



farm machinery costs

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FARM MACHINERY COSTS

This publication was designed as a quick reference for typical investments, rates of performance, and variable cash operating costs of the more common types of farm machinery. No attempt has been made to give the price ranges for any piece of equipment or to list all sizes and variations. The data will have to be adjusted to compensate for soil conditions, hours of annual use, and other operating conditions to make it applicable to an individual situation.

The various items were determined as follows:

Estimated cost, 1972 - a representative cost of the implement as usually purchased by farmers. Costs of individual machines will vary considerably above or below these figures based on the type of construction, weight, and other factors. Includes 5 percent sales tax.

Crew - number of persons normally used to operate the tractor and/or equipment.

Size of tractors - minimum size normally used with the equipment. Horsepower requirements can be calculated from the formula:

$$\text{Drawbar horsepower} = \frac{\text{Draft (lbs.)} \times \text{Speed (mph)}}{375}$$

Typical drafts are given in the table on page 3.

Speed - normal operating speed.

Field efficiency - the percent that the actual capacity is of theoretical capacity at 100 percent efficiency.

$$\text{Field Efficiency} = \frac{\text{Actual capacity}}{\text{Theoretical capacity}}$$

$$\text{Theoretical field capacity (acres per hr.)} = \frac{\text{Speed (mph)} \times \text{Width (ft.)} \times 100}{825}$$

or for a general formula:

$$\text{Field capacity (acres per hr.)} = \frac{\text{Speed (mph)} \times \text{Width (ft.)} \times \text{Field Efficiency}}{825}$$

Hours per acre - performance at the miles per hour and the field efficiency shown.

Life - the maximum useful life under normal conditions in years or hours, whichever comes first.

Cash operating cost per hour - fuel, grease, and repairs (including labor) under normal operating conditions. Fuel calculated at \$.35 per gallon for gasoline and \$.30 per gallon for diesel.

Fuel consumption calculated from the following:

<u>Tractor type</u>	<u>Gallons fuel per hour per horsepower at 75% of Maximum horsepower</u>
Wheel, gasoline	.085
Wheel, diesel	.065
Track, gasoline	.090
Track, diesel	.075

STANDARDS FOR CALCULATING MACHINERY COST AND PERFORMANCE^{1/}

Implement	Typical draft or power requirement	Typical field efficiencies ^{2/} percent	Speed or performance	Years until obsolete	Wear-out life hours	Total repairs in wear-out life, percent of list price
Tractors						
Wheel - 2 wheel drive				10	12,000	120
- 4 wheel drive				10	12,000	100
Track				15	12,000	100
Tillage equipment						
Bed shaper	15 HP/row	70-90	2-4 mph			
Chisel	200-800 lb./ft.	70-90	4-6.5 mph	10	2,500	120
Cultipacker - single	20-60 lb./ft.	75-90	3-5 mph		2,500	120
- tandem	40-120 lb./ft.	75-90	3-5 mph		2,500	120
Cultivator, shallow	40-80 lb./ft.	70-90	2.5-5 mph	12	2,500	120
deep	20-40 lb./ft./inch depth	70-90	1.5-3 mph			
Disk - tandem	100-280 lb./ft.	70-90	3-6 mph	15	2,500	120
offset	250-400 lb./ft.	70-90	3-6 mph	15	2,500	120
Harrow - spike	20-60 lb./ft.	70-90	3-6 mph	20	2,500	120
- springtooth	75-310 lb./ft.	70-90	3-6 mph	20	2,000	120
Landplane	300-800 lb./ft.	75-90			2,500	60
Lister	400-800 lb./bottom	70-90	3-3.5 mph		2,500	120
Plow - disk		70-90	3.5-6 mph	15	2,500	120
- mold board	3-14 psi	70-90	3.5-6 mph	15	2,500	120
Roller	20-150 lb./ft.	70-90	4.5-7.5 mph			
Rotary hoe	30-100 lb./ft.	70-85	5-10 mph			
Rotary tiller	5-10 PTO hp/ft.	70-90	1-5 mph			
Subsoiler	70-160 lb. per inch depth	70-90	3-5 mph			
Planting equipment						
Grain drill	30-100 lb./ft.	65-85	2.5-6 mph	20	1,200	100
Planter, row	100-180 lb./row	50-85	3-6 mph	15	1,200	85

^{1/} American Society of Agricultural Engineers, Agricultural Engineers Yearbook, 1972.

^{2/} Field efficiencies tend to be reduced by increasing the width of a machine or by increasing the speed of operation.

Implement	Typical draft or power requirement	Typical field effi- ciencies	Speed or performance	Years until obsolete	Wear-out life	Total repairs in wear-out life, percent of list price
		percent			hours	
Harvest equipment						
Bale loader - stacker						
Balers, PTO	1.5-2.5 hp.-hr./ton	60-85	9-15 ton/hr.	10	2,500	80
Motor			2.5 ton/hr.			
Beet harvester	30-45 hp./row	60-80	5-10 ton/hr.			
Chopper			3-5 mph			
Corn silage	.75-1.75 hp.-hr. per ton	50-75	5-10 ton/hr.	10	2,500	60
Grass silage	1-2.5 hp.-hr. per ton	50-75	5-20 ton/hr.			
Hay	1.5-3 hp.-hr. per ton dry	50-75	5-20 ton/hr.			
Combine, SP		65-80	2-5 ton/hr.			
Cotton picker, 1 row mounted		60-75	2-4 mph	10	2,000	60
2 row SP		60-75	.6-.8 acres/hr.	8	2,000	80
Corn picker, 2 row	12-20 hp.	60-80	.9-1.2 acres/hr.	8	2,000	60
Forage harvester	1.1-2.5 hp.-hr./ton	50-75	2-4 mph	10	2,000	80
Hay cuber	15-20 hp.-hr/ton	60-85	5-10 ton/hr.		2,000	60
Mower	1/3-2/3 PTO hp. per ft. cwt.	75-85	3-5 ton/hr.			
Potato harvester			5-7 mph	12	2,000	120
Rake, side delivery		70-85			2,500	80
Sugar beet harvester			4-5 mph	12	2,500	100
Swather			2.5-4 mph	10	2,500	80
Field with irrigation levees		55-80		8	2,500	80
Field with no levees		75-85	3-4.5 mph	10	2,500	100
			3-6 mph	10	2,500	100
Other equipment						
Chopper, rotary	3-8 hp./ft.	75-85	3-8 mph	10	2,000	60
Fertilizer spreader		60-75	3-5 mph	10	1,200	120
Sprayers - mounted		50-80	3-5 mph	10	1,200	100
- SP		50-80	3-5 mph	10	2,000	80

SAMPLE COSTS FOR TRACTORS

Implement	Horsepower		Estimated cost 1975 dollars	Life		Cash operating costs		
	Maximum	75% of maximum		Years	Hours	Fuel	Repairs	Total
						dollars per hour		
Tractors								
Wheel gasoline	10-20	10	3,350	10	12,000	.30	.35	.65
	21-33	20	5,500	10	12,000	.60	.55	1.15
	34-46	30	7,200	10	12,000	.90	.72	1.62
	47-60	40	8,800	10	12,000	1.20	.90	2.10
	61-73	50	10,800	10	12,000	1.50	1.10	2.60
	74-86	60	12,500	10	12,000	1.80	1.25	3.05
	87-109	70	13,300	10	12,000	2.10	1.35	3.45
Wheel diesel	10-20	10	4,800	10	12,000	.20	.50	.70
	30-33	20	6,500	10	12,000	.40	.65	1.05
	34-46	30	7,200	10	12,000	.60	.70	1.30
	47-60	40	10,200	10	12,000	.80	1.00	1.80
	61-73	50	11,200	10	12,000	1.00	1.10	2.10
	74-86	60	14,000	10	12,000	1.20	1.40	2.60
	87-100	70	15,600	10	12,000	1.40	1.55	2.95
	101-113	80	16,300	10	12,000	1.55	1.65	3.20
	114-126	90	17,800	10	12,000	1.75	1.80	3.55
127-165	100	22,800	10	12,000	1.95	2.30	4.25	
Four wheel drive Gasoline	47-60	40	13,400	10	12,000	1.20	1.10	2.30
	74-86	60	16,000	10	12,000	1.80	1.35	3.15
	87-100	70	17,000	10	12,000	2.10	1.40	3.50
Diesel	47-60	40	14,500	10	12,000	.80	1.20	2.00
	74-86	60	17,000	10	12,000	1.20	1.45	2.65
	87-100	70	18,000	10	12,000	1.40	1.50	2.90
	101-113	80	21,500	10	12,000	1.55	1.80	3.35
	127-140	100	25,700	10	12,000	1.95	2.15	4.10
Crawler diesel	47-60	40	24,750	15	12,000	.90	2.05	2.95
	74-86	60	46,100	15	12,000	1.35	3.80	5.15
	101-113	80	56,250	15	12,000	1.80	4.70	6.50
		150	90,000	15	12,000	3.40	7.50	10.90
		220	129,000	15	12,000	4.95	10.70	15.65

SAMPLE COSTS FOR TRUCKS

Implement	Size	Estimated cost 1975	Life years	Cash operating costs		
				Fuel	Repairs	Total
	tons	dollars		cents per mile		
Pickup	1/2	4,500	5	3.4	3.7	7.1
	3/4	5,000	5	3.6	4.1	7.8
Four wheel drive	1/2	5,500	5	3.8	4.6	8.4
	3/4	6,500	5	4.0	5.5	9.5
Truck	1-1/2	7,000	8	6.0	6.0	12.0
	2	8,000	8	6.3	6.6	12.9

PERFORMANCE AND COST DATA FOR TILLAGE, PLANTING, HARVESTING
AND MISCELLANEOUS IMPLEMENTS

Implement	Size	Estimated cost 1975 dollars	Crew	Size of tractor 75% of maximum	Speed MPH	Field effi- ciency percent	Hours per acre	Life		Repair cost per hour dollars		
								Years	Hours			
<u>Tillage equipment</u>												
Check breaker		275	1	W-30			.13	10	2,500	.15		
Chisel	6'	1,500	1	W-40	3.0	85	.56	10	2,500	.65		
	8'	1,680	1	C-40	3.0	85	.40	10	2,500	.80		
	10'	1,860	1	C-60	3.0	85	.33	10	2,500	.85		
	12'	2,160	1	C-90	3.0	85	.26	10	2,500	.95		
	14'	2,340	1	C-140	3.0	85	.23	10	2,500	1.10		
Cultipack	8'	850	1	W-20	6.0	86	.20	10	2,500	.35		
	12'	1,320	1	W-20	6.0	86	.13	10	2,500	.60		
Cultivate, 40" rows,	first	2 row	600	1	W-20	2.5	91	.54	10	2,500	.30	
	second	2 row	600	1	W-20	3.0	89	.46	10	2,500	.30	
	other	2 row	600	1	W-20	5.3	80	.29	10	2,500	.30	
	36" rows,	first	2 row	600	1	W-20	2.5	91	.60	10	2,500	.30
		second	2 row	600	1	W-20	3.0	89	.52	10	2,500	.30
		other	2 row	600	1	W-20	5.3	80	.32	10	2,500	.30
	30" rows,	first	2 row	600	1	W-20	2.5	91	.72	10	2,500	.30
		second	2 row	600	1	W-20	3.0	89	.62	10	2,500	.30
		other	2 row	600	1	W-20	5.3	80	.39	10	2,500	.30
	20" rows,	first	2 row	600	1	W-20	2.5	91	1.10	10	2,500	.30
		second	2 row	600	1	W-20	3.0	89	.93	10	2,500	.30
		other	2 row	600	1	W-20	5.3	80	.59	10	2,500	.30
Cultivate, 40" rows,	first	4 row	1,500	1	W-20	2.5	91	.27	10	2,500	.70	
	second	4 row	1,500	1	W-20	3.0	89	.24	10	2,500	.70	
	other	4 row	1,500	1	W-20	5.3	80	.15	10	2,500	.70	
	36" rows,	first	4 row	1,500	1	W-20	2.5	91	.31	10	2,500	.70
		second	4 row	1,500	1	W-20	3.0	89	.26	10	2,500	.70
		other	4 row	1,500	1	W-20	5.3	80	.16	10	2,500	.70
	30" rows,	first	4 row	1,500	1	W-20	2.5	91	.36	10	2,500	.70
		second	4 row	1,500	1	W-20	3.0	89	.31	10	2,500	.70
		other	4 row	1,500	1	W-20	5.3	80	.20	10	2,500	.70
	20" rows,	first	4 row	1,500	1	W-20	2.5	91	.54	10	2,500	.70
		second	4 row	1,500	1	W-20	3.0	89	.46	10	2,500	.70
		other	4 row	1,500	1	W-20	5.3	80	.29	10	2,500	.70

Implement	Size	Estimated cost 1975 dollars	Crew	Size of tractor 75% of maximum	Speed MPH	Field efficiency percent	Hours per acre	Life		Repair cost per hour dollars
								Years	Hours	
Cultivate, 40" rows, first	6 row	2,500	1	W-30	2.5	91	.18	10	2,500	1.10
	second	2,500	1	W-30	3.0	89	.16	10	2,500	1.10
	other	2,500	1	W-30	5.3	80	.10	10	2,500	1.10
36" rows, first	6 row	2,500	1	W-30	2.5	91	.20	10	2,500	1.10
	second	2,500	1	W-30	3.0	89	.58	10	2,500	1.10
	other	2,500	1	W-30	5.3	90	.11	10	2,500	1.10
30" rows, first	6 row	2,500	1	W-30	2.5	91	.24	10	2,500	1.10
	second	2,500	1	W-30	3.0	89	.20	10	2,500	1.10
	other	2,500	1	W-30	5.3	80	.12	10	2,500	1.10
20" rows, first	6 row	2,500	1	W-30	2.5	91	.36	10	2,500	1.10
	second	2,500	1	W-30	3.0	89	.31	10	2,500	1.10
	other	2,500	1	W-30	5.3	80	.20	10	2,500	1.10
Disk, border	single	500	1	W-20	3.3	80	.17	10	2,500	.25
	tandem	900	1	W-30	3.3	80	.17	10	2,500	.45
Disk harrow (offset)	6'	1,500	1	W-30	3.3	80	.50	10	2,500	.70
	8'	1,750	1	W-40	3.3	80	.38	10	2,500	.80
	10'	2,000	1	W-50	3.3	80	.32	10	2,500	.90
	12'	2,400	1	C-40	3.3	80	.28	10	2,500	1.10
	14'	2,900	1	C-60	3.3	80	.23	10	2,500	1.30
	16'	3,400	1	C-60	3.3	80	.19	10	2,500	1.50
	18'	3,850	1	C-80	3.3	80	.16	10	2,500	1.75
	20'	4,600	1	C-80	3.3	80	.14	10	2,500	2.10
Disk harrow (hydraulic)	10'	3,000	1	W-50	3.3	80	.31	10	2,500	1.40
	14'	3,800	1	C-60	3.3	80	.20	10	2,500	1.70
	18'	5,200	1	C-60	3.3	80	.17	10	2,500	2.35
	20'	6,000	1	C-90	3.3	80	.15	10	2,500	2.70
Disk harrow (tandem)	6'	850	1	W-20	3.3	80	.56	10	2,500	.40
	8'	1,100	1	W-40	3.3	80	.42	10	2,500	.50
	10'	1,500	1	W-40	3.3	80	.34	10	2,500	.70
	12'	1,800	1	W-50	3.3	80	.28	10	2,500	.80
	14'	2,200	1	C-60	3.3	80	.22	10	2,500	1.00
Disk, stubble	10'	8,000	1	C-60	3.3	80	.34	10	2,500	3.65
Ditcher	4'	2,000	1	C-60			.04	10	2,500	.90

Implement	Size	Estimated cost 1975 dollars	Crew	Size of tractor 75% of maximum	Speed MPH	Field efficiency percent	Hours per acre	Life		Repair cost per hour dollars
								Years	Hours	
Float	12'	550	1	W-30	4.5	90	.17	10	2,500	.25
	20'	1,100	1					15	2,500	.50
Furrower	4 shovel	800	1	W-40	3.0	85	.50	10	2,500	.40
Harrow, spike	4'	180	1	W-20	2.5	83	1.00	20	2,500	.10
	8'	350	1	W-20	2.5	83	.50	20	2,500	.20
	12'	500	1	W-20	2.5	83	.33	20	2,500	.25
	16'	675	1	W-30	2.5	83	.25	20	2,500	.30
	20'	850	1	W-40	2.5	83	.20	20	2,500	.40
	24'	1,050	1	W-40	2.5	83	.17	20	2,500	.50
	28'	1,180	1	W-50	2.5	83	.14	20	2,500	.55
	32'	1,350	1	C-40	2.5	83	.12	20	2,500	.70
	40'	1,700	1	C-40	2.5	83	.10	20	2,500	.80
Harrow cart	32'	1,500								.65
Harrow, springtooth	8'	1,100	1	W-20	3.0	80	.43	10	2,000	.50
	12'	1,600	1	W-20	3.0	80	.29	10	2,000	.75
	16'	2,100	1	W-30	3.0	80	.22	10	2,000	.95
	20'	2,600	1	W-40	3.0	80	.17	10	2,000	1.20
	24'	3,150	1	W-50	3.0	80	.14	10	2,000	1.50
	28'	3,600	1	C-60	3.0	80	.13	10	2,000	1.65
Landplane	8' x 30'	6,000	1	W-40	3.5	81	.40	15	2,500	1.45
	10' x 40'	7,100	1	C-40	3.5	81	.31	15	2,500	1.70
	12' x 60'	8,850	1	C-60	3.5	81	.26	15	2,500	2.10
	15' x 80'	11,500	1	C-80	3.5	81	.21	15	2,500	2.80
Lister	2 row	625	1	W-30	3.5	91	.42	10	2,500	.30
	4 row	1,200	1	W-50	3.5	91	.21	10	2,500	.55
Plow, disk	3 disk	1,500	1	W-30	3.5	87	.71	10	2,500	.70
	4 disk	1,600	1	W-40	3.5	87	.53	10	2,500	.75
	5 disk	1,720	1	W-40	3.5	87	.42	10	2,500	.80
	6 disk	1,850	1	C-40	3.5	87	.35	10	2,500	.85
	7 disk	2,050	1	C-60	3.5	87	.29	10	2,500	.90

Implement	Size	Estimated cost 1975 dollars	Crew	Size of tractor 75% of maximum	Speed MPH	Field efficiency percent	Hours per acre	Life		Repair cost per hour dollars
								Years	Hours	
Plow, one-way mold board	3-16"	1,000	1	W-30	3.5	87	.68	10	2,500	.50
	4-16"	1,260	1	C-40	3.5	87	.51	10	2,500	.60
	5-16"	1,760	1	C-60	3.5	87	.41	10	2,500	.80
	6-16"	2,520	1	C-90	3.5	87	.34	10	2,500	1.15
Plow, two-way mold board	3-16"	3,000	1	W-30	3.5	87	.68	10	2,500	1.40
	4-16"	3,500	1	C-40	3.5	87	.51	10	2,500	1.60
	5-16"	4,300	1	C-60	3.5	87	.41	10	2,500	1.95
Plow, hydraulic, one-way two-way	3-16"	1,700	1	W-30	3.5	87	.68	10	2,500	.80
	4-16"	2,100	1	C-40	3.5	87	.51	10	2,500	.95
	4-16"	7,500	1	C-40	3.5	87	.51	10	2,500	3.40
	6-16"	8,550	1	C-90	3.5	87	.34	10	2,500	3.85
Rice checker		10,500	2	C-90	2.0		.10	15	2,000	4.70
Roller	21'	3,000	1	W-20	3.0	77	.17	20	2,500	.40
Rototiller	84"	3,000								2.40
Scraper	10'	750	1	W-30			.125	10	2,500	.35
Subsoiler	4'	1,750	1	C-40	2.2	75	1.25	10	2,500	.80
	6'	2,580	1	C-40	2.2	75	.83	10	2,500	1.15
	8'	3,480	1	C-60	2.2	75	.62	10	2,500	1.55
	10'	4,320	1	C-90	2.2	75	.50	10	2,500	1.91
	12'	5,250	1	C-90	2.2	75	.42	10	2,500	2.35
Thinner	2 row	850	1	W-20	3.0	89	.53	10	2,500	.45
	4 row	1,100	1	W-20	3.0	89	.26	10	2,500	.50
	6 row	1,700	1	W-30	3.0	89	.17	10	2,500	.80

Implement	Size	Estimated cost 1975 dollars	Crew	Size of tractor 75% of maximum	Speed MPH	Field efficiency percent	Hours per acre	Life		Cash operating cost per hour		
								Years	Hours	Fuel	Repairs	Total
										dollars		
<u>Planting equipment</u>												
Grain drills	10'	2,800	2	W-20	4.0	68	.30	10	1,200		2.25	2.25
	12'	3,000	2	W-20	4.0	66	.26	10	1,200		2.40	2.40
	14'	3,300	2	W-30	4.0	64	.24	10	1,200		2.65	2.65
Planter, 40" row	2 row	1,050	2	W-20	2.2	71	.80	10	1,200		.75	.75
36" row	2 row	1,050	2	W-20	2.2	71	.88	10	1,200		.75	.75
30" row	2 row	1,050	2	W-20	2.2	71	1.05	10	1,200		.75	.75
20" row	2 row	1,050	2	W-20	2.2	71	1.58	10	1,200		.75	.75
Planter, 40" row	4 row	1,830	2	W-20	2.2	67	.42	10	1,200		1.25	1.25
36" row	4 row	1,830	2	W-20	2.2	67	.47	10	1,200		1.25	1.25
30" row	4 row	1,830	2	W-20	2.2	67	.53	10	1,200		1.25	1.25
20" row	4 row	1,830	2	W-20	2.2	67	.80	10	1,200		1.25	1.25
Planter, 40" row	6 row	2,900	2	W-30	2.2	63	.30	10	1,200		2.05	2.05
36" row	6 row	2,900	2	W-30	2.2	63	.33	10	1,200		2.05	2.05
30" row	6 row	2,900	2	W-30	2.2	63	.40	10	1,200		2.05	2.05
20" row	6 row	2,900	2	W-30	2.2	63	.60	10	1,200		2.05	2.05
Planter, sled, 30" row	2 row	3,600	2	W-20	2.2	63	1.20	10	1,200		2.50	2.50
	4 row	6,000	2	W-30	2.2	63	.60	10	1,200		4.20	4.20
	6 row	7,200	2	W-30	2.2	63	.40	10	1,200		4.90	4.90
Potato planter	2 row	3,720		W-30	3.5	70	1.50	10	1,200		1.70	1.70
	4 row	6,000		W-60	3.5	70	.75	10	1,200		2.70	2.70
<u>Harvesting equipment</u>												
Bale loader and stacker		16,800	1	SP	8-10	82	.08/ton	8	2,000	.85	3.35	4.20
Baler, PTO, twine		4,000	1	W-30	4.0	75	.20/ton	10	2,000		1.25	1.25
Baler, motor, twine		5,500	1	W-30	4.0	75	.19/ton	10	2,500	.85	1.30	2.15
Baler, PTO, 2 wire		4,500	1	W-30	4.0	75	.19/ton	10	2,500		1.45	1.45
Baler, motor, 2 wire		6,200	1	W-30	4.0	75	.15/ton	10	2,500	.85	1.55	2.40
Baler, 3 wire		9,600	1	W-30	4.0	75	.12/ton	10	2,500	.85	2.25	3.10

Implement	Size	Estimated cost 1975 dollars	Crew	Size of tractor 75% of maximum	Speed MPH	Field efficiency percent	Hours per acre	Life		Cash operating cost per hour		
								Years	Hours	Fuel	Repairs	Total
										dollars		
Baler, SP, twine		14,000	1	SP	4.0	75	.15/ton	10	2,500	1.05	3.35	4.40
Baler, SP, wire		14,300	1	SP	4.0	75	.13/ton	10	2,500	1.05	3.35	4.40
Bankout wagon	150 cwt.	13,225	1	SP				10	2,500	.60	2.30	2.90
Bean cutter	2 row	280	1	W-20	3.5	81	.53	10	2,500		.15	.15
	4 row	550	1	W-20	3.5	81	.25	10	2,500		.25	.25
	6 row	625	1	W-30	3.5	81	.17	10	2,500		.30	.30
Beet harvester	1 row	5,300	1	W-30	3.0	55	2.00	10	2,500		2.40	2.40
	2 row	9,900	2	W-50	3.0	55	1.00	10	2,500		4.45	4.45
	3 row	10,500	2	C-60	3.0	55	.66	10	2,500		4.70	4.70
	4 row	11,300	2	C-90	3.0	55	.50	10	2,500		5.15	5.15
Combine, SP	10'	17,000	1	SP	2.5	83	.40	10	2,000	.60	5.15	5.75
	12'	19,000	1	SP	2.5	80	.35	10	2,000	.75	5.70	6.45
	14'	22,000	1	SP	2.5	76	.31	10	2,000	.85	6.55	7.40
	16'	30,000	1	SP	2.5	73	.28	10	2,000	1.05	9.00	10.05
Combine, SP, rice	12'	25,000	1	SP	1.0	73	.95	10	2,000	.85	7.55	8.40
	14'	30,700	1	SP	1.0	70	.85	10	2,000	1.10	9.25	10.35
	16'	35,000	1	SP	1.0	67	.75	10	2,000	1.15	10.40	11.55
Corn Picker	1 row	3,200	1	W-20	3.0	65	1.40	10	2,000		1.30	1.30
	2 row	5,800	1	W-30	3.0	65	.70	10	2,000		2.35	2.35
Cotton picker, mounted SP	1 row	15,000	1	W-30	2.5	78	1.43	10	2,000		6.00	6.00
	2 row	32,000	1	SP	2.5	74	.67	10	2,000	.85	9.60	10.45
Forage harvester PTO SP	6'	4,600	1	W-30		60	.28/ton	10	2,000		1.40	1.40
	7'	7,000	1	W-40		60	.24/ton	10	2,000		2.10	2.10
	8'	25,000	1	SP		55	.20/ton	10	2,000	.85	7.45	8.30
	10'	31,000	1	SP		55	.16/ton	10	2,000	.70	9.30	10.00
Forklift	4,000 lb.	7,200	1					10	3,000	.55	1.15	1.70
Hay cuber		46,000	1	SP			4.5 ton/hr.	4	4,000	1.35	6.95	8.35
Knocker, fruit and nut		7,800	1	SP			2.00	5	2,000	.25	3.50	3.75

Implement	Size	Estimated cost 1975 dollars	Crew	Size of tractor 75% of maximum	Speed MPH	Field efficiency percent	Hours per acre	Life		Cash operating cost per hour		
								Years	Hours	Fuel	Repairs	Total
Mower	7'	1,100	1	W-20	5.5	81	.30	10	2,000		.75	.75
Pickup (fruit and nuts)	7'	5,500	1	SP	1.5	75	1.00	5	2,000	.45	2.00	2.45
	7'	10,800	1	SP	1.5	75	1.00	5	2,000	.45	3.95	4.40
PTO	7'	16,800	1	SP	1.5	75	1.00	5	2,000	.45	5.65	6.10
	7'	10,800	1	W-30	1.5	75	1.00	5	2,000		3.95	3.95
Potato digger	1 row	750	2	W-30	2.5	55	2.25	10	2,000		.45	.45
	2 row	1,200	2	W-40	2.5	55	1.12	10	2,000		.75	.75
Potato harvester	2 row	16,800	8	C-40	2.5	66	.95	10	2,000	.60	5.90	6.50
Rake, fruit and nut side delivery		2,900	1	SP			1.70	5	2,000	.25	1.35	1.60
	8'	1,100	1	W-20	4.8	82	.26	10	2,500		.45	.45
Swather PTO	10'	3,600	1	W-30	4.2	60	.33	8	2,500		1.45	1.45
	12'	4,660	1	W-30	4.2	60	.27	8	2,500		1.90	1.90
SP	10'	8,000	1	SP	4.2	68	.29	5	2,000	.27	2.78	3.05
	12'	10,000	1	SP	4.2	68	.24	5	2,000	.30	3.50	3.80
	14'	10,200	1	SP	4.2	68	.25	5	2,000	.32	3.53	3.85
	16'	11,000	1	SP	4.2	68	.18	5	2,000	.34	3.71	4.05
Tomato harvester		60,000	15	SP	1.4	70	2.85	5	2,000	1.80	13.80	15.60
Trailers, cotton	4 bale	500	1	Truck			1.43	10	5,000		.18	.18
	5 bale	550	1	Truck			1.43	10	5,000		.20	.20
	6 bale	600	1	Truck			1.43	10	5,000		.20	.20
	tomato 6 bin	1,200	1	W-20				10	5,000		.20	.20
<u>Miscellaneous</u>												
Buck rake, brush		750	1	W-30			1.50	10	2,000		.15	.15
Dozer blade	8'	1,600	1	W-40				10	2,000		.03	.03
Cart, nut		300	1	W-20				10			.06	.06
		750	1	W-20			1.00	10			.06	.06

Implement	Size	Estimated cost 1975 dollars	Crew	Size of tractor 75% of maximum	Speed MPH	Field efficiency percent	Hours per acre	Life		Cash operating cost per hour		
								Years	Hours	Fuel	Repairs	Total
Chopper, rotary - mounted trailer	4'	500	1	W-20	5.0	80		10	2,000		.15	.15
	6'	1,000	1	W-30	5.0	80		10	2,000		.30	.30
	12'	3,000	1	W-60	5.0	80		10	2,000		.90	.90
	6'	1,200	1	W-30	5.0	80		10	2,000		.35	.35
	9'	2,200	1	W-45	5.0	80		10	2,000		.65	.65
Duster	6 row	750	1	W-20			.20	5	2,000		.20	.20
Fertilizer spreader	8'	500	1	W-20	4.0	78	.33	5	2,000		.50	.50
	10'	600	1	W-20	4.0	72	.29	5	2,000		.60	.60
	12'	750	1	W-20	4.0	66	.26	5	2,000		.75	.75
Forklift		7,200	1					10		.30	1.35	1.65
Ladders	12/acre							10				
Props	12/acre							10				
Pruning equipment	\$7/acre							5			.15	.15
Sprayer, speed	300 gal.	11,000	1	C-30			.40	15	2,500	1.40	4.50	5.90
	500 gal.	14,000	1	C-40			.30	15	2,500	1.75	5.65	7.40
Sprayer, weed, PTO SP	200 gal., 35'	1,650	1	W-20	2.2	65	.17	10	2,500		1.35	1.35
	500 gal.	4,000	1	W-30	2.2	67	.15	10	2,500		3.25	3.25
	300 gal., 16'	3,250	1	SP	3.0	70	.25	10	2,500	.25	1.35	1.60
Tool bar	9'	2,500						10			.70	.70
	12'	3,000						10			.80	.80
	18'	3,600						10			1.00	1.00
Tool carrier	20'	1,750						10			.40	.40
	25'	2,500						10			.45	.45
	30'	2,550						10			1.25	1.25
Trailer, flatbed	20'	2,000						15	5,000		.30	.30

Bibliography

- The American Society of Agricultural Engineers, Agricultural Engineers Yearbook, 1972.
- Armstrong, David L., and J. Edwin Faris, Farm Machinery: Costs, Performance Rates, and Combination, University of California, Giannini Foundation Research Report No. 273, March 1964, 73p.
- Greer, James D., Philip A. Henderson, and Lloyd A. Schepler, Costs of Owning and Operating Farm Machinery, Lincoln: University of Nebraska, College of Agriculture and Home Economics, EC 69-836, March 1969, 109p.
- Larsen, W. E., and Wendell Bowers, Tables for Estimating Costs of Owning and Operating Farm Machinery, Tuscon: University of Arizona Agricultural Extension Service Mimeo, March 1965.
- Martin, William E., Farm Machinery Costs in the Western States, University of Arizona, Agricultural Experiment Station, Technical Bulletin 154, January 1964, 91p.
- National Farm and Power Equipment Dealers Association, Official Tractor and Farm Equipment Guide, St. Louis: Fall 1974, 346p.
- Parsons, Philip S., John B. Doble, and Robert G. Curley, Alfalfa Harvesting Costs, University of California Agricultural Extension Service, AXT-346, March 1971.
- Reed, A. D., Machinery Costs and Performance, University of California Agricultural Extension Service, AXT-336, Rev. September 1972.
- U.S.D.A. Statistical Reporting Service, Agricultural Prices, Monthly, Washington, D.C.
- Zobel, Mel, Machinery Harvest Costs, Tomato - 1969, Yolo County, University of California Agricultural Extension Service Mimeo, Woodland, 1970.