

OHIO FARM MACHINERY
ECONOMIC COST ESTIMATES FOR 1984*

Revised and Adopted for Ohio

by

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The following information is designed as an aid in estimating farm machinery use costs for 1984. The costs are determined by formula and represent an average cost for a specific piece of machinery. These machinery costs are intended to be average estimates for the agricultural industry.

There are two types of costs associated with owning and operating a machine: Fixed costs, which are incurred whether or not the machine is used, include depreciation, interest, insurance, housing, and taxes. Operating costs, which occur only when the machine is used, include fuel, lubrication, repairs, and labor.

Fixed Costs

Each machine is depreciated for ten years with a salvage value of ten percent and investment credit taken at the full ten percent rate. It is assumed that a piece of equipment purchased new will be used commercially for ten years even though it may be owned by several people.

Interest and insurance are calculated by multiplying the average investment (new cost plus salvage value divided by two) times the rates of interest and insurance. Interest and insurance rates are assumed to be 13.5 percent and .75 percent, respectively. Housing cost is assumed to be 75 cents per square foot of shelter space needed per year. There are no property taxes on farm machinery in Ohio.

Formulas Used to Compute Fixed Machinery Costs

Depreciation per year = $\frac{\text{purchase price} - \text{investment credit} - \text{salvage value}}{\text{(years you will use machine)}}$

Interest per year = $\frac{\text{purchase price} + \text{salvage value}}{2}$ x interest rate

Insurance per year = $\frac{\text{purchase price} + \text{salvage value}}{2}$ x rate

Housing per year = price per square foot x square feet shelter space required

Taxes per year = 0 (no taxes on personal property in Ohio)

Operating Costs

Fuel cost is calculated by multiplying the fuel consumption by the price of fuel, with fuel consumption assumed to be .06 gallons of diesel fuel per horsepower hour. The price of fuel is assumed to be \$1.00 per gallon for diesel. All power units, tractors, combines, trucks, etc., are assumed to be diesel powered. An estimate of gasoline consumption can be made by multiplying the diesel fuel consumption by a factor of 1.36. Lubrication cost is assumed to be ten percent of fuel cost.

The formulas for estimating the repair and maintenance cost necessary to maintain a machine in an operable condition are provided in the 1976 Agricultural Engineer's Yearbook. They are used to estimate total accumulated repair costs according to the accumulated hours of use; the total costs are then broken down to a per hour cost estimate. The amount of annual use of a machine is an estimate of the number of hours a commercial farmer would use that particular machine in one year.

Labor is assumed to be an hourly wage rate, which includes 30 percent of benefits, of \$4.75 per hour for unskilled labor and \$7.50 per hour for skilled labor. Labor per acre for an operation such as plowing and disking is calculated by using the work rate on the implement instead of the tractor. Therefore, plows and disks using the same tractor have different per acre labor requirements. Less labor per acre is used in a disking operation that covers more acres per hour than in a plowing operation.

Minimum tillage planters have been included, reflecting the current interest in minimum or reduced tillage practices in Ohio

Machinery price changes varied for 1984, as compared to 1983, with price increases in some types of machinery and price declines in others. The following table compares the machinery function costs per acre for four selected items from 1981 to 1984.

<u>Machine Function</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
plow 6-16	\$11.70	\$13.28	\$14.24	\$13.72
corn planter 6-30	9.50	10.91	10.89	10.57
combine small grain	14.61	17.85	18.57	19.66
combine corn 6-30	24.69	28.98	29.47	30.34

These cost estimates are not intended to be indicative of everyone's cost, but are intended to be used as a guide in planning the cropping operation. Individuals have unique costs because of differences in buying power, repair programs, average annual use, and overall replacement programs.

The following tables provide the 1984 machinery function costs broken down into several categories. Some relevant supporting data also is included.