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### MACHINERY COST ESTIMATES: SUMMARY

June 2017

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

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

Tractor <sup>1</sup>	List Price <sup>2</sup>	----- Costs -----			Fuel Use Per Hour
		Total	= Overhead	+ Fuel + Labor	
	\$/tractor	----- \$ per hour -----			gal.
85 PTO Hp Tractor	107,298	<b>60.20</b>	31.20	9.20 19.80	3.7
95 PTO Hp Tractor	113,560	<b>63.10</b>	33.00	10.30 19.80	4.2
110 PTO Hp Tractor	143,551	<b>73.40</b>	41.70	11.90 19.80	4.8
120 PTO Hp Tractor	150,465	<b>76.50</b>	43.70	13.00 19.80	5.3
140 PTO Hp Tractor	164,721	<b>82.90</b>	47.90	15.20 19.80	6.1
155 PTO Hp Tractor	173,991	<b>87.20</b>	50.60	16.80 19.80	6.8
175 PTO Hp Tractor	183,229	<b>92.10</b>	53.30	19.00 19.80	7.7
190 PTO Hp Tractor	224,262	<b>105.60</b>	65.20	20.60 19.80	8.3
225 PTO Hp Tractor, FWA	254,335	<b>118.10</b>	73.90	24.40 19.80	9.9
240 PTO Hp Tractor, FWA	264,670	<b>122.70</b>	76.90	26.00 19.80	10.5
270 PTO Hp Tractor, FWA	340,448	<b>148.10</b>	99.00	29.30 19.80	11.8
290 PTO Hp Tractor, FWA	363,842	<b>157.00</b>	105.80	31.40 19.80	12.7
310 PTO Hp Tractor, FWA	381,429	<b>164.30</b>	110.90	33.60 19.80	13.6
370 Engine Hp Tractor, 4WD	333,255	<b>156.80</b>	96.90	40.10 19.80	16.2
420 Engine Hp Tractor, 4WD	359,604	<b>169.80</b>	104.50	45.50 19.80	18.4
470 Engine Hp Tractor, 4WD	385,952	<b>183.00</b>	112.20	51.00 19.80	20.6
570 Engine Hp Tractor, 4WD	453,665	<b>213.50</b>	131.90	61.80 19.80	25.0

<sup>1</sup> "FWA" indicates a front wheel assist tractor. "4WD" indicates a four wheel drive tractor.

<sup>2</sup> List prices for 2017. Purchase price is assumed to be 85% of the list price.

<sup>3</sup> Sum of overhead, fuel, and labor costs.

<sup>4</sup> 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.

<sup>5</sup> Fuel costs are based on a price of \$2.25 per gallon for diesel fuel. Fuel costs vary depending on fuel use. Use varies with load on the tractor.

<sup>6</sup> Labor costs are based on a \$18.00 per hour labor charge. Labor time is assumed to be ten percent higher than tractor hours.

**Table 2. Per Acre Field Operation Costs.**

Operation	<b>Total =</b>	Tractor Overhead +	Implement Overhead +	Fuel & Lube +	Labor	Fuel Use
<b>Primary tillage</b>	----- \$ per acre -----					gal
Chisel plow	<b>16.50</b>	7.20	5.80	2.10	1.40	0.8
Vertical tillage, rolling basket	<b>11.40</b>	4.10	5.30	1.20	0.80	0.5
Moldboard plow	<b>36.40</b>	15.60	11.40	5.20	4.20	2.1
Mulch tiller (disk, chisel)	<b>21.70</b>	10.00	6.80	3.00	1.90	1.2
Offset disk	<b>14.10</b>	5.40	4.80	1.80	2.10	0.7
Strip tillage	<b>16.10</b>	4.80	9.00	1.40	0.90	0.6
V-ripper (shanks only)	<b>20.80</b>	12.10	2.80	3.70	2.20	1.5
<b>Secondary tillage</b>						
Field cultivator	<b>9.80</b>	3.40	4.70	1.00	0.70	0.4
Mulch finisher (disk, chisel, drag)	<b>19.50</b>	6.40	9.90	1.90	1.30	0.8
Tandem disk	<b>12.30</b>	3.80	6.20	1.30	1.00	0.5
<b>Planting</b>						
Broadcast seeding	<b>8.10</b>	3.90	0.60	1.10	2.50	0.4
Conventional planter	<b>14.20</b>	2.50	9.90	0.80	1.00	0.3
Split-row planter <sup>1</sup>	<b>12.60</b>	2.60	8.10	0.90	1.00	0.4
No-till planter	<b>17.00</b>	3.60	11.20	1.20	1.00	0.5
Grain drill	<b>13.40</b>	4.10	6.30	1.30	1.70	0.5
No-till drill	<b>23.00</b>	6.80	11.20	2.20	2.80	0.9
Air Seeder	<b>15.40</b>	5.00	8.00	1.50	0.90	0.6
<b>Crop care</b>						
Rotary hoe	<b>5.60</b>	1.60	2.80	0.50	0.70	0.2
Row cultivating	<b>10.60</b>	4.10	4.10	1.30	1.10	0.5
<b>Spraying and ammonia application</b>						
Self-propelled	<b>3.90</b>		3.60	0.10	0.20	0.1
Pull-type	<b>4.10</b>	0.70	2.80	0.20	0.40	0.1
Anhydrous ammonia	<b>15.90</b>	4.20	9.20	1.40	1.10	0.6
<b>Mowing<sup>2</sup></b>	<b>21.80</b>	8.20	7.60	2.60	3.40	1.0

<sup>1</sup> Cost applies to soybean acres only.

<sup>2</sup> Mowing costs are \$126.80 per hour

**Table 3. Summary of Harvesting Costs.**

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<b>Combining<sup>1</sup></b>	
Corn	\$36.90 per acre
Soybean	\$31.90 per acre
<b>Grain Cart<sup>2</sup></b>	
Corn	\$12.60 per acre
Soybean	\$6.80 per acre
<b>Grain Hauling<sup>3</sup></b>	
	\$0.10 per bu.

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<sup>1</sup> Based on a 320 HP combine used on 1,900 acres.

<sup>2</sup> Based on a \$50,100 grain cart used on 1,900 acres.

<sup>3</sup> 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	<b>Total</b>	Tractor Overhead	Implement Overhead	Fuel & Lube	Labor
	----- \$ per acre -----				
<b>Cutting and conditioning hay</b>					
Sickle bar mower	<b>21.50</b>	9.20	3.30	3.10	5.90
Rotary mower	<b>14.20</b>	5.00	4.50	1.60	3.10
Pull-type mower/conditioner	<b>17.70</b>	5.90	6.80	2.60	2.40
Self-propelled mower/conditioner	<b>27.30</b>	--	21.70	3.60	2.00
Rake (side delivery)	<b>8.70</b>	2.70	3.40	0.90	1.70
Rake (wheeled)	<b>6.10</b>	2.50	1.20	0.80	1.60
Tedder	<b>7.70</b>	3.00	1.80	1.00	1.90
<b>Baling hay</b>					
Small square baler	<b>28.10</b>	10.10	7.50	4.40	6.10
1,000 lb. square baler	<b>25.80</b>	5.80	15.00	2.70	2.30
Round baler	<b>25.60</b>	9.30	6.60	4.10	5.60
<b>Forage harvesting as silage</b>					
Pull-type forage harvester					
First cut hay	<b>26.70</b>	11.20	6.50	5.60	3.40
Remaining cuts	<b>21.90</b>	9.20	5.30	4.60	2.80
Corn silage	<b>83.30</b>	34.20	21.90	16.80	10.40
Self-propelled forage harvester					
First cut hay	<b>27.70</b>	--	14.20	11.10	2.40
Remaining cuts	<b>22.70</b>	--	11.60	9.10	2.00
Corn silage	<b>126.60</b>	--	107.80	15.40	3.40

From *Machinery Cost Estimates: Field Operations* and *Machinery Cost Estimates: Forage Field Operations* available on *farmdoc* ([www.farmdoc.uiuc.edu](http://www.farmdoc.uiuc.edu)).

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