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Custom Machine Work Rates in Michigan
Michigan State University Cooperative Extension Service
Marcelo E. Siles, Gerry Schwab, Agricultural Economics
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Custom Work Rates in Michigan

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Custom work can be an economically desirable alternative for both the buyer and 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 item in question. Data in this bulletin helps provide some answers to these questions.

The custom work phenomenon has the potential of being a win-win event for both the buyer and 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 in situations where 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.

Presented in Section I of this publication are our most recent Michigan price data for labor wages, tractor rental rates, and custom work machine services.

Data were originally gathered via mail survey to 2,000 potential respondents in the fall of 1992. The geographical distribution of the 706 usable responses is presented in Figure 1. Data presented includes the number of respondents for the event, the state average price, and the average price for each of nine crop reporting districts. The rates reported are not recommended rates, but are actual prices. These prices can provide a benchmark and guide in determining custom work rates for each unique situation.

Actual rates reported for custom machine services may not be reflective of 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. Section II of this paper provides a suggested method to calculate the total ownership and operating costs for a machine service.

The two sections of this paper are:

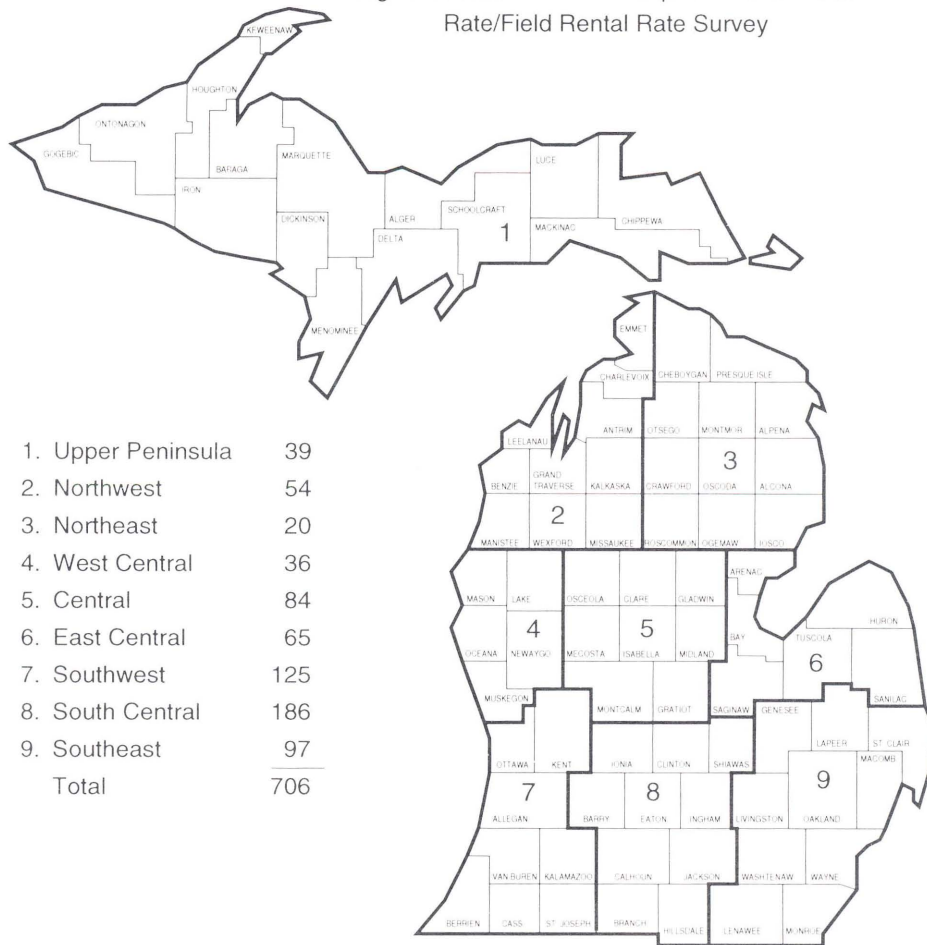
Section I.

- Table 1. Labor Wages and Perquisites
- Table 2. Tractor Rental Rates
- Table 3. Tillage Custom Rates
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- Table 6. Harvesting Custom Rates
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Section II.

How to Figure Custom Rates

Figure 1. Distribution of Responses to Custom Rate/Field Rental Rate Survey



1. Upper Peninsula	39
2. Northwest	54
3. Northeast	20
4. West Central	36
5. Central	84
6. East Central	65
7. Southwest	125
8. South Central	186
9. Southeast	97
Total	706

Section I.

Table 1. Labor Wages and Perquisites

	No.	MI State Avg.	Crop Reporting Districts								
			1	2	3	4	5	6	7	8	9
Part-time (\$/hour)	492	5.35	5.00	5.50	5.00	5.20	5.10	5.20	5.35	5.55	5.55
Milking	86	7.10	7.80	8.50	9.00	7.00	8.15	6.80	7.20	6.30	6.35
Chainsaw	24	12.90	10.25	9.15	--	--	14.00	--	17.50	13.00	15.00
Full-Time (\$/month)	255	1,431	1,720	1,438	1,284	1,253	1,227	1,486	1,471	1,529	1,308
% Providing:											
Housing		47.45	30.00	58.82	42.86	52.94	33.33	62.50	44.83	52.78	43.33
Meat		47.45	40.00	58.82	42.86	52.94	62.50	31.25	34.48	52.78	53.33
Milk		34.51	30.00	41.18	28.57	64.71	58.33	37.50	18.97	29.17	40.00
Med. Ins.		50.20	60.00	58.82	28.57	41.18	45.83	25.00	55.17	55.56	43.33
Life Ins.		11.76	40.00	0.00	0.00	11.76	4.17	0.00	18.97	13.89	6.67
Workman's Compensation		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Unemployment Insurance		22.35	40.00	29.41	0.00	17.65	16.67	6.25	37.93	18.06	13.33
Transportation		20.39	10.00	23.53	28.57	35.29	16.67	12.50	24.14	19.44	16.67
Retirement		14.51	30.00	17.65	0.00	5.88	12.50	6.25	20.69	15.28	10.00

Table 2. Tractor Rental Rates

	No.	MI State Avg.	Crop Reporting Districts								
			1	2	3	4	5	6	7	8	9
			(\$/Hour)								
Less than 120 HP*	99	20.90 (85 HP)	17.95 (67 HP)	25.00 (63 HP)	29.00 (109 HP)	23.50 (90 HP)	22.70 (94 HP)	15.00 (106 HP)	22.25 (108 HP)	18.65 (114 HP)	25.80 (110 HP)
More than 120 HP*	110	30.10 (160 HP)	--	--	37.85 (165 HP)	34.00 (137 HP)	30.60 (142 HP)	21.85 (164 HP)	34.40 (167 HP)	26.70 (180 HP)	31.85 (176 HP)

*Horsepower.

Table 3. Tillage Custom Rates

	No.	MI State Avg.	Crop Reporting Districts								
			1	2	3	4	5	6	7	8	9
			(\$/Acre)								
Moldboard Plow	197	13.10	13.00	15.00	15.05	10.60	13.40	14.80	12.75	13.00	12.15
Chisel	161	10.70	9.20	11.60	11.20	6.85	10.45	11.40	11.25	10.70	10.10
Mulch-Till	78	11.60	--	20.00	8.00	7.00	10.45	14.50	11.10	12.00	11.00
Disc	117	9.20	11.05	11.00	9.75	7.20	9.30	8.70	8.70	8.35	10.60
Field Cultivator	113	7.55	11.45	10.65	7.20	6.50	7.00	7.05	7.35	6.85	8.20
Cultimulch	67	7.10	6.25	--	--	6.15	7.50	6.20	7.50	6.85	7.95

Table 4. Planting Custom Rates

	No.	MI State Avg.	Crop Reporting Districts								
			1	2	3	4	5	6	7	8	9
			(\$/Acre)								
Conv. Plant w/o Fertilizer	73	10.00	9.80	8.90	11.00	9.00	8.10	9.90	10.35	11.00	9.05
Conv. Plant w/ Fertilizer & Insecticide	134	12.35	7.70	12.20	11.90	10.15	12.25	12.70	11.50	13.20	14.30
No-Till Planter	163	16.35	11.25	16.15	--	13.40	16.20	13.80	15.75	17.20	16.15
No-Till Drill	166	13.05	7.85	9.35	--	9.70	11.95	11.45	14.95	13.75	12.95
Conv. Drill	109	9.05	7.85	8.00	9.80	8.70	9.30	9.00	9.60	8.60	8.55
Sugar Beet	17	15.10	--	--	--	--	16.80	14.70	--	--	--

Table 5. Pest Control Custom Rates

	No.	MI State Avg.	Crop Reporting Districts								
			1	2	3	4	5	6	7	8	9
			(\$/Acre)								
Cultivate	70	5.80	--	--	7.40	--	4.75	5.25	6.15	5.10	5.80
Rotary Hoe	50	4.20	--	--	--	--	4.25	3.90	4.85	3.45	4.65
Spray from Ground	184	4.80	5.75	8.70	5.40	4.90	4.95	4.00	4.20	4.35	5.15
Spray from Air	55	6.90	--	--	--	--	6.10	7.50	6.25	6.50	8.30
Scouting	48	5.70	--	--	--	--	7.50	2.75	5.90	3.80	4.25

Table 6. Harvesting Custom Rates

	No.	MI State Avg.	Crop Reporting Districts								
			1	2	3	4	5	6	7	8	9
			(\$/Acre)								
Combining:											
Corn	394	21.85	22.95	22.15	21.65	24.70	21.20	21.90	22.75	21.00	22.10
Drybean	48	22.35	--	--	31.65	--	20.45	21.70	--	21.45	--
Soybean	250	21.00	--	--	21.35	22.70	20.00	19.80	22.35	20.80	21.45
Grain	353	19.55	19.35	19.80	19.90	18.95	18.90	18.25	20.35	19.30	20.40
Legume Seed	16	22.00	--	--	--	--	21.00	16.70	--	24.25	--
Ear Corn	59	19.00	--	19.00	22.60	17.00	16.35	15.75	21.75	18.75	22.60
Chopping:											
PT*-Corn	62	32.45	--	25.85	18.35	33.00	37.15	28.60	34.50	33.85	36.50
SP**-Corn	24	38.10	--	--	--	--	--	41.70	38.70	36.80	36.90
PT*-Haylage	51	26.90	--	27.15	17.50	27.80	32.15	18.75	23.35	31.10	26.40
SP**-Haylage	12	30.95	--	--	--	--	--	22.70	27.20	--	--
Haying:											
Mow	67	8.70	9.55	12.75	8.00	7.15	6.50	4.00	7.25	8.50	10.90
Rake	80	4.75	5.55	7.25	5.40	4.20	3.70	3.25	4.85	4.00	4.90
PT* Mow-Condition	92	8.85	10.10	11.65	9.75	8.70	7.50	6.00	8.75	8.15	10.05
SP** Mow-Condition	31	8.70	--	--	7.35	--	7.90	4.70	10.35	8.05	11.35
Bale Hay (\$/52 lb.)	139	0.371	0.502	0.519	0.299	0.350	0.359	0.311	0.377	0.325	0.381
Bale Straw (\$/43 lb.)	125	0.355	0.433	0.350	0.318	0.367	0.345	0.309	0.374	0.349	0.373
Load & Stack/bale	54	0.444	0.594	--	--	0.295	0.483	0.483	0.291	0.386	0.525
Big Bale (\$/965 lb.)	194	5.80	5.60	5.35	6.05	4.60	6.75	6.40	6.20	5.30	5.80
Big Straw (\$/815 lb.)	70	5.60	4.75	--	8.00	4.35	5.50	5.25	5.90	5.05	6.30
Haul Big Bale	36	2.90	2.65	--	1.65	3.00	2.45	--	3.30	3.25	3.75

*Pull-type.
**Self-propelled.

Table 7. Miscellaneous Custom Work

	No. Obs.	MI State Avg.	Crop Reporting Districts								
			1	2	3	4	5	6	7	8	9
Custom Farming:											
Corn	94	\$/Ac. 98.90	80.00	115.	90.80	84.75	94.75	94.00	135.8	78.10	95.80
Soybeans	56	76.50	--	--	--	--	72.40	56.00	86.15	68.60	81.70
Small Grain	60	58.50	39.60	--	54.00	--	60.70	54.45	81.35	55.10	54.0
Forage	36	86.05	65.00	122.	96.00	--	56.50	95.00	89.50	82.15	78.3
Fertilizer:											
Spreader	106	\$/Ac. 2.70	3.20	4.05	3.45	3.20	2.65	2.65	2.40	2.20	2.70
Dry Bulk	157	4.00	3.85	--	--	--	3.85	4.05	4.30	3.75	4.05
Liquid											
Equipment	31	3.40	--	3.50	--	--	--	2.70	3.40	4.60	2.40
Knife-In	30	7.30	--	--	--	--	--	6.25	8.70	7.20	5.80
Spray											
Equipment	50	3.35	--	--	--	--	3.00	1.50	2.70	4.10	2.95
Apply Spray	126	4.60	--	--	--	6.15	4.45	4.00	4.75	4.45	4.20
NH3											
Equipment	57	4.45	--	--	--	3.85	4.30	4.45	3.30	7.10	3.05
Apply NH3	57	7.40	--	--	--	--	8.75	6.60	7.25	7.30	7.60
Miscellaneous Harvest:											
Stalk Chop	34	\$/Ac. 7.60	--	--	--	--	6.50	8.10	7.40	7.40	6.70
Sugar Beet	36	54.60	--	--	--	--	51.05	57.60	--	--	54.15
Mow Weeds	26	18.00	--	--	--	--	13.70	11.70	20.50	--	24.8
Cherries:											
Tart	22	\$/Lb. --	--	.069	--	.072	--	--	.073	--	--
Sweet	11	.07	--	.068	--	--	--	--	--	--	--
Manure:											
Scrape	33	\$/Hr. 18.10	13.00	20.75	--	--	24.40	--	17.70	8.15	20.00
Load Solids	43	19.60	17.35	27.40	--	--	24.45	--	20.50	9.75	25.00
Spread Solids	38	25.30	16.25	37.00	--	--	36.70	--	35.00	11.15	33.35
Rent Pump	18	32.20	15.00	--	--	--	15.50	--	22.15	--	--

Table 7, continued.

	No. Obs.	MI State Avg.	Crop Reporting Districts									
			1	2	3	4	5	6	7	8	9	
Miscellaneous:												
	<u>#</u>	<u>\$/Yr.</u>										
Accounting	121	1,121.	525.	1,567.	550.	500.	984.	600.	1,286.	1,774.	872.	
		<u>\$/Hr.</u>										
Backhoe	160	41.40	41.50	40.00	40.00	35.40	39.15	38.30	47.25	40.85	42.50	
Bulldozer	150	58.25	51.25	56.90	45.00	57.20	52.50	53.75	59.15	67.60	56.50	
Dragline	19	73.40	--	--	--	--	--	--	85.00	60.85	--	
Forklift	10	17.35	--	--	--	--	--	--	14.00	17.00	--	
Snow Plow	62	31.30	25.90	30.40	--	33.75	29.00	23.35	32.10	33.80	41.45	
Stone Pick:												
Hand	24	5.15	5.60	--	--	--	4.20	--	--	5.75	--	
Machine	20	26.60	--	--	28.75	--	28.25	--	--	21.40	--	
		<u>\$/Ho.</u>										
Post Holes	27	2.25	.85	--	--	--	2.00	2.40	2.50	4.10	--	
		<u>\$/PM^a</u>										
Dry Corn	66	.023	--	--	--	--	.026	.026	.020	.022	.025	
+ % Shrink	30	1.24%	--	--	--	--	1.4	1.10	1.14	1.16	1.60	
		<u>\$/Hd.</u>										
Sheep Shear	16	2.05	--	--	--	--	--	--	--	2.00	1.90	
Feed:		<u>\$/T</u>										
Grind Only	30	8.70	5.70	6.00	--	--	5.00	--	8.20	10.10	9.00	
Grind & Mix	38	10.55	5.85	--	--	--	8.00	--	10.10	13.70	18.70	
G, M & Haul	26	12.55	10.35	10.10	--	--	10.40	--	11.15	11.25	21.00	
Tiling:		<u>\$/Ft.</u>										
Trench	44	.353	--	--	--	--	.458	.245	.401	.384	.257	
Pull-in	36	.227	--	--	--	--	.18	.170	--	.268	.205	
Trucking:		<u>\$/Bu.</u>										
Grain	168	.153	.45	--	--	.128	.141	.13	.158	.143	.142	
Miles	136	56	225	--	--	34	48	26	53	54	59	
		<u>\$/Cwt.</u>										
Livestock	88	.952	1.55	--	.92	.89	.85	.94	.96	.82	.77	
Miles	75	70	163	--	70	52	43	43	70	54	60	

^aPM = percent moisture.

Section 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 (1) tradition or usual rates set in the community, (2) bargaining position of both parties--(i.e., availability of machinery services and demand for machinery services in your local area, and (3) costs of operating the machines on your farm. Cost for ownership and operation can be determined as follows:

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

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

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

- | | |
|--|--------------|
| 7. Tractor: Gas, diesel fuel, oil, minor maintenance
Fuel per unit x price/gal. x 1.15 ^b | \$ _____ |
| 8. Machine: Gas, oil, maintenance
Fuel per unit x price/gal. x 1.15 ^b | \$ _____ |
| 9. 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 (sum of lines 7 through 9) | (B) \$ _____ |
| C. Total Ownership and Operating Cost (A+B) per unit | (C) \$ _____ |
| D. Custom rate (per acre, hour, bushel, ton)
Total ownership and operating cost may be adjusted because of bargaining power or risk | (D) \$ _____ |

^aAverage 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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