

**SOUTH  
TECHNICAL  
SERVICE  
CENTER**

# **TECHNICAL NOTE**

**Subject: ECONOMICS**

**Series No.: 606**

**Reference: Alternative Resource Management Systems  
Evaluations**

**Date: October 1980**



STSC TECHNICAL NOTE 606

RE: ALTERNATIVE RESOURCE MANAGEMENT SYSTEMS EVALUATIONS

The methods used for evaluating alternative resource management systems are very flexible. They can be used to evaluate the effectiveness of a single practice or any combination of practices or measures for a field or an entire operating unit. The methods provide for evaluating changes in land use and changes in crops or other products. The basic principle involved is to use identical procedures for evaluating two or more alternative resource management systems for the same land area.

The existing condition may be compared with the alternatives. If data is available, comparisons may also be made for a future condition, assuming various trends or conditions. The predicted average annual soil loss (wind and water erosion) and non-monetary effects should be recorded for each management system.

The amount of the difference between the systems evaluated is the basis for analysis. This method is not intended nor should it be used to make a management analysis of farm, ranch or other enterprise. Many factors beyond the scope of this method must be considered to make a complete management analysis.

The cost of conservation practices must be adjusted to a common base in order to evaluate alternative resource management systems. Annual costs have been selected as a common base to compare with crop and pasture returns usually realized on an annual basis. If local installation costs are used, they should be converted to annual costs.

The actual installation cost of a conservation practice can best be determined by submitting specific plans for the practice to a contractor and have him prepare a bid. It may be necessary to prepare an estimated installation cost for a structural practice (commonly called the "engineers estimate") or for a vegetative or management practice.

Attached are three worksheets providing a suggested format for evaluating alternative resource management systems. One sheet is used for describing and evaluating existing conditions. Another establishes a format for evaluating each alternative. The third is a summary of monetary and nonmonetary effects. The worksheets may be used in Section V-1-B of field office technical guides. They may be used to evaluate alternative resource management systems for conservation operations and project planning.

The following is an explanation of parts of the worksheets:

1. The Situation--Identify the kind of soil. Describe existing conditions, land use, cropping system, soil losses, reasons for developing a resource management system, the farmers objectives, etc., as appropriate.
2. Alternatives--Describe the alternative systems for accomplishing the objective. Determine the resource area to be evaluated. It will be the area affected by the alternative which affects the most land. It may be an acre or two, a field, a farm, or an entire ranch. It may be land or water or a combination of the two. However, the area of the competing alternatives must be equal.

3. Gross Returns--Determine and record the total production of each product to be produced for each alternative. Multiply acres times yield times price to obtain gross returns. See appropriate forms SCS-SOILS-5 in Section II of the Technical Guide for yield information. Secure price information. Generalized prices and yields may be adjusted to fit local conditions if warranted. When evaluating a rotation, calculate the gross income for the complete rotation and divide by the number of years to get the average annual gross income. Be sure to account for all fields in each alternative.

Then, for each alternative, record the nonmonetary effects. For example, if a pond for family use is included in one or more alternatives, record recreation days, improved wildlife habitat, fire protection, and other items which will add personal enjoyment or security to the land user.

4. Production Costs--Determine and record total production costs for all products for each alternative. Refer to crop budgets for your county or area or use cooperator information.
5. Conservation Practice Costs--Determine conservation practices and extent needed for each alternative.

Practices to improve the quality of the environment and the standard of living should be included as determined by the cooperator.

Land costs will not be included in the evaluation of resource management alternatives, because usually they will be the same for each alternative.

6. Nonmonetary Effects--Determine the effects of the alternative which cannot or have not been expressed in dollars. These could be effects on health, safety, wildlife, natural resources, personal satisfaction, etc.
7. Summary
  - a. Record annual gross returns as previously calculated.
  - b. Add the production costs and the conservation practice costs together to obtain total costs. Subtract from gross return to obtain the net return.
  - c. Record the nonmonetary effects.
8. Analyze the Differences--The significance of these calculations is the difference between the alternatives being considered. Determine the cause for the difference. Be sure to consider the nonmonetary effects. Is the difference in monetary returns due to the inclusion of conservation practices for environmental reasons? How much of the difference is due to conservation practices included to increase the standard of living?

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Landowners Name: \_\_\_\_\_ Address: \_\_\_\_\_

Conservation Planner: \_\_\_\_\_ County: \_\_\_\_\_

The Situation:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Alternatives: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Existing Condition

Gross Return:

Crop            Years   x   Acres   x   Yield   x   Price   =   Gross Return

_____	_____	x	_____	x	_____	x	_____	=	_____
_____	_____	x	_____	x	_____	x	_____	=	_____
_____	_____	x	_____	x	_____	x	_____	=	_____
_____	_____	x	_____	x	_____	x	_____	=	_____

Total Gross Return \_\_\_\_\_

Annual Gross Return: \_\_\_\_\_ ' \_\_\_\_\_ years = \_\_\_\_\_

Production Costs:

Crop            Years   x   Acres   x   Cost/Acre   =   Production Cost

_____	_____	x	_____	x	_____	=	_____
_____	_____	x	_____	x	_____	=	_____
_____	_____	x	_____	x	_____	=	_____
_____	_____	x	_____	x	_____	=	_____

Total Production Costs \_\_\_\_\_

Annual Production Costs: \_\_\_\_\_ ' \_\_\_\_\_ years = \_\_\_\_\_

Conservation Practice Costs:

Practices

Average Annual Cost

_____	_____
_____	_____

Total

Nonmonetary Effects: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Alternative #       

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Gross Return:

Crop            Years    x   Acres    x   Yield    x   Price    =   Gross Return

_____	_____	x	_____	x	_____	x	_____	=	_____
_____	_____		_____		_____		_____		_____
_____	_____		_____		_____		_____		_____
_____	_____		_____		_____		_____		_____

Total Gross Return \_\_\_\_\_

Annual Gross Return: \_\_\_\_\_ ' \_\_\_\_\_ years = \_\_\_\_\_

Production Costs:

Crop            Years    x   Acres    x   Cost/Acre    =   Production Cost

_____	_____	x	_____	x	_____	=	_____
_____	_____		_____		_____		_____
_____	_____		_____		_____		_____
_____	_____		_____		_____		_____

Total Production Costs \_\_\_\_\_

Annual Production Costs: \_\_\_\_\_ ' \_\_\_\_\_ years = \_\_\_\_\_

Conservation Practice Costs:

Practices

Average Annual Cost

_____	_____
_____	_____
_____	_____
_____	_____

Total \_\_\_\_\_

Nonmonetary Effects: \_\_\_\_\_

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Summary  
Monetary Effects

	Annual Gross Return	Annual Production Costs	Annual Conservation Practice Costs	Annual Net Return
Existing Condition	_____	_____	_____	_____
Alternative # ___	_____	_____	_____	_____
Alternative # ___	_____	_____	_____	_____
Alternative # ___	_____	_____	_____	_____
Alternative # ___	_____	_____	_____	_____

Nonmonetary Effects

Existing Condition: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Alternative # \_\_\_: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Alternative # \_\_\_: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Alternative # \_\_\_: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Alternative # \_\_\_: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_