FARM BUSINESS MANAGEMENT

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	123,749	**68.20**	34.90	11.30	22.00	3.7
95 PTO Hp Tractor	130,866	**71.50**	36.90	12.60	22.00	4.2
110 PTO Hp Tractor	166,389	**83.50**	46.90	14.60	22.00	4.8
120 PTO Hp Tractor	174,296	**87.00**	49.10	15.90	22.00	5.3
140 PTO Hp Tractor	190,807	**94.30**	53.80	18.50	22.00	6.1
155 PTO Hp Tractor	201,342	**99.20**	56.70	20.50	22.00	6.8
175 PTO Hp Tractor	211,839	**104.90**	59.70	23.20	22.00	7.7
205 PTO Hp Tractor	290,880	**131.20**	82.00	27.20	22.00	9.0
225 PTO Hp Tractor	302,785	**137.10**	85.30	29.80	22.00	9.9
240 PTO Hp Tractor	314,690	**142.50**	88.70	31.80	22.00	10.5
260 PTO Hp Tractor	408,408	**171.50**	115.10	34.40	22.00	11.4
285 PTO Hp Tractor	422,601	**178.90**	119.10	37.80	22.00	12.5
310 PTO Hp Tractor	447,479	**189.20**	126.10	41.10	22.00	13.6
390 Engine Hp Tractor	421,815	**192.60**	118.90	51.70	22.00	17.1
440 Engine Hp Tractor	453,101	**208.00**	127.70	58.30	22.00	19.3
490 Engine Hp Tractor	489,125	**224.70**	137.80	64.90	22.00	21.5
590 Engine Hp Tractor	549,435	**255.00**	154.80	78.20	22.00	25.9
640 Engine Hp Tractor	590,886	**273.30**	166.50	84.80	22.00	28.0

[1] List price includes either MFWD or 4WD for all tractors.

[2] List prices for 2021. 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 $2.75 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 $20.00 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
Primary tillage	----------	----------	$ per acre	----------	----------	gal
Chisel plow	**13.60**	6.00	4.60	2.00	1.00	0.7
Disk ripper (disk, chisel, rolling bk)	**27.70**	9.00	10.90	6.10	1.70	2.0
Combination ripper	**29.10**	9.40	11.60	6.40	1.70	2.1
Vertical tillage, rolling basket	**13.20**	4.40	6.60	1.40	0.80	0.5
Moldboard plow	**40.30**	17.40	12.50	5.70	4.70	1.9
Mulch tiller (disk, chisel)	**21.60**	10.10	5.50	3.30	2.70	1.1
Offset disk	**18.80**	8.50	5.20	2.80	2.30	0.9
Strip tillage	**17.30**	5.10	8.80	2.50	0.90	0.8
V-ripper (shanks only)	**23.40**	13.80	2.70	4.50	2.40	1.5
Secondary tillage						
Field cultivator	**11.10**	3.70	5.10	1.60	0.70	0.5
Mulch finisher (disk, chisel, drag)	**16.60**	5.50	8.30	1.80	1.00	0.6
Tandem disk	**13.70**	4.40	6.60	1.60	1.10	0.5
High performance disk	**14.30**	4.00	6.60	3.00	0.70	1.0
Planting						
Broadcast seeding	**9.10**	4.30	0.70	1.40	2.70	0.5
Conventional planter	**17.20**	4.00	10.80	1.30	1.10	0.4
Split-row planter[1]	**14.90**	4.20	8.10	1.50	1.10	0.5
No-till planter	**19.00**	4.20	12.20	1.50	1.10	0.5
Grain drill	**15.40**	4.60	7.30	1.60	1.90	0.5
No-till drill	**27.20**	7.70	13.80	2.60	3.10	0.9
Air Seeder	**18.10**	5.60	9.70	1.80	1.00	0.6
Crop care						
Rotary hoe	**6.10**	1.80	3.00	0.60	0.70	0.2
Row cultivating	**15.10**	4.70	7.60	1.60	1.20	0.5
Spraying and ammonia application						
Self-propelled	**4.50**		4.20	0.10	0.20	0.0
Pull-type	**4.60**	0.70	3.20	0.30	0.40	0.1
Anhydrous ammonia	**17.10**	5.20	9.30	1.60	1.00	0.5
Liquid Fertilizer Applicator	**7.70**	2.60	3.50	0.90	0.70	0.3
Mowing[2]	**25.10**	9.20	8.90	3.20	3.80	1.0

[1] Cost applies to soybean acres only.

[2] Mowing costs are $146.00 per hour

Table 3. Summary of Harvesting Costs.

Combining[1]	
Corn	$38.50 per acre
Soybean	$33.40 per acre
Grain Cart[2]	
Corn	$15.10 per acre
Soybean	$8.40 per acre
Grain Hauling[3]	$0.10 per bu.

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

[2] Based on a $68,300 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
Cutting and conditioning hay	----------	----------	$ per acre	----------	----------
Sickle bar mower	**24.20**	10.30	3.60	3.80	6.50
Rotary mower	**15.90**	5.50	4.90	2.00	3.50
Pull-type mower/conditioner	**19.90**	6.60	7.40	3.20	2.70
Self-propelled mower/conditioner	**28.60**	--	22.60	4.00	2.00
Rake (side delivery)	**9.90**	3.10	3.80	1.10	1.90
Rake (wheeled)	**6.80**	2.80	1.30	1.00	1.70
Tedder	**8.90**	3.40	2.20	1.20	2.10
Baling hay					
Small square baler	**31.50**	11.30	8.10	5.40	6.70
1,000 lb. square baler	**28.90**	6.50	16.60	3.30	2.50
Round baler	**28.90**	10.40	7.30	5.00	6.20
Forage harvesting as silage					
Pull-type forage harvester					
First cut hay	**36.40**	14.70	9.80	8.00	3.90
Remaining cuts	**29.90**	12.10	8.00	6.60	3.20
Corn silage	**112.10**	44.70	31.50	24.40	11.50
Self-propelled forage harvester					
First cut hay	**32.80**	--	16.50	13.50	2.80
Remaining cuts	**26.90**	--	13.50	11.10	2.30
Corn silage	**141.60**	--	119.00	18.80	3.80

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

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