rate = 1.5%, $600,000 purchase price, 12-year optimal life, 250 hours annual usage), the investment cost is:

Investment Cost ($/hr)= (($74,986+$33,191) /12)/250 = $36.06/hr

iii) Insurance and Housing

Insurance and housing are assumed to be 1% of the purchase price per year

For the SP combine with a $600,000 purchase price and 250 hours/year:

Insurance & Housing Cost ($/hr)= (1%)/(100%) x ($600,000)/250=$24.00/hr

Therefore, the total ownership cost for this conventional combine is:

Ownership Cost=Depreciation+Investment+Insurance & Housing=$133.33/hr+$36.06/hr+$24/hr = $193.39/hr

B) Repair and Maintenance Costs are calculated based on a repair rate that represents the repair costs per year of ownership. These repair rates were determined by estimating the total repair and maintenance costs over the ownership of the equipment (including oil and filters, general maintenance, and one major rebuild). The total repair cost was divided by the ownership years and purchase price to determine the repair rates used in the guide.

Repair and Maintenance Cost ($/hr)= ((Repair Rate (%))/(100%) x(Purchase Price))/(Annual hrs of use)

Appendix G

For example, for a SP combine, the total repair cost per year is approximately $15,780. This represents 2.63% of the purchase price. For the rental rates in the Guide, repair rates (based on a percentage of purchase price) were established for each type of equipment (refer to Appendix D).

Repair and Maintenance Cost ($/hr)= ((2.63%/100) x $600,000)/250=$63.12/hr

C) Margin on Ownership and Repair and Maintenance represents a cushion (or contingency) and is calculated by:

Margin=(Margin (%))/(100%) x(Ownership Cost+Repair and Maintenance Cost)

For the combine example, the margin on ownership and repair and maintenance is:

Margin= (15%)/(100%) x($193.39+$63.12)=$38.48/hr

D) Rental Rate per hour is the sum of the Ownership Costs, Repair and Maintenance Costs, and Margin on Ownership and Repair and Maintenance.

Rental Rate ($/hr)=Ownership Cost+Repair and Maintenance Cost+Margin

For the combine example, the total rental rate is:

Rental Rate=$193.39+$63.12+$38.48=$294.99/hr

E) Fuel Costs are calculated by:

Fuel cost ($/hr)=Fuel efficiency (L/hr) x Price of fuel ($/L)

For example, for a SP combine the fuel efficiency is approximately 51 L/hr and the price of diesel is $1.20/L:

Fuel Cost ($/hr) = 51 x $1.20 = $61.20/hr

F) Labour Costs

Labour costs are assumed to be $28.00/hr.

G) Margin on Fuel and Labour is calculated by:

Margin=(Margin (%))/(100%) x(Fuel Cost+Labour Cost)

For the SP combine example, the margin on fuel and labour is:

Margin on fuel and labour= (15%)/(100%) x($61.20+$28.00)=$13.38/hr

H) Custom Rate per hour is the sum of the Rental Rate, Fuel and Labour Cost, and a Margin on Fuel and Labour.

Custom Rate($/hr)=Rental Rate($/hr)+Fuel cost($/hr)+Labour($/hr)+Margin on fuel and labour($/hr)

For the SP combine example, the custom rate is:

Custom Rate=$295+$61.20+$28.00+$13.38=$398/hr

The custom rental rate (per acre) is calculated by:

Custom Rate ($/acre)= (Custom Rate ($/hr))/(Work Rate (acre/hr))

Combine headers are considered as an add-on rental rate to the custom rate since the rental rate does not include fuel, labor, or a margin on fuel and labor.

For example, for a SP combine, if the rental rate for a 15 ft pickup header is $14.00/hr, and the work rate of the SP combine and header combined is 10 acre/hr then the custom rate is:

Custom Rate ($/acre)=($398+$14) / 10 = $41/acre

Appendix H

Rental Rate Calculation Worksheet

The Ownership Cost per hour is the sum of (i) Depreciation Costs, (ii) Investment Costs, and (iii) Insurance and Housing Costs.

i) *Depreciation Cost ($/hr) =* $\frac{\text{(Purchase Price - Retained Value) / Optimal Life}}{\text{Annual hours of use}}$

ii) *Investment Cost ($/hr) =* $\frac{\text{(Interest Cost + Opportunity Cost)/ Optimal Life}}{\text{Annual hours of use}}$

The total interest cost of borrowing depends on the interest rate and the purchase price. This calculation assumes that 50% of the purchase price is borrowed and the payback period of the loan is 7 years and equal payments are made biannually.
The borrowing rate and opportunity rate should be added together to determine the interest rate and total investment cost.

iii) *Insurance and Housing Cost ($/hr) = (Purchase Price x 1%) / Annual Hours of Use*

The total rental rate ($/hr) is the sum of the Ownership Cost, Repair and Maintenance Cost, and Margin.

iv) *Repair and Maintenance Cost ($/hr) = (Repair Rate x Purchase Price) / Annual Hours of Use*

v) *Margin ($/hr) = Margin x (Ownership Cost + Repair and Maintenance Cost)*

The rental rate ($/acre) can be estimated by dividing the total rental rate ($/hr) by the work rate (acre/hr).

vi) *Work Rate (acre/hr) = Width (ft) x Speed (mph) x Field Efficiency x* $\frac{\text{5,280 ft/mile}}{\text{43,560 ft}^2\text{/acre}}$

The purchase price is the cash value of the new equipment without a trade-in

The retained value of the equipment is the value at the end of its optimal life (assumed to be 33% of the purchase price)

The optimal life of the equipment is the years of useful life before trade-in (refer to **Appendix D** for typical values)

The annual hours of use are the typical number of hours equipment is used in one year (refer to **Appendix D** for typical values)

The interest rate can be used to represent the cost of borrowing only or the cost of borrowing plus the lost revenue of investment.

For this calculation, the interest rate must be presented as a decimal (e.g., 6.3% = 0.063)

Typical repair rates for equipment can be found in **Appendix D**. The repair rate must be presented as a decimal (e.g., 2% = 0.02)

The margin represents a profit for the farmer (assumed to be 15%). The margin must be presented as a decimal (e.g., 15% = 0.15)

The width represents the implement width in feet

The speed is the average ground speed in miles per hour

The field efficiency accounts for time spent turning, filling, and emptying equipment. Average field efficiency for operations is 80%.

Average field efficiency for spraying is 64%. Average field efficiency for seeding is 70%. The field efficiency must be presented as a decimal (e.g., 80% = 0.80)

Appendix I

Custom Rate Calculation Worksheet

The custom rate ($/hr) is the sum of the rental rate ($/hr), the fuel cost ($/hr), the labour cost ($/hr) and the margin on fuel and labour ($/hr). Custom operations may include costs for a power unit only (e.g., four-wheel drive tractor) or a power unit and implement (e.g., tractor and air seeder).

Power Unit Cost ($/hr) = Rental Rate + Fuel Cost + Labour Cost + Margin on Fuel and Labour

i) Use **Appendix H** to calculate the rental rate of the power unit ($/hr)

ii) Fuel Cost ($/hr) = Fuel usage (L/hr) x Fuel price ($/L)

iii) Labour Cost ($/hr)

iv) Margin on Fuel and Labour ($/hr) = Margin x (Fuel Cost + Labour Cost)

Machine Cost ($/hr) = rental rate based on **Appendix H**

v) Total Custom Rate ($/hr) = Power Unit Cost + Machine Cost

vi) Total Custom Rate ($/acre) = $\dfrac{\text{(Power Unit Cost ($/hr) + Machine Cost ($/hr))}}{\text{(Work Rate (acre/hr))}}$

vii) Work Rate (acre/hr) = Width (ft) x Speed (mph) x Field Efficiency x $\dfrac{\text{5,280 ft/mile}}{\text{43,560 ft}^2\text{/acre}}$

Contact us

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