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Estimating Machinery Repair Allowance: Programmed for the Texas Instrument 59

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ESTIMATING MACHINERY REPAIR ALLOWANCE:
Programmed for the Texas Instrument 59
by
Larry K. Bond
ESTIMATING MACHINERY REPAIR ALLOWANCE
Programmed for the Texas Instrument 59

OBJECTIVE: This program is designed to aid the farm manager in deciding between keeping his presently owned machine or trading for a newer one. The approach is simple. An allowance for repairs is estimated, using the savings in fixed costs that would be expected by keeping the machine, plus the average annual repair cost during the period of ownership. If the repair allowance appears adequate for the extended period of use being considered, then serious consideration should be given to keeping the machine. There is no provision for considering tax advantages associated with purchasing new machinery.

VARIABLES AND EXAMPLE DATA: Listed below are the variables used in the calculations, and example data to help make sure your program is running properly.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unit</th>
<th>Memory</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original price</td>
<td>$</td>
<td>00</td>
<td>17,000</td>
</tr>
<tr>
<td>Estimated present value</td>
<td>$</td>
<td>01</td>
<td>11,000</td>
</tr>
<tr>
<td>Years owned</td>
<td></td>
<td>02</td>
<td>5</td>
</tr>
<tr>
<td>Interest rate</td>
<td>decimal</td>
<td>03</td>
<td>0.12</td>
</tr>
<tr>
<td>Total repairs to date (from records)</td>
<td>$</td>
<td>04</td>
<td>1,200</td>
</tr>
<tr>
<td>Additional years you are considering keeping this machine</td>
<td></td>
<td>05</td>
<td>2</td>
</tr>
<tr>
<td>Estimated value after additional years of use</td>
<td>$</td>
<td>06</td>
<td>9,000</td>
</tr>
</tbody>
</table>

PROGRAM OPERATION: Upon proper installation of the program steps in the TI-59 calculator, the following operation can be accomplished:

<table>
<thead>
<tr>
<th>Operation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press A</td>
<td></td>
</tr>
</tbody>
</table>

When the example data in the preceding table have been stored in the proper memories, the calculator should display the value 1720.00. If used with a printer, it will print: EST. REPAIR ALLOWANCE 1720. In other words, you could afford to spend up to $1,720 for repairs during the next two years and be just as well off as trading machines, other things being equal.

*This program is based on the attached worksheet, "When to Trade Farm Machinery."
If the program will not be used with a printer, or if you do not wish it to print, EST. REPAIR ALLOWANCE, steps 114-186 should be omitted.
**WORKSHEET III: WHEN TO TRADE FARM MACHINERY**

**Description of machine**: Combine

1. Original price
   - $17,000
2. Estimated present value
   - $11,000
3. Years owned
   - 5
4. Average depreciation: \((\text{line 1} - \text{line 2}) \div \text{line 3}\)
   - 1,200
5. Interest rate as a decimal figure
   - 0.12
6. Average investment cost: \((\text{line 1} + \text{line 2}) \times \text{line 5}\)
   - 1,680
7. Average fixed cost: \(\text{line 4} + \text{line 6}\)
   - 2,880
8. Total repairs to date (from your records)
   - 1,200
9. Average repairs: \(\text{line 8} \div \text{line 3}\)
   - 240
10. Number of additional years you are considering keeping this machine
    - 2
11. Estimated value after the additional years of use
    - 9,000
12. Estimated ave. depreciation: \((\text{line 1} - \text{line 11}) \div (\text{line 3} + \text{line 10})\)
    - 1,143
13. Estimated ave. investment: \((\text{line 1} + \text{line 11}) \times \text{line 5} \div 2\)
    - 1,560
14. Estimated average fixed cost: \(\text{line 12} + \text{line 13}\)
    - 2,703
15. Total estimated savings in fixed costs: \((\text{line 7} - \text{line 14}) \times (\text{line 3} + \text{line 10})\)
    - 1,239
16. Estimated repair allowance: \((\text{line 9} \times \text{line 10}) + \text{line 15}\)
    - 1,719

* If the value for line 16 does not appear adequate to keep the machine operating for the period of time specified on line 10, consideration should be given to replacing this machine.