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MACHINERY COST ESTIMATES: SUMMARY

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More details on costs in this publication are given in four publications available in the management section of *farmdoc* (www.farmdoc.uiuc.edu) within the machinery cost section.

Table 1. List Prices and Estimated Costs Per Hour for Tractors of Different Sizes.

Tractor ¹	List Price ²	----- Costs -----			Fuel Use Per Hour
		Total	= Overhead	+ Fuel + Labor	
	\$/tractor	----- \$ per hour -----			gal.
85 PTO Hp Tractor	114,488	65.40	34.30	10.20 20.90	3.7
95 PTO Hp Tractor	121,164	68.60	36.30	11.40 20.90	4.1
110 PTO Hp Tractor	154,168	80.30	46.20	13.20 20.90	4.8
120 PTO Hp Tractor	161,538	83.80	48.40	14.50 20.90	5.3
140 PTO Hp Tractor	177,022	90.80	53.00	16.90 20.90	6.1
155 PTO Hp Tractor	186,904	95.60	56.00	18.70 20.90	6.8
175 PTO Hp Tractor	196,751	100.90	58.90	21.10 20.90	7.7
190 PTO Hp Tractor	241,267	116.10	72.30	22.90 20.90	8.3
225 PTO Hp Tractor, FWA	274,867	130.30	82.30	27.10 20.90	9.9
240 PTO Hp Tractor, FWA	285,882	135.40	85.60	28.90 20.90	10.5
270 PTO Hp Tractor, FWA	365,010	162.70	109.30	32.50 20.90	11.8
290 PTO Hp Tractor, FWA	391,421	173.10	117.30	34.90 20.90	12.7
310 PTO Hp Tractor, FWA	410,256	181.10	122.90	37.30 20.90	13.6
370 Engine Hp Tractor, 4WD	358,736	173.00	107.50	44.60 20.90	16.2
420 Engine Hp Tractor, 4WD	386,955	187.40	115.90	50.60 20.90	18.4
470 Engine Hp Tractor, 4WD	415,174	201.90	124.40	56.60 20.90	20.6
570 Engine Hp Tractor, 4WD	487,819	235.70	146.10	68.70 20.90	25.0
620 Engine Hp Tractor, 4WD	516,085	250.20	154.60	74.70 20.90	27.2

¹ "FWA" indicates a front wheel assist tractor. "4WD" indicates a four wheel drive tractor.

² List prices for 2019. Purchase price is assumed to be 85% of the list price.

³ Sum of overhead, fuel, and labor costs.

⁴ Includes depreciation, interest, insurance, housing, and repair costs. These per hour charges are appropriate for calculating rental costs when the person renting the tractor provides fuel and labor.

⁵ Fuel costs are based on a price of \$2.50 per gallon for diesel fuel. Fuel costs vary depending on fuel use. Use varies with load on the tractor.

⁶ Labor costs are based on a \$19.00 per hour labor charge. Labor time is assumed to be ten percent higher than tractor hours.

Table 2. Per Acre Field Operation Costs.

Operation	Total =	Tractor Overhead +	Implement Overhead +	Fuel & Lube +	Labor	Fuel Use
	----- \$ per acre -----					gal
Primary tillage						
Chisel plow	12.70	5.10	4.50	2.10	1.00	0.8
Disk Ripper (disk, chisel, rolling bk)	25.70	8.10	10.70	5.30	1.60	1.9
Vertical tillage, rolling basket	11.70	4.00	5.70	1.20	0.80	0.4
Moldboard plow	39.80	17.40	12.30	5.70	4.40	2.1
Mulch tiller (disk, chisel)	21.40	10.10	5.40	3.30	2.60	1.2
Offset disk	14.70	5.80	4.80	1.90	2.20	0.7
Strip tillage	16.70	5.30	8.90	1.60	0.90	0.6
V-ripper (shanks only)	22.50	13.40	2.70	4.10	2.30	1.5
Secondary tillage						
Field cultivator	9.90	3.70	4.40	1.10	0.70	0.4
Mulch finisher (disk, chisel, drag)	15.40	5.40	7.50	1.60	0.90	0.6
Tandem disk	12.60	4.20	6.00	1.40	1.00	0.5
Planting						
Broadcast seeding	8.90	4.30	0.70	1.30	2.60	0.5
Conventional planter	14.40	2.80	9.70	0.90	1.00	0.3
Split-row planter ¹	12.50	2.90	7.60	1.00	1.00	0.4
No-till planter	17.20	4.00	10.90	1.30	1.00	0.5
Grain drill	14.50	4.50	6.80	1.40	1.80	0.5
No-till drill	25.80	7.60	12.80	2.40	3.00	0.9
Air Seeder	16.80	5.50	8.70	1.70	0.90	0.6
Crop care						
Rotary hoe	5.90	1.80	2.80	0.60	0.70	0.2
Row cultivating	11.40	4.50	4.20	1.50	1.20	0.5
Spraying and ammonia application						
Self-propelled	4.40		4.10	0.10	0.20	0.04
Pull-type	3.90	0.70	2.60	0.20	0.40	0.1
Anhydrous ammonia	16.50	5.10	9.00	1.50	0.90	0.5
Liquid Fertilizer Applicator	7.20	2.30	3.50	0.70	0.70	0.3
Mowing²	23.50	9.10	7.90	2.90	3.60	1.0

¹ Cost applies to soybean acres only.

² Mowing costs are \$136.70 per hour

Table 3. Summary of Harvesting Costs.

Combining¹	
Corn	\$37.60 per acre
Soybean	\$32.70 per acre
Grain Cart²	
Corn	\$14.20 per acre
Soybean	\$7.80 per acre
Grain Hauling³	\$0.10 per bu.

¹ Based on a 470 HP combine used on 2,500 acres.

² Based on a \$57,500 grain cart used on 1,900 acres.

³ Hauling costs from field to storage will vary depending on distance to storage, unloading time, and other factors.

Table 4. Costs of Forage Operations.

Operation	Total	Tractor Overhead	Implement Overhead	Fuel & Lube	Labor
	----- \$ per acre -----				
Cutting and conditioning hay					
Sickle bar mower	23.30	10.20	3.50	3.40	6.20
Rotary mower	15.30	5.40	4.80	1.80	3.30
Pull-type mower/conditioner	19.20	6.50	7.20	2.90	2.60
Self-propelled mower/conditioner	29.10	--	23.00	4.00	2.10
Rake (side delivery)	9.40	3.00	3.60	1.00	1.80
Rake (wheeled)	6.50	2.70	1.20	0.90	1.70
Tedder	8.30	3.30	1.90	1.10	2.00
Baling hay					
Small square baler	30.50	11.10	8.10	4.90	6.40
1,000 lb. square baler	28.20	6.40	16.40	3.00	2.40
Round baler	27.80	10.20	7.20	4.50	5.90
Forage harvesting as silage					
Pull-type forage harvester					
First cut hay	34.10	14.20	9.00	7.30	3.60
Remaining cuts	27.90	11.60	7.40	5.90	3.00
Corn silage	105.10	43.10	28.90	22.20	10.90
Self-propelled forage harvester					
First cut hay	31.00	--	16.20	12.30	2.50
Remaining cuts	25.40	--	13.20	10.10	2.10
Corn silage	138.10	--	117.40	17.10	3.60

From *Machinery Cost Estimates: Field Operations* and *Machinery Cost Estimates: Forage Field Operations* available on *farmdoc* (www.farmdoc.illinois.edu).

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