Costs And Replacement Procedures For Farm Tractors

Darrel D. Kletke
Luther G. Tweeten

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Darrel D. Kletke and Luther G. Tweeten*

Machinery ownership, next to land, requires the largest amount of capital on the farm. Proper machinery ownership decisions can mean the difference between farm financial success or failure. In contrast to land investment decisions, numerous machinery investment decisions are likely to confront the farmer each year. Should I buy a new tractor? What is my tractor costing me? How can I lower my per acre costs? To determine machinery costs and make replacement decisions, it is necessary to know the characteristics of machinery costs. In addition, to make intelligent replacement decisions some knowledge of replacement rules is required. The narrative is divided into two portions: First, a discussion of machinery costs, and second, the proper use of the tables for making trading decisions.

Farm Tractor Costs

Machinery cost components are split into three principal categories: Ownership costs, operating costs, and intangible costs. Each of these components can then be split into several elements. Following is a discussion of the cost categories, the equations used to generate each cost element, and the tables generated from the cost equations.

Ownership Costs

Ownership costs include depreciation, taxes, housing, insurance and interest on investment. The ownership cost most difficult to evaluate is depreciation. Depreciation will be discussed first, since, besides being a cost itself, it is used in determining other ownership costs which depend on machine value.

Depreciation may be viewed in several ways. From the tax angle, depreciation is used for determining legally deductable capital expendi-

*Assistant Professor and Professor, respectively, Department of Agricultural Economics, Oklahoma State University, Stillwater.

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tures over a period of years. When figuring machine costs, depreciation takes a new role. Depreciation charges should exactly account for changes in machine market value from one year to the next. This change in market value is relevant for determining least-cost ownership intervals. Market depreciation is determined by subtracting the machine's current value from its value the preceding year. Estimates of actual machine value are available for most farm equipment.

The other ownership costs—taxes, housing, insurance, and interest on investment—are a constant percentage of current machine value. Accurate determination of depreciation is therefore important in determining other costs.

In this study, depreciation is determined by the machine's list price, X_1, and machine age, t. The equation used to express machine market value in any year is:[1]

$$W_{1t} = .675X_1.933^t$$

The data used to estimate the above equation were taken from *Official Tractor and Farm Equipment Guide.*[2]

Given W_{1t} from the above equation, depreciation, for cost analysis, is the change in machine value from one year to the next.

$$Y_{1t} = W_{1(t-1)} - W_{1t}$$

where Y_{1t} = depreciation during year t.

The second ownership cost equation includes charges for taxes, housing, insurance, and interest on investment.

$$Y_{2t} = (r + .045)W_{1t}$$

where r = interest rate,

and Y_{2t} = interest, housing, taxes, and insurance for year t.

These charges are all considered to be a percentage of the remaining tractor value. Taxes in Oklahoma are approximately equal to two percent of machine value each year.[3] Housing charges should be made whether or not the machine is housed because depreciation and maintenance will be higher if machines are not housed. The charge for housing is approximately two percent of current machine value.[4] Insurance costs for any year are assumed to be one-half of one percent of the machine's remaining value. The total of the above three cost components is four and one-half percent.

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[1] Wendell Bowers, Oklahoma State University College of Agriculture, Cooperative Extension Work, *Costs of Owning and Operating Farm Machinery*, January, 1969.

[2] National Farm and Power Equipment Dealers Association, *Official Tractor and Farm Equipment Guide* (St. Louis: NRFEA Publication, Inc., 1967).

[3] *Personal Property Schelule*, Oklahoma 1964, prepared by Oklahoma Tax Commission (Oklahoma, 1964).

[4] Bowers, *op. cit.*, p. 40.

Ownership costs can be classified as fixed costs since they must be paid whether or not the machine is used. On the other hand, operating costs can be called variable costs since they vary with the number of acres covered or hours used.

Operating Costs

Operating costs vary with machine use. Operating costs include repairs, fuel, lubricants, and labor. The largest and most unpredictable of the operating costs is repairs, and as a result, repair costs pose a primary stumbling block in replacement interval determination. Repairs cannot accurately be predicted for individual tractors but they do have some distinct characteristics. An old tractor used the same amount as a new tractor will usually have larger repair bills. Repair costs vary directly with hours of use and size of tractor. But to a lesser degree, skill of operator, climate, and type of tractor also affect repair costs.

Average repair cost is expressed as a function of machine age, use per year, and machine size as measured by list price X_1. The accumulative repair cost equation for tractors is:[5]

$$W_{2t} = .0000003569X_1 (t\ X_2)^{1.6}$$

where X_2 = hours of tractor use per year

and W_{2t} = total accumulated repair cost through year t.

Since the above equation is an accumulative equation, repair costs for any year may be found by subtracting cumulative repair costs in year t-1 from those in year t as in the following equation.

$$Y_{5t} = W_{2t}\text{-}W_{2(t-1)}$$

where Y_{5t} = repair costs in year t.

Other operating costs include labor, fuel, and lubricants. Primary information required for computation of these costs are: tractor cost, X_1; yearly machine use, X_2; and labor charge per hour, X_3. The labor cost per year is:

$$Y_{3t} = X_2X_3$$

where Y_{3t} = labor cost in year t.

Yearly labor cost equals machine hours per year multiplied by the hourly labor charge. The equation for fuel and lubricant cost is:

$$Y_{4t} = .00051\ X_1X_2f$$

where f = fuel price in dollars per gallon,

and Y_{4t} = fuel and lubricant cost in year t.

[5] The accumulative repair cost equation is an altered form of an equation presented in W. E. Larsen and W. Bowers, "Engineering Analysis of Machinery Costs," Presented at the 1965 meeting American Society of Agricultural Engineers (June, 1965), Appendix p. 2.

Fuel and lubricant costs are the product of hourly usage per year, tractor list price, fuel price, and a constant. The constant is a fuel consumption multiplier which estimates gallons of fuel used per hour per dollar of list price. The constant used in this publication is .00051 which is for diesel tractors.[6] The multiplier was increased 15 percent from the straight fuel consumption multiplier to include lubricant requirements.

Intangible Costs

All actual out-of-pocket machine charges are included in ownership and operating costs. One additional and very important cost consideration is machine dependability. Old machines are not as dependable as new machines and, therefore, require a considerable amount of repair time. If machines are idle, being repaired during crucial use periods, lost output constitutes an opportunity cost. The opportunity cost associated with down-time is considered to be an arbitrary amount in this study, since measurement of income lost due to machine breakdown would be very difficult.

There are two distinct characteristics of a dependability function. First, charges per year increase with machine age. Second, since the cost is somewhat subjective, each farmer may have a unique dependability function suited to his particular circumstances.

Several factors must be considered when selecting the dependability cost function. Machine breakdown is more crucial for a farmer with one tractor rather than two. It has been argued that dependability charges should not be considered in economic studies since they are not out-of-pocket costs. The loss in income, nevertheless, is real as crop output is reduced. In some cases, the opportunity costs (lost income) may be small. Moisture lost to weeds because of a one day delay in working the wheat land may reduce wheat yields, but not significantly. On the other hand, a few days delay in the wheat harvest may lose the entire crop.

There is also a subjectively evaluated cost associated with prestige. Conspicuous consumption is not usually considered in optimizing formulae, but it may be rational depending on the utility gained from prestige. Once an individual has decided that a tractor is worth the extra costs, the role of the economic replacement model is altered. The economist can now use the model to tell the tractor owner how much he has paid for the luxury of owning a new machine. Many farmers are willing to incur some extra costs to own machinery of which they can be proud.

An additional intangible cost which becomes very important in particular farm situations is timeliness. The equipment complement a

[6] The multiplier is an index of fuel and lubricant requirements per hour. The values given by Bowers, *op. cit.*, p. 12, are divided by 1000 to obtain values per dollar of list price as opposed to $1000 of list price. Multipliers for other fuels are also listed.

farmer owns must be large enough to complete all field and harvest operations within the "correct" time period. This factor encourages many farmers to purchase larger and larger tractors and implements. The costs associated with timeliness is, however, very difficult to evaluate.

In the costs presented in this report, only a dependability cost is computed. Dependability costs are assumed to increase by the same number of dollars each year but with no charge the first year. The equation is:

$$Y_{6t} = (t\text{-}1)\, X_4 \qquad t \geqslant 1$$

where X_4 = dependability increment
and Y_{6t} = dependability cost in year t.

The yearly cost increment, X_4, can be viewed as arbitrarily determined by a farmer or other user of the model. Alternatively, several different values could be assumed, allowing the user to pick the yearly cost increment relevant to his situation.

Cost Function Summary

The six cost functions used to predict yearly tractor costs are presented above. The six functions depend on seven constants: X_1 through X_4, r, f, and t.

X_1 = tractor list price
X_2 = yearly use in hours
X_3 = labor charge per hour
X_4 = yearly dependability increment
r = interest rate
f = fuel price
t = age of tractor

Based on these constants, two prerequisite cumulative values can be found:

Value of tractor in year t:	$W_{1t} = .675\, X_1\, (.933)t$
Cumulative repairs to year t:	$W_{2t} = .0000003569\, X_1\, (tX_2)^{1.6}$

Given the constants and the two intermediate values, the relevant costs for any year t are:

Depreciation:	$Y_{1t} = W_{1(t-1)} - W_{1t}$
Interest, taxes, housing and insurance:	$Y_{2t} = (r + .045)W_{1t}$
Labor:	$Y_{3t} = X_2X_3$
Fuel and lubricants:	$Y_{4t} = .00051X_1X_2f$
Repair cost:	$Y_{5t} = W_{2t} - W_{2(t-1)}$
Dependability and/or prestige cost:	$Y_{6t} = (t - 1)X_4.$

The cost equations for tractors given above can be used to develop marginal and average costs. As used in this study, marginal cost is com-

posed of all costs which occur in a particular year including depreciation and other ownership costs. For the first year, marginal costs include all operating costs and first year depreciation. Marginal costs for succeeding years are calculated in like manner. Average cost for any year is computed by summing all marginal costs up to and including the year in question and dividing by the age of the tractor. Typical shapes for tractor average and marginal cost curves are illustrated in Figure 1.

Because money has time value, it is necessary to evaluate costs over time using a present value criteria. The basic idea of the time value of money can be grasped by noting that one dollar can be placed in a savings account and return one dollar plus interest one year from now. In this study the procedure used for considering the time value of money is amortization.

Assumptions Made in Table Construction

To construct Table 1 through 20 a basic set of assumptions was necessary. Some of these were mentioned as the equations were presented. Each table title includes the list price of the tractor. Since most farmers pay less than list price for their machines, a purchase price of ten percent less than list price was used. This is important when first year depreciation is computed. For this set of tables a diesel tractor was assumed with a diesel fuel price of 15 cents per gallon and a labor charge of $1.50 per hour.

One of the most crucial assumptions concerns the dependability cost increment. It is generally true that a farmer depends more on a large tractor than a small tractor. This results because a breakdown on a large

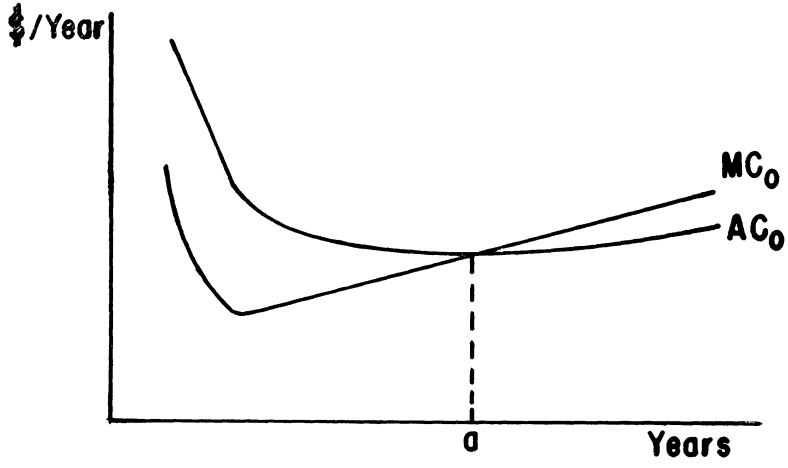

Figure 1. Theoretical Marginal and Average Cost Curves

tractor causes more work to be missed even though the repair time may be exactly the same for a large and small tractor. In order that this type of relationship could be present in the cost components, the following set of dependability increments was assumed: $4800 tractor, $20 increment; $6400 tractor, $30 increment; $8000 tractor, $40 increment; $9600 tractor, $50 increment; $11,200 tractor, $60 increment; and $12,800 tractor, $70 increment.

Repair costs are set sufficiently high to keep tractors in top condition. Accordingly the work a tractor can do is not considered to decline with age. In other words, a 12-year-old tractor exactly like a new tractor is capable of doing the same amount of work in the same time, using the same amount of fuel and lubricants.

Tractor Costs Tables

In the first twelve tables average cost information is provided for alternative tractor sizes, interest rates, hours use per year, and number of years the machine is kept. The odd numbered tables provide costs on a yearly basis while even numbred tables give costs per hour of use.

The bottom section of each table gives yearly or hourly costs under each situation when the tractor is kept until the minimum cost ownership age is reached. The minimum cost age of each situation is given in parenthesis. Three interest rates are used, zero, eight and sixteen percent to illustrate the effect of interest on costs and optimal ownership intervals. A sixteen percent interest rate may seem out-of-line, but if other investment alternatives will yield a sixteen percent return, then an opportunity cost of sixteen percent should be used.

Tables 13 through 18 provide average cost information for alternative size and annual use situations. It is assumed that each tractor is kept 8 years and used either 300, 500, 700, or 900 hours each year.

Costs in these tables are broken into the three categories discussed earlier: ownership costs, operating costs, and intangible costs. The equations previously presented were used in computing the costs. To compute each average cost component the actual expected cost occuring in each of the first eight years was calculated. These eight figures were totaled and the result divided by eight to get an average cost for that component. For example, expected depreciation costs for years one through eight were computed. These costs were totaled and divided by eight to get the average yearly depreciation cost for keeping a machine eight years. The hourly cost was obtained by dividing the yearly average cost by the hourly use per year.

Tables 19 and 20 are similar to Tables 13 through 18 except that annual hourly use is held constant and the ownership interval is varied.

The effect of changing the ownership interval on the various cost components can be observed in these tables.

General Conclusions Observable From the Tables

(1) The more hours a tractor is used each year, the lower the hourly cost of operation.
(2) The more years a tractor is kept the lower are annual and hourly costs—up to a point. Beyond some minimum cost year, annual and hourly costs begin increasing.
(3) Higher interest rates mean higher annual and hourly costs.
(4) As the interest rate increases, the optimal or minimum cost ownership interval becomes longer.
(5) As the annual use of a tractor increases, the optimal or minimum cost ownership interval becomes shorter.
(6) Average costs per hour several years on either side of the minimum cost year are not appreciably different from the minimum average cost per hour. In other words, the average cost curve has a long relatively flat bottom, and the economic penalty for trading too early is not large.
(7) Optimal ownership intervals are relatively long and stable over tractor sizes. Therefore, it is possible to generalize conclusions from the given tractor sizes to larger tractor sizes. However, without knowledge of the amount and value of farmwork to be done, it is impossible to determine optimal tractor size for a farm.

Farm Tractor Replacement Procedures

There are two alternative ways of considering replacement problems. First, in a planning situation we need to know how long the machine is to be kept and what the costs are on a yearly basis. Second, once the farmer has a machine, he must decide each year whether or not to replace the machine. Ideally, he should make the replacement decision each year because of fluctuating repair costs and other technical and economic variables which will change from year to year.

Theoretical Model

Figure 1 can be used to illustrate the basic replacement criteria. If a machine is to be replaced by an exact duplicate, then the optimal ownership interval is the period of time required for the machine to reach its minimum average cost. In Figure 1 this is "a" years. Only by replacing the machine every "a" years can a minimum average yearly cost over time

be attained. Admittedly, machinery costs fluctuate from year to year, but for planning purposes, smooth cost curves can be used. Later, the replacement model for making yearly replacement decisions will be introduced. By noting that in Figure 1, at point "a" marginal and average costs are equal, the replacement criteria can be restated. Replacement should occur when the marginal cost curve first crosses the average cost curve from below. In other words, a machine should be replaced when its annual cost exceeds the *average* annual cost of its replacement. It should be pointed out that the replacement must do the same amount of work as the currently owned tractor or the replacement model is not valid.

Actual circumstances differ considerably from those depicted in Figure 1. When a tractor is ten years old, a comparable new model is probably no longer available on the market. Also, purchase price for the old tractor and its proposed replacement will not be the same. Therefore, a modified replacement criteria is need. Figure 2 shows the marginal and average cost curves for the existing machine, MC_0 and AC_0, and the average cost curve for the proposed replacement, AC_1.

Using Figure 2 as a base, the generalized replacement criteria is: Replacement should occur when the marginal cost, MC_0, of the existing machine is rising and first exceeds the minimum amortized average cost, AC_1, of the proposed replacement. If the machine were kept one additional year, the yearly (marginal) cost would be greater than the average cost of a new machine. That is, replacement should occur in Figure 2 when the marginal costs crosses the line xyz from below.

The unpredictable nature of repair costs makes application of the model to yearly decision making much more difficult. First it must be realized that fluctuating repair costs affect only marginal cost. The average cost is not affected since it is computed for the proposed replacement on a planning basis. Theoretically, the year to year replacement procedure might be as follows: If actual out-of-pocket costs (including repairs) plus depreciation and dependability costs for any year are greater than the minimum average cost for the proposed replacement, the trade for the new machine should take place.

In reality, repair costs may rise one year and then be very low the following year. Fluctuating repair costs reduce the value of the above theoretical criteria. Through a simulation procedure, several alternative methods of handling the problem were evaluated.[7] Of the methods considered, the procedure chosen was to average marginal costs occuring in the last three years and trading during the year when the three-year average is greater than the minimum average cost of the proposed replacement. If tractor operators are well acquainted with their machines, they

[7]Darrl Kletke, Unpublished PhD. thesis, Theory and Application of Economically Optimum Farm Machinery Replacement Criteria, Oklahoma State University, May, 1969, p. 102.

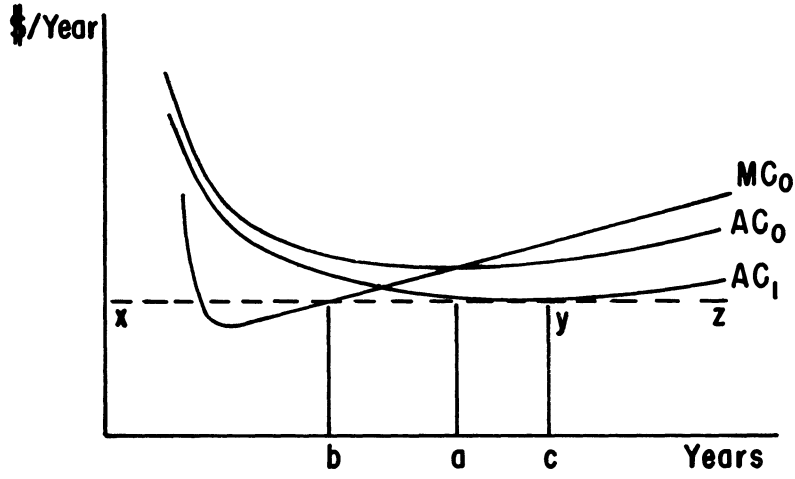

Figure 2. Replacement When Costs Are as Expected But Proposed Replacement is a Machine of a Different Size.

may be able to anticipate costs for the following year. By anticipating accurately and averaging the anticipated cost with the previous two yearly costs, it may be possible to trade before the large repair bill actually occurs.

Using Tables for Replacement Interval Determination

A theoretical procedure for optimal machinery replacement was presented above. Below, a stepwise procedure is presented for using cost tables such as those given in the publication for making yearly replacement decisions:

(1) *Select the average yearly cost table containing the tractor size to be purchased.* In the simpliest case, theh proposed replacement will be used for the same total amount of work as the existing tractor.

(2) *Select the relevant interest rate and hours use per year.* If the proposed replacement is a different size than the existing machine, the annual hours use will be different.

(3) *Determine how long you plan to keep the new machine.* In the tables there are choices of 1, 4, 8, 12 years and the minimum cost interval of time. If economic criteria only are considered, the minimum cost interval should be used. However, if personal biases determine that a tractor will be kept no longer than 4

years, the appropriate figure in that row should be used.

(4) Using information from steps one to three, *select the annual average cost for the proposed replacement.*

(5) It is now necessary to *determine costs for the existing machine* to evaluate the proposed trade. The previously presented theoretical criteria indicated that costs for the previous year, the current year, and anticipated costs for the following year are needed. These three costs are averaged to give the average yearly cost of the currently owned machine. All costs included in developing the tables should be included when preparing the three-year average cost for the existing machine. This means farm records should be used to provide such information on repairs, taxes, insurance, fuel and lubricants, and labor. From Tables 13 through 20 or from the equations presented earlier, depreciation, interest on investment, housing, and dependability should be computed for each of the three years. With these cost components a three-year average cost for the existing machine can be computed.

(6) *If the three year average of costs for the currently owned machine is greater than the cost for the proposed replacement found in step (4), then it is time to trade machines.* Following is an example application of the six step procedure.

Application of the Farm Machinery Replacement Procedure

Suppose a farmer currently owns a $9600 tractor that is seven years old and being used 900 hours per year. The farmer considers 8 percent interest to be applicable to his tractor investment.

The machine he wishes to purchase as a replacement is a $11,200 tractor which he figures he will have to use only 700 hours per year. He plans to keep the $11,200 tractor no longer than eight years.

The stepwise procedure:

(1) Select the table containing the tractor size to be purchased: For a $11,200 tractor choose Table 9.

(2) Select the relevant interest rate and hours use per year. Interest rate — 8 percent, use per year — 700 hours.

(3) Determine how long you plan to keep the new machine. No longer than eight years.

(4) Select the annual average cost for the proposed replacement. This cost is $3726.99 per year. Note that if the machine had been kept the optimal number of years it would have been kept nine years with an average cost of $3720.69.

(5) From records, tables, and equations, costs for the existing machine need to be computed and/or anticipated for a three year period. Expected actual yearly costs for a $9600 tractor are given in Table 21. These costs and records are used to produce the following three years of information.

Simulated Typical Costs for a $9600 Tractor Over a Three Year Period.

From Records	Actual Costs Last Year (Dollars)	Actual Costs This Year (Dollars)	Anticipated Cost for Next Year (Dollars)
Repairs	437.42	165.12	850.00
Taxes	75.11	70.33	65.00
Insurance	17.44	16.21	15.00
Fuel & Lubricants	635.00	675.00	660.00
Labor	1250.00	1450.00	1350.00
From Equations			
Depreciation	344.20	316.66	291.33
Interest on Investment	285.00	262.20	241.22
Housing	71.24	73.76	60.32
Dependability	250.00	300.00	350.00
Totals	3365.41	3329.28	3882.87
Average of 3 year totals	$3525.85		

(6) In step (4) the average cost of the proposed replacement was found to be $3726.99. In step (5) the 3-year average for the current tractor is $3525.85. The conclusion reached is that keeping the currently owned tractor for one more year is preferred from an economic standpoint. If it is anticipated that the tractor is about to "fall apart" and repairs were expected to be, say, $1550 instead of $850 the next year, the decision is different. The three-year average for the currently owned tractor becomes $3759.19. This is larger than $3726.99, therefore, in this situation the new machine should be purchased.

Many things are crucial to making a correct decision. However, most critical are a good set of records, correct anticipation of future repair costs, reliable equations and tables, and correct anticipation of the number of hours per year the new machine will be used to do the same work as the currently owned machine. In Table 21 the expected actual costs are given for selected years to illustrate how these costs change over the life of a $9600 tractor.

From Table 21 the following generalizations may be made:

(1) The expected out-of-pocket cost is highest the first year of life, the lowest cost is usually the second year, and then yearly costs begin increasing throughout the life of the machine.

(2) The average cost begins high, reaches some minimum point, and then begins rising. The minimum point is the minimum cost ownership interval.
(3) The only costs which increase throughout the life of the tractor are repairs and dependability.

Summary

The material presented in this report is part of a continuing effort of Oklahoma State University to provide information to farm managers which may assist them in making decisions. This report contains two types of information. First, ownership and operating cost data are presented for farm tractors under alternative use situations. Second, a procedure is presented whereby managers can time trading decisions to reduce the cost of owning and operating farm tractors and other machinery.

The tables presented in this study were generated by the computerized Farm Machinery Cost program. The computer program is capable of producing cost information for farm tractors and most other farm equipment. The program can indicate the optimal time to trade for special situations based on actual data from individual farms. To assure applicable cost figures, there are about thirty variables applicable to a particular farm situation which managers may specify. This program is currently available through the OSU Extension Agricultural Economics program.

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Table 1. Average Yearly Costs for a $4800 Tractor Using Various Interest Rates, Annual Hours of Use, and Machine Ownership Intervals.[1]

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
		(Dollars per year)			
	0	2014.64	2401.11	2806.86	3210.53
1	8	2230.85	2624.20	3023.06	3426.73
	16	2447.06	2840.40	3239.27	3642.94
	0	1229.54	1648.72	2080.57	2523.46
4	8	1421.16	1840.33	2272.19	2715.08
	16	1612.78	2031.95	2463.81	2906.70
	0	1108.09	1550.85	2012.83	2491.55
8	8	1272.54	1715.30	2177.28	2655.99
	16	1436.98	1879.75	2341.73	2820.44
	0	1080.18	1542.03	2028.40	2536.11
12	8	1222.60	1684.45	2170.82	2678.53
	16	1365.01	1826.86	2313.23	2820.94
Minimum Cost Intervals[2]					
	0	1077.67 (Yr. 14)	1541.00 (Yr. 11)	2012.83 (Yr. 8)	2487.01 (Yr. 7)
	8	1201.08 (Yr. 19)	1681.06 (Yr. 14)	2169.12 (Yr. 11)	2655.99 (Yr. 8)
	16	1311.30 (Yr. 20)	1804.08 (Yr. 19)	2311.34 (Yr. 14)	2815.91 (Yr. 10)

Table 2. Average Hourly Costs for a $4800 Tractor.

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
		(Dollars per hour)			
	0	6.72	4.80	4.01	3.57
1	8	7.44	5.25	4.32	3.81
	16	8.16	5.68	4.63	4.05
	0	4.10	3.30	2.97	2.80
4	8	4.74	3.68	3.25	3.02
	16	5.38	4.06	3.52	3.23
	0	3.69	3.10	2.88	2.77
8	8	4.24	3.43	3.11	2.95
	16	4.79	3.76	3.35	3.13
	0	3.60	3.08	2.90	2.82
12	8	4.08	3.37	3.10	2.98
	16	4.55	3.65	3.30	3.13
Minimum Cost Intervals					
	0	3.59 (Yr. 14)	3.08 (Yr. 11)	2.88 (Yr. 8)	2.76 (Yr. 7)
	8	4.00 (Yr. 19)	3.36 (Yr. 14)	3.10 (Yr. 11)	2.95 (Yr. 8)
	16	4.37 (Yr. 20)	3.61 (Yr. 19)	3.30 (Yr. 14)	3.13 (Yr. 10)

[1] See discussion of tables for assumptions and conclusions.
[2] Year of minimum average cost enclosed in parentheses.

Table 3. Average Yearly Costs for a $6400 Tractor Using Various Interest Rates, Annual Hours of Use, and Machine Ownership Intervals.[1]

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
			(Dollars per hour)		
	0	2536.19	2960.65	3392.48	3830.70
1	8	2824.46	3248.93	3680.75	4118.98
	16	3112.74	3537.20	3969.20	4407.25
	0	1494.38	1953.28	2429.09	2919.62
4	8	1749.88	2208.78	2684.58	3175.11
	16	2005.37	2464.27	2940.07	3430.60
	0	1339.12	1829.47	2345.44	2883.73
8	8	1558.38	2048.73	2564.71	3102.99
	16	1777.65	2267.99	2783.97	3322.25
	0	1308.58	1824.39	2372.88	2949.82
12	8	1498.46	2014.27	2562.76	3139.70
	16	1688.34	2204.15	2752.64	3329.58
Minimum Cost Intervals[2]					
	0	1307.72	1820.64	2345.44	2875.55
		(Yr. 13)	(Yr. 10)	(Yr. 8)	(Yr. 6)
	8	1479.51	2012.75	2557.34	3102.99
		(Yr. 17)	(Yr. 13)	(Yr. 10)	(Yr. 8)
	16	1630.06	2183.32	2752.08	3318.87
		(Yr. 20)	(Yr. 17)	(Yr. 13)	(Yr. 9)

Table 4. Average Hourly Costs for a $6400 Tractor.

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
			(Dollars per hour)		
	0	8.45	5.92	4.85	4.26
1	8	9.41	6.50	5.26	4.58
	16	10.38	7.07	5.67	4.90
	0	4.98	3.91	3.47	3.24
4	8	5.83	4.42	3.84	3.53
	16	6.68	4.93	4.20	3.81
	0	4.46	3.66	3.35	3.20
8	8	5.19	4.10	3.66	3.45
	16	5.93	4.54	3.98	3.69
	0	4.36	3.65	3.39	3.28
12	8	4.99	4.03	3.66	3.49
	16	5.63	4.41	3.93	3.70
Minimum Cost Intervals					
	0	4.36	3.64	3.35	3.20
		(Yr. 13)	(Yr. 10)	(Yr. 8)	(Yr. 6)
	8	4.93	4.03	3.65	3.45
		(Yr. 17)	(Yr. 13)	(Yr. 10)	(Yr. 8)
	16	5.43	4.37	3.93	3.69
		(Yr. 20)	(Yr. 17)	(Yr. 13)	(Yr. 9)

[1] See discussion of tables for assumptions and conclusions.
[2] Year of minimum average cost enclosed in parentheses.

Table 5. Average Yearly Costs for a $8000 Tractor Using Various Interest Rates, Annual Hours of Use, and Machine Ownership Intervals.[1]

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
		(Dollars per hour)			
	0	3057.74	3513.32	3978.10	4450.88
1	8	3418.08	3873.66	4338.44	4811.22
	16	3778.43	4234.01	4698.79	5171.57
	0	1759.23	2257.86	2777.62	3315.77
4	8	2078.60	2577.22	3096.98	3635.14
	16	2397.96	2896.58	3416.34	3954.50
	0	1570.15	2108.09	2678.06	3275.91
8	8	1844.23	2382.17	2952.13	3549.99
	16	2118.31	2656.24	3226.21	3824.07
	0	1536.98	2106.73	2717.35	3363.53
12	8	1774.33	2344.09	2954.70	3600.88
	16	2011.68	2581.44	3192.05	3838.23
Minimum Cost Intervals[2]					
	0	1536.98	2099.55	2678.06	3263.19
		(Yr. 12)	(Yr. 10)	(Yr. 8)	(Yr. 6)
	8	1756.56	2343.44	2945.43	3549.53
		(Yr. 16)	(Yr. 13)	(Yr. 10)	(Yr. 7)
	16	1948.83	2561.45	3192.05	3821.08
		(Yr. 20)	(Yr. 16)	(Yr. 12)	(Yr. 9)

Table 6. Average Hourly Costs for a $8000 Tractor.

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
		(Dollars per hour)			
	0	10.19	7.05	5.68	4.95
1	8	11.39	7.75	6.20	5.35
	16	12.59	8.47	6.71	5.75
	0	5.86	4.52	3.97	3.68
4	8	6.93	5.15	4.42	4.04
	16	7.99	5.79	4.88	4.39
	0	5.23	4.22	3.83	3.64
8	8	6.15	4.76	4.22	3.94
	16	7.06	5.31	4.61	4.25
	0	5.12	4.21	3.88	3.74
12	8	5.91	4.69	4.22	4.00
	16	6.71	5.16	4.56	4.26
Minimum Cost Intervals					
	0	5.12	4.20	3.83	3.63
		(Yr. 12)	(Yr. 10)	(Yr. 8)	(Yr. 6)
	8	5.86	4.69	4.21	3.94
		(Yr. 16)	(Yr. 13)	(Yr. 10)	(Yr. 7)
	16	6.50	5.12	4.56	4.25
		(Yr. 20)	(Yr. 16)	(Yr. 12)	(Yr. 9)

[1] See discussion of tables for assumptions and conclusions.
[2] Year of minimum average cost enclosed in parentheses.

Table 7. Average Yearly Costs for a $9600 Tractor Using Various Interest Rates, Annual Hours of Use, and Machine Ownership Intervals.[1]

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
			(Dollars per year)		
	0	3579.28	4065.97	4563.70	5071.05
1	8	4011.70	4498.39	4996.13	5503.47
	16	4444.11	4930.80	5428.54	5935.88
	0	2024.08	2562.43	3126.14	3711.93
4	8	2407.32	2945.67	3509.38	4095.17
	16	2790.55	3328.90	3892.61	4478.40
	0	1801.18	2386.70	3010.67	3668.09
8	8	2130.08	2715.60	3339.56	3996.99
	16	2458.97	3044.49	3668.45	4325.88
	0	1765.37	2389.08	3061.82	2777.23
12	8	2050.19	2673.90	3346.64	4062.05
	16	2335.02	2958.73	3631.46	4346.88
Minimum Cost Intervals[2]					
	0	1765.37 (Yr. 12)	2378.46 (Yr. 10)	3010.67 (Yr. 8)	3650.82 (Yr. 6)
	8	2032.87 (Yr. 16)	2673.90 (Yr. 2)	3333.45 (Yr. 9)	3995.44 (Yr. 7)
	16	2267.60 (Yr. 20)	2938.74 (Yr. 16)	3631.46 (Yr. 12)	4323.30 (Yr. 9)

Table 8. Average Hourly Costs for a $9600 Tractor.

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
			(Dollars per hour)		
	0	11.93	8.13	6.52	5.63
1	8	13.37	9.00	7.14	6.11
	16	14.81	9.86	7.76	6.60
	0	6.75	5.12	4.46	4.12
4	8	8.02	5.89	5.01	4.55
	16	9.30	6.66	5.56	4.98
	0	6.00	4.77	4.30	4.08
8	8	7.10	5.43	4.77	4.44
	16	8.20	6.09	5.24	4.81
	0	5.88	4.78	4.37	4.20
12	8	6.83	5.35	4.78	4.51
	16	7.78	5.92	5.19	4.83
Minimum Cost Intervals					
	0	5.88 (Yr. 12)	4.76 (Yr. 10)	4.30 (Yr. 8)	4.06 (Yr. 6)
	8	6.78 (Yr. 16)	5.35 (Yr. 2)	4.76 (Yr. 9)	4.44 (Yr. 7)
	16	7.56 (Yr. 20)	5.88 (Yr. 16)	5.19 (Yr. 12)	4.80 (Yr. 9)

[1] See discussion of tables for assumptions and conclusions.
[2] Year of minimum average cost enclosed in parentheses.

Table 9. Average Yearly Costs for a $11,200 Tractor Using Various Interest Rates, Annual Hours of Use, and Machine Ownership Intervals.[1]

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
		(Dollars per year)			
	0	4100.82	4618.64	5149.32	5691.22
1	8	4605.31	5123.12	5653.81	6195.71
	16	5109.80	5627.61	6158.29	6700.19
	0	2288.92	2867.00	3474.66	4108.08
4	8	2736.04	3314.11	3921.77	4555.19
	16	3183.14	3761.22	4368.88	5002.30
	0	2032.21	2665.32	3343.28	4060.28
8	8	2415.92	3049.03	3726.99	4443.98
	16	2799.63	3432.74	4110.70	4827.69
	0	1993.76	2671.43	3406.28	4190.94
12	8	2326.06	3003.72	3738.58	4523.23
	16	2658.35	3336.01	4070.87	4855.52
Minimum Cost Intervals[2]					
	0	1993.76	2657.37	3343.28	4038.46
		(Yr. 12)	(Yr. 10)	(Yr. 8)	(Yr. 6)
	8	2309.03	3003.72	3720.69	4441.34
		(Yr. 15)	(Yr. 12)	(Yr. 9)	(Yr. 7)
	16	2586.36	3316.03	4070.87	4825.52
		(Yr. 20)	(Yr. 16)	(Yr. 12)	(Yr. 9)

Table 10. Average Hourly Costs for a $11,200 Tractor.

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
		(Dollars per hour)			
	0	11.67	9.24	7.36	6.32
1	8	15.35	10.25	8.08	6.88
	16	17.03	11.26	8.80	7.44
	0	7.63	5.73	4.96	4.56
4	8	9.12	6.63	5.60	5.06
	16	10.61	7.52	6.24	5.56
	0	6.77	5.33	4.78	4.51
8	8	8.05	6.10	5.32	4.94
	16	9.33	6.87	5.87	53.6
	0	6.65	5.34	4.87	4.66
12	8	7.75	6.01	5.34	5.03
	16	8.86	6.67	5.82	5.40
Minimum Cost Intervals					
	0	6.65	5.31	4.78	4.49
		(Yr. 12)	(Yr. 10)	(Yr. 8)	(Yr. 6)
	8	7.70	6.01	5.32	4.93
		(Yr. 15)	(Yr. 12)	(Yr. 9)	(Yr. 7)
	16	8.62	6.63	5.82	5.36
		(Yr. 20)	(Yr. 16)	(Yr. 12)	(Yr. 9)

[1] See discussion of tables for assumptions and conclusions.
[2] Year of minimum average cost enclosed in parentheses.

Table 11. Average Hourly Costs for a $12,800 Tractor Using Various Interest Rates, Annual Hours of Use, and Machine Ownership Intervals.[1]

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
			(Dollars per year)		
	0	4622.37	5171.29	5734.94	6311.40
1	8	5198.93	5747.85	6311.50	6887.95
	16	5775.48	6324.41	6888.05	7464.51
	0	2553.77	3171.57	3823.18	4504.24
4	8	3064.75	3682.55	4334.17	5015.22
	16	3565.74	4193.54	4845.15	5526.20
	0	2263.24	2943.94	3675.89	4452.46
8	8	2701.77	3382.47	4114.41	4890.98
	16	3140.29	3820.99	4552.94	5329.50
	0	2222.16	2953.78	3750.75	4604.64
12	8	2601.93	3333.54	4130.52	4984.41
	16	2981.69	3713.30	4510.28	5364.17
Minimum Cost Intervals[2]					
	0	2222.16	2936.02	3675.89	4426.10
		(Yr. 12)	(Yr. 9)	(Yr. 8)	(Yr. 6)
	8	2584.60	3333.54	4107.93	4887.25
		(Yr. 15)	(Yr. 12)	(Yr. 9)	(Yr. 7)
	16	2904.41	3692.90	4510.28	5327.73
		(Yr. 19)	(Yr. 15)	(Yr. 12)	(Yr. 9)

Table 12. Average Hourly Costs for a $12,800 Tractor.

Years Machine Kept	Interest Rate	Hours Used Per Year 300	500	700	900
			(Dollars per hour)		
	0	15.41	10.34	8.19	7.01
1	8	17.33	11.50	9.02	7.65
	16	19.25	12.65	9.84	8.29
	0	8.51	6.34	5.46	5.00
4	8	10.22	7.37	6.19	5.57
	16	11.92	8.39	6.92	6.14
	0	7.54	5.89	5.25	4.95
8	8	9.01	6.76	5.88	5.43
	16	10.47	7.64	6.50	5.92
	0	7.41	5.91	5.36	5.12
12	8	8.67	6.67	5.90	5.54
	16	9.94	7.43	6.44	5.96
Minimum Cost Intervals					
	0	4.71	5.87	5.25	4.92
		(Yr. 12)	(Yr. 9)	(Yr. 8)	(Yr. 6)
	8	8.62	6.67	5.87	5.43
		(Yr. 15)	(Yr. 12)	(Yr. 9)	(Yr. 7)
	16	9.68	7.39	6.44	5.92
		(Yr. 19)	(Yr. 15)	(Yr. 12)	(Yr. 9)

[1] See discussion of tables for assumptions and conclusions.
[2] Year of minimum average cost enclosed in parentheses.

Table 13. Average Cost Components for a $4800 Tractor Kept 8 Years.[1]

	Hours Used Per Year							
	300		500		700		900	
	$per year	$per hour	$per year	$per hour	$per year	$per hour	$per year	$per hour
I Ownership Costs								
Depreciation	330.61	1.10	330.61	0.66	330.61	0.47	330.61	0.37
Interest	164.45	0.55	164.45	0.33	164.45	0.23	164.45	0.18
Taxes	37.00	0.12	37.00	0.07	37.00	0.05	37.00	0.04
Housing	37.00	0.12	37.00	0.07	37.00	0.05	37.00	0.04
Insurance	18.50	0.06	18.50	0.04	18.50	0.03	18.50	0.02
II Operating Costs								
Repairs	54.82	0.18	124.15	0.25	212.69	0.30	317.96	0.35
Fuel and Lubricants	110.16	0.37	183.60	0.37	257.04	0.37	330.48	0.37
Labor (1.50/hr.)	450.00	1.50	750.00	1.50	1050.00	1.50	1350.00	1.50
III Intangible Cost								
Dependability	70.00	0.23	70.00	0.14	70.00	0.10	70.00	0.08
Total for year or hour	1272.54	4.23	1715.31	3.43	2177.29	3.10	2656.00	2.95

[1] See discussion of tables for assumptions and conclusions.

Table 14. Average Cost Components for a $6400 Tractor Kept 8 Years.[1]

	Hours Used Per Year							
	300		500		700		900	
	$per year	$per hour	$per year	$per hour	$per year	$per hour	$per year	$per hour
I Ownership Costs								
Depreciation	440.81	1.47	440.81	0.88	440.81	0.63	440.81	0.49
Interest	219.26	0.73	219.26	0.44	219.26	0.31	219.26	0.24
Taxes	49.34	0.16	49.34	0.10	49.34	0.07	49.34	0.05
Housing	49.34	0.16	49.34	0.10	49.34	0.07	49.34	0.05
Insurance	24.66	0.08	24.66	0.05	24.26	0.04	24.66	0.03
II Operating Costs								
Repairs	73.10	0.24	165.53	0.33	283.58	0.41	423.95	0.47
Fuel and Lubricants	146.88	0.49	244.80	0.49	342.72	0.49	440.64	0.49
Labor (1.50/hr.)	450.00	1.50	750.00	1.50	1050.00	1.50	1350.00	1.50
III Intangible Cost								
Dependability	105.00	0.35	105.00	0.21	105.00	0.15	105.00	0.12
Total for year or hour	1558.39	5.18	2048.74	4.10	2564.71	3.67	3103.00	3.44

[1] See discussion of tables for assumptions and conclusions.

Table 15. Average Cost Components for an $8000 Tractor Kept 8 Years.[1]

		Hours Used Per Year							
		300		500		700		900	
		$per year	$per hour	$per year	$per hour	$per year	$per hour	$per year	$per hour
I	Ownership Costs								
	Depreciation	551.01	1.84	551.01	1.10	551.01	0.79	551.01	0.61
	Interest	274.08	0.91	274.08	0.55	274.08	0.39	274.08	0.30
	Taxes	61.67	0.21	61.67	0.12	61.67	0.09	61.67	0.07
	Housing	61.67	0.21	61.67	0.12	61.67	0.09	61.67	0.07
	Insurance	30.83	0.10	30.83	0.06	30.83	0.04	30.83	0.03
II	Operating Costs								
	Repairs	91.38	0.30	206.91	0.41	354.48	0.51	529.93	0.59
	Fuel and Lubricants	183.60	0.61	306.00	0.61	428.40	0.61	550.80	0.61
	Labor (1.50/hr.)	450.00	1.50	750.00	1.50	1050.00	1.50	1350.00	1.50
III	Intangible Cost								
	Dependability	140.00	0.47	140.00	0.23	140.00	0.20	140.00	0.16
	Total for year or hour	1844.24	6.15	2382.17	4.75	2952.14	4.22	3549.99	3.94

[1] See discussion of tables for assumptions and conclusions.

Table 16. Average Cost Components for a $9600 Tractor Kept 8 Years.[1]

		Hours Used Per Year							
		300		500		700		900	
		$per year	$per hour	$per year	$per hour	$per year	$per hour	$per year	$per hour
I	Ownership Costs								
	Depreciation	661.21	2.20	661.21	1.32	661.21	0.94	661.21	0.73
	Interest	328.89	1.10	328.89	0.66	328.89	0.47	328.89	0.37
	Taxes	74.00	0.25	74.00	0.15	74.00	0.11	74.00	0.08
	Housing	74.00	0.25	74.00	0.15	74.00	0.11	74.00	0.08
	Insurance	37.00	0.12	37.00	0.07	37.00	0.05	37.00	0.04
II	Operating Costs								
	Repairs	109.65	0.37	248.30	0.50	425.37	0.61	635.92	0.71
	Fuel and Lubricants	220.32	0.73	367.20	0.73	514.08	0.73	660.96	0.73
	Labor (1.50/hr.)	450.00	1.50	750.00	1.50	1050.00	1.50	1350.00	1.50
III	Intangible Cost								
	Dependability	175.00	0.58	175.00	0.35	175.00	0.25	175.00	0.19
	Total for year or hour	2130.07	7.10	2715.60	5.43	3339.55	4.77	3996.98	4.43

[1] See discussion of tables for assumptions and conclusions.

Table 17. Avgerae Cost Components for an $11,200 Tractor Kept 8 Years.[1]

		Hours Used Per Year							
		300		500		700		900	
		$per year	$per hour	$per year	$per hour	$per year	$per hour	$per year	$per hour
I	Ownership Costs								
	Depreciation	771.41	2.57	771.41	1.54	771.41	1.10	771.41	0.86
	Interest	383.71	1.23	333.71	0.77	383.71	0.55	383.71	0.43
	Taxes	86.33	0.29	86.33	0.17	86.33	0.12	86.33	0.10
	Housing	86.33	0.29	86.33	0.17	86.33	0.12	86.33	0.10
	Insurance	43.17	0.14	43.17	0.09	43.17	0.06	43.17	0.05
II	Operating Costs								
	Repairs	127.93	0.43	289.63	0.58	496.27	0.71	741.91	0.82
	Fuel and Lubricants	257.04	0.86	428.40	0.86	599.76	0.86	771.12	0.86
	Labor (1.50/hr)	450.00	1.50	750.00	1.50	1050.00	1.50	1350.00	1.50
III	Intangible Cost								
	Dependability	210.00	0.70	210.00	0.42	210.00	0.30	210.00	0.23
	Total for year or hour	2415.92	8.06	3049.03	6.10	3726.98	5.32	4443.98	4.95

[1] See discussion of tables for assumptions and conclusions.

Table 18. Average Cost Components for a $12,800 Tractor Kept 8 Years.[1]

		Hours Used Per Year							
		300		500		700		900	
		$per year	$per hour	$per year	$per hour	$per year	$per hour	$per year	$per hour
I	Ownership Costs								
	Depreciation	869.12	2.90	869.12	1.74	869.12	1.24	869.12	0.97
	Interest	433.52	1.46	438.52	0.88	433.52	0.63	438.52	0.49
	Taxes	103.67	0.35	103.67	0.21	103.67	0.15	103.67	0.12
	Housing	103.67	0.35	103.67	0.21	103.67	0.15	103.67	0.12
	Insurance	51.83	0.17	51.83	0.10	51.83	0.07	51.83	0.06
II	Operating Costs								
	Repairs	146.20	0.49	331.06	0.66	567.17	0.81	847.90	0.94
	Fuel and Lubricants	293.76	0.98	439.60	0.98	635.44	0.93	881.28	0.98
	Labor (1.50/hr.)	450.00	1.50	750.00	1.50	1050.00	1.50	1350.00	1.50
III	Intangible Cost								
	Dependability	245.00	0.82	245.00	0.49	245.00	0.35	245.00	0.27
	Total for year or hour	2701.77	9.02	3382.47	6.77	4114.42	5.88	4890.99	5.45

[1] See discussion of tables for assumptions and conclusions.

Table 19. Average Cost Components for a $9600 Tractor Used 500 Hours Per Year.[1]

		Number of Years Kept							
		4		8		12		16	
		$per year	$per hour	$per year	$per hour	$per year	$per hour	$per year	$per hour
I	Ownership Costs								
	Depreciation	990.84	1.98	661.21	1.32	519.99	1.04	432.54	0.87
	Interest	333.24	0.77	328.89	0.66	284.82	0.57	248.84	0.50
	Taxes	86.22	0.17	74.00	0.15	64.08	0.13	55.99	0.11
	Housing	86.22	0.17	74.00	0.15	64.08	0.13	55.99	0.11
	Insurance	43.11	0.09	37.00	0.07	32.04	0.06	28.00	0.06
II	Operating Costs								
	Repairs	163.81	0.33	248.30	0.50	316.68	0.63	376.34	0.75
	Fuel and Lubricants	367.20	0.73	367.20	0.73	367.20	0.73	367.20	0.73
	Labor (1.50/hr.)	750.00	1.50	750.00	1.50	750.00	1.50	750.00	1.50
III	Intangible Cost								
	Dependability	75.00	0.15	175.00	0.35	275.00	0.55	375.00	0.75
	Total for year or hour	2945.67	5.89	2715.60	5.43	2673.89	5.34	2689.90	5.38

[1] See discussion of tables for assumptions and conclusions.

Table 20. Average Cost Components for a $9600 Tractor Used 900 Hours Per Year.[1]

		Number of Years Kept							
		4		8		12		16	
		$per year	$per hour	$per year	$per hour	$per year	$per hour	$per year	$per hour
I	Ownership Costs								
	Depreciation	990.84	1.10	661.20	0.73	519.99	0.58	432.54	0.48
	Interest	383.24	0.42	328.89	0.37	284.82	0.32	248.84	0.28
	Taxes	86.22	0.10	74.00	0.08	64.08	0.07	55.99	0.06
	Housing	86.22	0.10	74.00	0.08	64.08	0.07	55.99	0.06
	Insurance	43.11	0.05	37.00	0.04	32.04	0.04	28.00	0.03
II	Operating Costs								
	Repairs	419.55	0.47	635.92	0.71	811.07	0.90	963.88	1.07
	Fuel and Lubricants	660.96	0.73	660.96	0.73	660.96	0.73	660.96	0.73
	Labor (1.50/hr.)	1350.00	1.50	1350.00	1.50	1350.00	1.50	1350.00	1.50
III	Intangible Cost								
	Dependability	75.00	0.08	715.00	0.19	275.00	0.31	375.00	0.42
	Total for year or hour	4095.14	4.55	3996.98	4.43	4062.04	4.52	4171.20	4.63

[1] See discussion of tables for assumptions and conclusions.

Table 21. Yearly Cost Breakdown for a $9600 Tractor Used 900 Hours Per Year

		Age of Tractor in Years									
		1	2	3	4	5	6	7	8	9	10
		(Dollars per Year)									
I.	Ownership Costs										
	Depreciation	2634.24	480.46	442.02	406.66	374.13	344.20	316.66	291.33	268.02	246.58
	Interest	432.41	397.82	366.00	336.72	309.78	285.00	262.20	241.22	221.92	204.17
	Taxes	97.30	89.50	82.34	75.76	69.70	64.12	59.00	54.28	49.94	45.94
	Housing	97.30	89.50	82.34	75.76	69.70	64.12	59.00	54.28	49.94	45.94
	Insurance	48.65	44.75	41.17	37.88	34.85	32.06	29.50	27.14	24.97	22.97
II.	Operating Costs										
	Repairs	182.62	370.98	505.51	619.09	720.08	812.35	898.08	978.65	1055.02	1127.86
	Fuel & Lubs.	660.96	660.96	660.96	660.96	660.96	660.96	660.96	660.96	660.96	660.96
	Labor	1350.00	1350.00	1350.00	1350.00	1350.00	1350.00	1350.00	1350.00	1350.00	1350.00
III.	Intangible Costs										
	Dependability	0.00	50.00	100.00	150.00	200.00	250.00	300.00	350.00	400.00	450.00
	Total for Year	5503.47	3534.00	3630.37	3712.83	3789.20	3862.81	3935.38	4007.85	4080.76	4154.41
	Average to Year	5503.47	4518.73	4222.61	4095.17	4033.97	4005.44	3995.44	3996.98	4006.29	4021.11