

2006-07 MACHINE WORK RATES FOR SAGINAW VALLEY

LABOR:		vs. 1.11				
Full Time Labor - \$1,975 / month (Based on 200 hr. per month)	Part Time - \$7.25 / hour					
	Milkers - \$9.00 / hour					
TRACTORS:		\$/Hour	\$ per Hour adjusted for fuel costs	Gal. / Hour		
(excluding operator and fuel costs)						
	4WD - 260 hp.		\$64.58	9.95		
	MFWD - 200 hp.		\$52.94	8.8		
	MFWD - 130 hp.		\$36.98	5.72		
	2- WD - 75 hp.		\$18.21	3.3		
	2- WD - 40 hp.		\$9.76	1.76		
TILLAGE OPERATIONS:		Custom \$/Acre ²	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Gal./Acre ⁶
<i>Plowing: Moldboard (5 bottom)</i>		\$15.00	\$17.07	\$59.39	3.48	1.29
<i>Plowing: Rollover (5 bottom)</i>		\$17.00	\$18.24	\$64.76	3.55	1.70
<i>Chisel (15 ft.)</i>		\$12.50	\$7.73	\$65.68	8.50	0.64
<i>Chisel – front disk (16.3 ft.)</i>		\$12.50	\$9.90	\$91.17	9.21	1.04
<i>Disk-V.Ripper combo (17.6 ft.)</i>		\$15.00	\$9.45	\$105.15	11.13	0.99
<i>Subsoiler 30" - 10 feet</i>		\$15.00	\$19.28	\$79.42	4.12	2.03
<i>Discing - tandem (21 ft)</i>		\$11.00	\$6.94	\$84.84	12.22	0.49
<i>Field Cultivator (23 ft.)</i>		\$10.00	\$4.15	\$68.82	16.59	0.34
<i>Row Cultivate (12 rows)</i>		\$8.00	\$4.22	\$65.22	15.45	0.44
<i>Row Cultivate-high residue (12rows)</i>		\$10.00	\$7.12	\$109.96	15.45	0.64
<i>Row Cultivate- sugar beets</i>		\$12.00	\$12.55	\$70.26	5.60	0.81
<i>Stalk Shredder (20 ft.)</i>		\$8.00	\$9.42	\$58.20	7.76	0.74
<i>Rotary Hoe (21 ft.)</i>		\$6.00	\$1.92	\$49.88	25.96	0.18
<i>Boom Sprayer-self-Prop.60ft.</i>		\$8.00	\$5.24	\$173.24	33.09	0.11
<i>Boom Sprayer-pull type 50ft.</i>		\$6.15	\$2.08	\$53.35	25.61	0.10
PLANTING:		Custom \$/Acre ²	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Gal./Acre ⁶
<i>Planter- conventional w/fert (12 x 30" rows corn or soys)</i>		\$12.60	\$8.67	\$121.35	14.00	0.34
<i>Planter- No Till (12 row)</i>		\$15.00	\$11.70	\$140.39	12.00	0.65
<i>Planter- Min Till (12 row)</i>		\$13.00	\$10.45	\$133.05	12.73	0.53
<i>Drill- No Till (15 ft.)</i>		\$12.40	\$15.48	\$98.43	6.36	0.81
<i>Drill press wheels - (20 ft)</i>		\$12.00	\$10.07	\$85.37	8.48	0.64
<i>Pest Control- scouting</i>		\$4.25		\$15.00		
SUGAR BEETS:		Custom \$/Acre ²	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Gal./Acre ⁶
<i>Sugar Beets - Planting (12 row)</i>		\$24.00	\$24.90	\$248.98	10.00	0.99
<i>Sugar Beet Cultivation</i>		\$12.50	\$12.55	\$70.26	5.60	0.81
<i>Sugar Beet Topper (6 rows)</i>		\$12.50	\$12.48	\$66.54	5.33	0.58
<i>Sugar Beet Harvester (6 rows)</i>		\$64.45	\$83.78	\$253.84	3.03	2.24
<i>Sugar Beet Cart (20 ton)</i>		\$20.00	\$26.30	\$136.78	5.20	1.80
HARVESTING:		Custom \$/Acre ²	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Gal./Acre ⁶
<i>Combine - (Corn -6 row head)</i>		\$25.70	\$39.66	\$166.58	4.20	2.83
<i>Combine Small grains (20 ft head)</i>		\$22.90	\$19.90	\$135.13	6.79	1.31
<i>Combine Soybeans (25 ft. head)</i>		\$25.00	\$22.58	\$120.83	5.35	2.02
<i>Pick- Ear Corn + 3 wagons</i>		\$25.00				
<i>Combine Field Beans (belt pickup)</i>		\$27.00	\$34.39	\$128.95	3.75	1.86
<i>Grain Cart</i>		\$0.05/ bu.	\$5.77			0.75
<i>Pulling Dry Beans (knife 6 row)</i>		\$7.50	\$7.53	\$65.75	8.73	0.66
<i>Pulling Dry Beans (rod 6 row)</i>		\$13.25	\$6.95	\$60.69	8.73	0.66
<i>Dry Bean – windrowing (6 row)</i>		\$6.00	\$10.97	\$95.78	8.73	0.66
<i>Chopping Forage- Pull type (2 row corn head)</i>		\$2.50-\$4.00 per Ton	\$47.66	\$65.77	1.38	3.35
<i>Chopping Forage - w/kernel processor</i>		\$3.75 per Ton				
<i>Chopping Forage -Pull type Pickup head-12ft</i>		\$3.50 per Ton	\$19.86	\$65.74	3.31	1.40
<i>Chopping Forage-Self-propelled row corn head)</i>		(3 \$3.50 to \$4.50 per ton	\$48.79	\$124.42	2.55	2.83

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<i>Silo Filling-Tower silo; 1Tractor, 1Chopper & Driver, Wagons</i>	\$5.00 per Ton				
<i>Silo Bunker; Chopper and 3 forage wagons or 2 trucks</i>	\$5.50 per ton				
<i>Silage Bagging (9 ft diameter)</i>	\$6.05 per ft.				
<i>Raking – Hay 9ft.</i>	\$6.00	\$7.16	\$24.97	3.49	0.50
<i>Mower-Conditioner Pull-type (9 ft.)</i>	\$12.00	\$10.43	\$45.80	4.39	0.40
<i>Mower-Conditioner- Self Propelled (16ft)</i>	\$12.00	\$14.64	\$113.62	7.76	0.40
<i>Small Square Baling Hay</i>	\$0.50 per bale			4.36	0.40
<i>Straw</i>	\$0.45 per bale				
<i>Baler, Mow, Rake & Handle - small sqr.</i>	\$1.25 to \$1.50 per bale				
<i>Baler, Lrg Round; Mow, Rake & Handle</i>	\$8.00 per bale				
<i>Baler- 600-800 # bale</i>	\$6.90 per bale			3.01	0.77
<i>Baling -1500 #- Lrg. Round</i>	\$ 8.35 per bale	\$13.70	\$41.64	3.04	0.77
<i>Large Square: Baling – Hay</i>	\$7.50 to 8.00 per bale	\$7.68	\$125.12	16.29	0.35
<i>Baler 1000# Round/ with wrapper</i>	\$9.35 per bale	\$19.41	\$58.43	3.01	0.88
FERTILIZER:	Custom \$/Acre ²	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Gal./Acre ⁶
<i>Fertilizer Dry Bulk: Spreader Only</i>	\$4.00				
<i>Fertilizer- Liquid-Knifed In: Equip. Only</i>	\$9.50				
<i>Liquid-Sprayed: Equip. Only</i>	\$4.50				
<i>Fertilizer- Anhydrous: 21 ft.</i>	\$7.45	\$6.20	\$69.49	11.20	0.63
<i>Fert.- Anhydrous No Till 32 ft.</i>	\$7.00	\$5.57	\$94.82	17.01	0.41
<i>Manure Hauling-semi-solid (300 bu.)</i>			\$43.15 to \$52.66 / hour		
<i>Manure Pump, Hauling, Spreading - liquid (9500 gallon cap.)</i>	\$9.45 per 1000 gallon		\$52.40 / hour		
<i>Manure Pump, Hauling, Injecting - liquid (9500 gallon cap.)</i>	\$12.20 per 1000 gallon				
<i>Ditch Mowing</i>		\$28.12	\$25. / hour		1.76

Labor charged for this table at a rate of \$11.00 per hour unskilled tasks and \$13.50 per hour for skilled labor (planter, sprayer, harvester).

Fuel cost is calculated by adding fuel, oil and lube calculated by adding 15% to the power fuel cost.**

\$2.40 base fuel price per gallon used.

1 Custom \$ per acre: Represents the rate obtained from surveys of actual farm data that have been adjusted for the increase in fuel costs to do this type of machine work for another farm on a general basis. Higher or lower rates apply in each situation depending on crop conditions, soil conditions, size of fields and there locations. This numbers includes machine, power unit & operator where needed . Values have been adjusted higher to reflect the change in power fuel costs above the \$1.65/ gallon identified in the surveys by, 2006 Iowa Farm Custom Rate Survey. Visit Kansas State University for a variety of valuable tools to determine your farms machine costs at <http://www.agmanager.info>

3 Total Machine Cost / Acre: Includes adjusted fuel cost ⁵, lubricants, repairs, maintenance, labor and overhead costs including depreciation. This could be considered as an estimate of the ownership cost and operation of this machine on a per acre basis. No profit or return to ownership, which would be necessary for on going enterprises is included in this number. Values are based on "Farm Machinery Economic Cost Estimates for Late 2005, University of Minnesota 08/26/05.

4 Machine Rate per Hour: This number takes the Total Machine Cost per Acre and factors in the estimated Acres per Hour to give a value of represents an estimate of the hourly operational and ownership cost of machinery supported by ©University of Minnesota, Machinery Economic cost estimates for 2005. If the machine is run at full capacity (or engine clock hours) this per acre rate should be in the custom work value generated.

5 Acres/ Hour: This is an estimate of the acres this machine should average on a per hour basis with normal down time.

6 Gal./ Acre: This is an estimated machine use of fuel consumed to do this activity and is based on a factor of 0.044 gallons of diesel fuel per PTO horsepower-hour on an average. Your individual machines fuel use may vary from this number.

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Numbers were developed as an adjusted estimate of common rates being used by farms in this area to cover their cost of operation. Based on MSU Extension E-2131 Custom Work Rates in Michigan. 10/2002; <http://www.aec.msu.edu/agecon/aecreports/aec613.pdf> ; and ©University of Minnesota, Machinery Economic cost estimates for Late 2005-08/26/05 http://www.extension.umn.edu/finance/2006_Iowa_Farm_Custom_Rate_Survey, 2005 Kansas Farmer Custom Work Survey@www.nass.usda.gov/ks/custom/crse1.htm

* This report is a summary of information extracted from various sources. Your actual cost may vary greatly from the numbers presented. It is recommended that you calculate your own cost and economic returns necessary for the operation of machinery and equipment on your individual farm. Edited by Dennis Stein, Extension Educator, District Farm Business Management, Michigan State University Extension. revised on 11/25/06. Major shifts in power fuel cost during the past year are having an impact on and have changed the cost of machine operational cost. This information sheet has made an effort to bring our cost estimates more in line with current fuel costs **. It is suggested that a \$1.00 increase in fuel cost will increase most machine operations by + 15%.

HOW TO FIGURE YOUR MACHINE WORK 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 cost 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: $\text{interest rat} \times \text{AIV}^a$	\$ _____
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 thru 5)	\$ _____
A. Ownership cost per unit: $\text{total ownership cost} \div \text{estimated annual use (acre, hour, bushel, ton)}$	(A) \$ _____

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

1. Tractor: fuel (gallon fuel per unit x price/gallon) x 1.15 ^b	\$ _____
2. Machine: gas or fuel gallons 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 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	4.5%
E. Custom Rate (per acre, hour, bushel, ton) $\text{Line C} \times [1 + (\text{Line D}/100)]$	\$ _____

a Average investment value (AIV) = (original cost basis = salvage value) ÷ 2.
b The addition of 15 percent above fuel cost is for oil & lube. maintenance.

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HOW TO FIGURE YOUR MACHINE WORK RATES

If you are hiring or doing custom machine work, the following table may help you determine a machine work rate for your farm situation. Machine work rates should represent a value that will cover your total cost of operation and an allocation for overhead costs. The following are the basic components of developing your cost of ownership and operation for any given machine:

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

1. Depreciation: $\frac{\text{original cost} - \text{salvage value}}{\text{years of use}}$	base units \$15,000.00 10		\$1,500.00
2. Interest: $\text{interest rat} \times \text{AIV}^a$	0.07	int. %	\$525.00
3. Repairs: estimated 2 to 5 % of original cost	0.03	rpr %	\$450.00
4. Taxes: (0 in Michigan -i.e., no taxes on personal property used in agriculture)			\$0.00
5. Insurance: (estimated 0.5% x AIV for insurance premium)	0.005	ins.%	\$37.50
6. Total ownership cost per year (add lines 1 thru 5)			\$2,512.50

A. Ownership cost per unit: $\text{total ownership cost} \div \text{estimated annual use (acre, hour, bushel, ton)}$	1000	units (A)	\$2.51
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Operating Cost per (acre, hour, bushel, ton)

1. Tractor: fuel (gallon fuel per unit x price/gallon)	5.5 \$2.50	units \$/gal	\$13.75
2. Machine: gas or fuel gallons per unit x 1.15 ^b			\$15.81
3. Labor: hours per unit x wage rate (if labor wage unit is per acre, bushel or ton multiply this wage by acres bushels or tons per hour to determine wage/hour)			\$4.00

B. Total operating cost per unit		(B)	\$19.81
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C. Total ownership and operating cost per unit		(A+B)	\$22.33
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D. Desired profit margin and / or risk premium	5	%	
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E. Machine Work Rate (per acre, hour, bushel, ton)	Line C x [1+(Line D/100)]		\$23.44
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a Average investment value (AIV) = (original cost basis - salvage value) ÷ 2.

b The addition of 15 percent above fuel cost is for oil & lube. maintenance.