Pickup and Trailer Cost Analysis*

Objective

The purpose of this decision aid is to facilitate the cost calculation for the ranch pickup and/or a livestock trailer. The decision aid calculates the per mile and annual costs of a pickup or trailer, the cost of making a trip with livestock, and also allows for calculation of costs for enterprises by allocating the percent costs between forages, livestock, and crops. The program is useful for enterprise budgeting, estimating transportation costs and evaluating purchasing alternatives.

Input

There are 14 variables that are used to describe the pickup and trailer. These can be observed in the attached decision aid example. Current market value can be the purchased value on a new pickup or trailer or the market value (net) for a used pickup or trailer. Total miles used should equal remaining miles of use for a new pickup or trailer. Remaining miles of use would reflect miles left for use for used pickup or trailer. See the definition section for a description of other input items.

Output

There are three sections of output for the decision aid: per mile and annual costs, trip costs and allocated costs. The trip cost or allocated cost section can be ignored if they are not desired. The pickup cost can be calculated without the trailer; however, to calculate the combined pickup and trailer cost, the pickup must be included to generate these costs. See the example for a clear illustration of outputs.

Definition of Terms used in this Analysis

Variable Cost - Variable costs are those costs that vary directly with the amount the vehicle is used. If the vehicle is not used, these costs are eliminated. Variable costs include fuel, tires, and maintenance costs.

Fixed Costs - Fixed costs are those costs that continue whether the vehicle is used or not. Fixed costs include depreciation, insurance, and interest costs.

Interest Costs - Interest costs include actual financial charges on the loan required to purchase the vehicle or the interest that could be earned on the money in an income producing investment. This is often referred to as the “opportunity cost of capital.” The input data requests annual loan payments to determine cash costs, but uses the interest rate specified to determine the interest opportunity cost of capital investment.

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Depreciation - Depreciation is a measure of the actual loss of value in the pickup or trailer occurring in the current year. Thus, it may be different than depreciation used for tax purposes. The formula takes the fraction of remaining life used in the current year and multiplies it by the current market value of the auto or truck less salvage value.

Equations and Formulas

The key formulas used in the analysis are as follows:

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\text{Interest Cost Per Mile} = \frac{(\text{Market Value} - \text{Depreciation}) \times (\text{Interest Rate} \times .01)}{\text{Annual Miles of Use}}
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\text{(Based on Average Investment)}
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\text{Depreciation Cost Per Mile} = \frac{(\text{Annual Use (Mi)}) \times (\text{Current Market Value} - \text{Salvage Value})}{(\text{Remaining Life (Mi)})}
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\text{Remaining Life} = (\text{Useful life} - \text{Current Mileage})
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\[
\text{Total Cost Per Trip} = ((\text{Miles for Trip} \times (\text{Total Costs} / \text{Mi}) + (\text{Drive Labor Hours} \times \text{Drive Labor Cost per Hour}) + (\text{Additional Labor Hours} \times \text{Additional Labor Cost per Hour}))
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\text{Cost Per Unit Hauled} = (\text{Total Cost per Trip} / \text{Number of Units Hauled})
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References:

