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Custom Machine Work Rates in Michigan
Michigan State University Cooperative Extension Service
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Custom Machine Work Rates in Michigan

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Introduction

Custom work can be an economically desirable alternative for both the buyer and the seller of the machine-labor service combination. The problem continually encountered in this arena is often expressed as “What is a fair charge?” or “How much should I pay?” for the service in question. Data in this bulletin help provide some answers to these questions.

Custom work has the potential of being a win-win event for both the buyer and the seller of the machine service. The custom work package usually includes the machine, operator, fuel and repairs required to keep the machine operating. Hiring custom work services enables farmers who have limited time, skills, investment capital and/or land base to employ modern machine technology. For the owner of the machine, performing custom machine services can provide supplemental income when excess labor and machinery capacity are available.

Because there is no standardized market structure for machine services, determining a fair price for custom work continues to be difficult. Economics suggests that the price should be a function of the demand for and the supply of the custom work services available. Because the transportation cost of the machine service is high relative to the potential income earned, the geographical market area for many machine services is quite limited.

This publication presents the most recent Michigan price data for tractor rental rates and custom work machine services.

Sources of Data

Data were gathered via mail survey to 923 potential respondents in the spring of 2001. Usable responses totaled 235. Figure 1 presents the geographical distribution of respondents. Responses to individual items were not published unless at least five responses were received.

Using the Data

The average rate or price can provide a benchmark or guide in determining custom work rates for each unique situation. Please note that the rates reported are not recommended rates. The reported rates for custom machine services may not reflect the total cost of the service. This situation can occur because the service is being provided by someone who has excess machinery capacity and views custom work as supplemental to his/her own farm income. Also, each location and machine service is unique. The range in rates indicates how widely dispersed were the responses. A more narrow range indicates the tendency of the reported rates to be in the neighborhood of the average; for a wider range of rates, the converse is true.

Table 1. Tillage.

Operation	Range in rates		Average rate
	Per acre		
Moldboard plowing	\$10 - 30		\$15.00
Chisel plowing	9 - 18		12.50
Mulch-tiller (disk-chisel)	9 - 18		13.15
V-ripping (14-inch depth)	8 - 25		15.75
Tandem disking	5 - 25		10.15
Offset disking	10 - 30		15.20
Cultimulching	6 - 12		8.55
Spring tooth harrow	3 - 10		7.20
Spike tooth harrow	4 - 10		6.75
Rotary hoe	3 - 10		5.05
Soil finisher	7 - 16		11.25
Field cultivator	4 - 15		8.40
Row cultivator w/fertilizer	7 - 20		10.45
Row cultivator w/o fertilizer	5 - 15		7.35

¹The authors acknowledge the assistance provided by Ned Birkey, MSU Extension agricultural agent, in identifying potential respondents in the survey.

Table 2. Planting.

Operation	Range in rates	Average rate
	Per acre	
Small grains		
Broadcast	\$4 - 18	\$10.15
Drill		
Conventional	5 - 20	11.25
Minimum	5 - 20	12.35
No-till	8 - 25	15.30
Alfalfa, Clover, etc.		
Conventional	5 - 25	12.15
No-till	4 - 18	13.45
Soybeans		
Row		
Conventional	5 - 20	13.15
Minimum	5 - 20	12.30
No-till	8 - 25	16.25
Drill		
Conventional	5 - 20	12.45
Minimum	5 - 20	13.75
No-till	8 - 23	14.80
Corn		
Conventional	5 - 25	13.80
Minimum	5 - 24	14.40
No-till	7 - 30	17.70
Sugar beets	12 - 20	15.20

Table 3. Fertilizer and chemical applications¹.

Application	Range in rates	Average rate
	Per acre	
Dry bulk		
Equipment only	\$1 - 6	\$4.15
Custom application without GPS	2 - 10	4.80
Custom application with GPS	4 - 9	5.75
Liquid — knifed in		
Equipment only	1 - 11	6.05
Custom application without GPS	3 - 9	6.50
Liquid — ground sprayer		
Equipment only	1 - 7	5.00
Custom application without GPS	4 - 8	5.55
Anhydrous ammonia		
Equipment only	2 - 15	9.80
Custom application without GPS	6 - 14	9.65
Spreading lime		
Equipment only	2 - 7	4.60
Custom application without GPS	4 - 35	11.00
Custom application with GPS	5 - 22	10.40
Aerial spraying		
Equipment only	6 - 10	7.70
Custom application without GPS	4 - 10	6.25
Custom application with GPS	5 - 8	6.15
Self-propelled spraying		
Equipment only	3 - 8	5.10
Custom application without GPS	2 - 12	5.55
Pull-type spraying		
Equipment only	4 - 7	5.15
Custom application without GPS	4 - 17	6.15

¹The prices listed reflect application only. Cost of materials is excluded.

Table 4. Trucking or hauling, Michigan, 2001.

Operation	Unit	Range in rates	Average rate
Crops			
Grain	/bushel	\$0.03 - 0.90	\$.17
Grain	/loaded mile	1 - 5.50	2.25
Sugar beets	/ton	2.85 - 5.50	4.15
Livestock			
Cattle	/head	5 - 40	14.95
Cattle	/cwt.	0.60 - 2.50	1.56
Cattle	/loaded mile	1.35 - 2.20	1.79
Milk	/loaded mile	0.36 - 0.60	0.48

Table 5. Grain and silage harvesting.

Operation	Unit	Range in rates	Average rate
Combining			
Corn	/acre	\$17 - 33	\$22.90
Soybeans	/acre	15 - 35	22.85
Wheat and small grains	/acre	15 - 30	21.30
Dry beans	/acre	20 - 25	23.10
Picking ear corn	/acre	15 - 35	21.85
Shredding corn stalks	/acre	4 - 12	7.90
Sugar beet lifting	/acre	50 - 80	64.45
Corn silage			
Field chopping w/kernel processor	/ton	2 - 4	3.10
Field chopping w/kernel processor	/hour	90 - 400	211.25
Field chopping w/o kernel processor	/hour	20 - 100	67.14
Chop haul w/kernel processor	/ton	5 - 7	5.30
Grain drying			
Corn	pt./bu.	0.02 - 0.06	0.03
Silage bagging			
Bag diameter: 9 ft.	/ft.	4.60 - 9.00	6.05

Table 6. Management services.

Activity	Unit	Range in rates	Average rate
Accounting	/hour	\$12 - 125	\$63.85
Crop scouting for weeds	/acre	0.83 - 7.00	3.10
Crop scouting for insects	/acre	0.83 - 30.00	10.75
Crop scouting for all pests	/acre	0.83 - 11.00	3.60
Estate planning	/hour	85 - 200	137.80
GPS grid sampling	/acre	1 - 12	6.95
GPS grid sampling	/hour	1 - 12	17.60
Traditional soil sampling	/acre	0.70 - 4.00	1.90

Table 7. Hay harvesting operations, Michigan, 2001.

Operation	Unit	Range in rates	Average rate
Hay			
Mowing and conditioning	/acre	\$4 - 15	\$10.25
Mowing and conditioning	/hour	10 - 90	47.80
Raking	/acre	2 - 12	4.50
Haylage			
Field chopping only	/hour	100 - 350	237.50
Chop, haul, pack, blow	/hour	160 - 575	335.20
Baling hay			
Small square bales	/bale	0.20 - 1.50	0.50
Square bales <1,000 lbs.	/bale	5 - 10	7.70
Large square bales	/bale	6 - 9	7.00
Round bales <1,000 lbs.	/bale	4 - 9	6.00
Round bales >1,000 lbs.	/acre	7 - 26	14.80
Round bales >1,000 lbs.	/bale	3.00 - 10.00	6.25
Baling straw			
Small square bales	/bale	0.20 - 1.25	0.45
Square bales <1,000 lbs.	/bale	5 - 10	7.30
Round bales <1,000 lbs.	/bale	4 - 12	6.25
Round bales >1,000 lbs.	/bale	5 - 12	6.85
Cost of entire operation			
Small square bales	/bale	0.45 - 3.50	1.30
Hauling bales			
Round bales >1,000 lbs.	/bale	2 - 8	4.60

Table 8. Manure handling and miscellaneous.

Operation	Unit	Range in rates	Average rate
Solid manure			
Spreading only	/hour	\$15 - 60	\$36.00
Loading and spreading	/hour	25 - 60	43.15
Liquid manure			
Hauling and spreading	/hour	50 - 250	109.60
Bulldozer use	/hour	25 - 100	67.10
Chain sawing	/hour	12.50 - 55	27.50
Tiling (digging-trenching only)	/ft.	0.6 - 0.40	0.26
Tiling (plowing or pulling-in only)	/ft.	0.15 - 0.32	0.21

Table 9. Machinery rental operations.

Machinery	Range in rates	Average rate
	Per hour	
Tractors only		
Under 50 HP	\$9 - 35	\$18.80
50-99 HP	10 - 45	24.05
100-149	6 - 55	28.60
150 HP and over	15 - 65	34.55
4-wheel drive <175 HP	15 - 65	43.85
4-wheel drive >175 HP	15 - 100	47.90
Combines only		
6-row and larger /hour	50 - 270	95.45
6-row and larger /acre	15 - 27	22.15

Table 10. Custom farming rates.

Crop	Range in rates	Average rate
	Per acre	
Corn	\$15 - 210	\$70.35
Soybeans	15 - 155	58.70
Small grains	16 - 80	46.20

Table 11. Building rental.

Building	Unit	Range in rates	Average rate
Dairy barn for heifers and/or dry cows	head / month	\$0.35 - 6	\$3.15
Grain storage	bushel/ month	0.01 - 0.06	0.03

Table 12. Other custom work.

Activity	Unit	Range in rates	Average rate
Backhoe	/hour	\$20 - 85	\$51.00
Boring post holes	/hour	15 - 60	45.00
Hauling and spreading lime	/ton	4 - 16.50	11.30
Milking	/hour	7 - 15	9.55
Rotary mowing (weeds)	/hour	11 - 70	30.20
Snow plowing	/hour	15 - 115	51.75

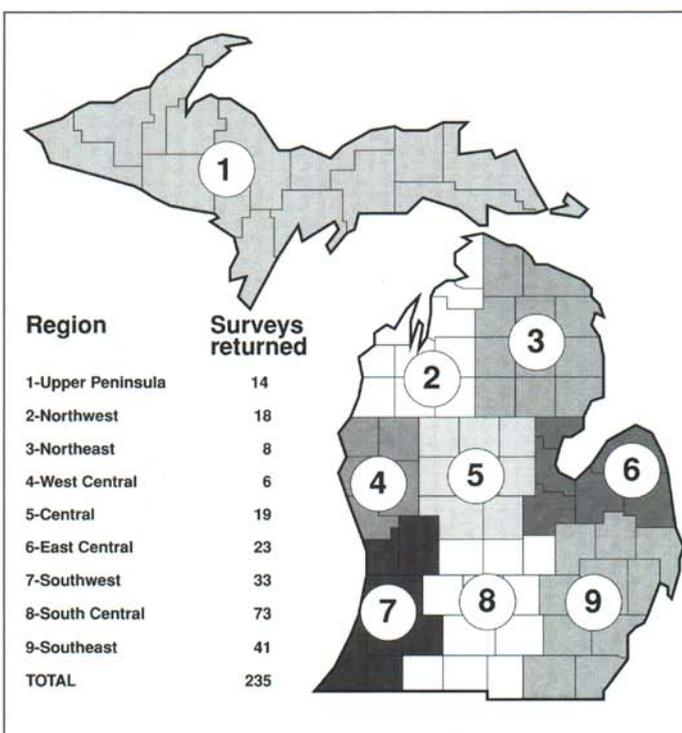


Figure 1. Distribution of responses to 2001 custom machine work rates survey by Michigan Agricultural Statistic Service crop reporting districts.

PART II. HOW TO FIGURE CUSTOM RATES

If you are hiring or doing custom work, the following will help you determine the custom rate. Custom rates are based on tradition or usual rates set in the community, the bargaining positions of both parties (i.e., availability of machinery services and demand for machinery services in your local area) and costs of operating the machines on your farm. Cost of ownership and operation can be determined as follows:

Ownership cost per unit (e.g., acre, bushel, ton, hour) using the DIRT1 5:

1. Depreciation:	$\frac{\text{original cost} - \text{salvage value}}{\text{years of use}}$	\$ _____
2. Interest:	interest rate x AIV ^a	\$ _____
3. Repairs:	estimated 2 to 5% of original cost	\$ _____
4. Taxes:	(0 in Michigan — i.e., no taxes on personal property used in agriculture)	\$ _____
5. Insurance:	(estimated 0.5% x AIV for insurance premium)	\$ _____
6. Total ownership cost per year	(add lines 1 - 5)	\$ _____
A. Ownership cost per unit: total ownership cost ÷ estimated annual use (acre, hour, bushel, ton)		(A) \$ _____

Operating cost per unit (acre, hour, bushel, ton)

1. Tractor:	gas, diesel fuel, oil, motor maintenance (gal. fuel per unit x price/gal.) x 1.15 ^b	\$ _____
2. Machine:	gas, oil, maintenance Gal. fuel per unit x 1.15 ^b	\$ _____
3. Labor:	hours per unit x wage rate. (If labor wage unit is per acre, bushel or ton, multiply this wage rate by acres, bushels or tons per hour to determine wage/hour.)	\$ _____
B. Total operating cost per unit		(B) \$ _____
C. Total ownership and operating cost per unit		(A+B) \$ _____
D. Desired profit margin and/or risk premium		_____%
E. Custom rate (per acre, hour, bushel, ton)	Line C x [1 + (Line D/100)]	\$ _____

^a Average investment value (AIV) = (original cost basis + salvage value) ÷ 2.

^bThe addition of 15 percent above fuel cost is for oil and minor maintenance.



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