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Economic Analysis and Decision Making Procedures for Food Security Act Compliance

1. Introduction--Objective and Purposes

The Food Security Act of 1985 (FSA) requires that farmers actively apply conservation on highly erodible land if they are to remain eligible for certain U.S. Department of Agriculture (USDA) program benefits. Such conservation plans should be technically feasible, economically practicable, and socially acceptable. The purpose of this Technical Note is to describe analytical and decision making procedures that SCS can use to meet the needs of the FSA, its legislative report, Highly Erodible Land (HEL) conservation rules, and the Field Office Technical Guide (FOTG). Specifically, this note will provide guidelines to: a) assess the relative economic practicability of an array of different alternative and basic erosion control systems; b) use that information to help decide which systems can and should be recommended to farmers facing particular resource and cropping concerns; and c) provide information that will assist farmers in deciding which of the recommended systems to adopt in their conservation plans.

The major objective of the technical note is to assure that the alternative conservation opportunities we present to farmers will provide effective erosion control without causing undue economic hardship and that they are accompanied by data that will support our recommendations and decisions.

Implementation of FSA will require an interdisciplinary effort to provide the data needed for sound economic assessments of erosion control alternatives. Each discipline will be responsible to provide data concerning the physical effects of alternatives so that the economic evaluations are consistent and technically well-documented. Economics is only one of several criteria that should be considered when selecting practices for implementation on a given farm. Other technical, social, cultural, and political considerations will play a strong role, as will the professional judgement of the Soil Conservation Service (SCS) conservation planners.

Key features of the recommended procedures are:

a. Generic situations will be analysed to cover discrete, recognized soil and cropping situations. This procedure is recommended because of the need to make decisions covering a very large area in a very short time. Individual farm situations will generally not be analysed in the early planning phases of FSA compliance unless extraordinary circumstances warrant. However, we will need to recognize when the "generic" situation is not applicable so that we may develop appropriate alternatives. Further, we must also be prepared to assist farmers individually when we reach the phase of implementing their individual conservation compliance plans.

b. Economic information provided can range from an analysis of changes in farm income due to the application of each member of a series of different conservation systems to a simple analysis of the costs and erosion control effectiveness of each of the different conservation systems.

c. Economic evaluations must be consistent and replicable. Since the workload of developing this information for the FSA will require field-level input it may be necessary to use a computerized system to keep the data organized and defensible.

2. SCS's Goals under the Food Security Act.

In meeting the conservation compliance provision of the FSA, SCS's overriding goal continues to be to protect the soil resource while causing farmers as little disruption as possible. There are a number of ways we can accomplish this. They are:

a. Enter into the "50/92" provisions of the Agricultural Stabilization and Conservation Service (ASCS) program and put up the 50% of the permitted acreage of wheat, feedgrains, cotton, and rice (using HEL acres) into a conserving use while continuing to receive deficiency payments on up to 92% of the permitted acreage;[1]

b. Put HEL acres into the conservation reserve program (CRP) and receive annual rental payments;

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[1]See ASCS for the specific opportunities and requirements of "50/92" in your area.

c. Treat the HEL acreage with basic erosion control systems that will enable continued crop production but at an erosion rate consistent with the FOTG standards; or

d. Voluntarily change the use of HEL acreage into a land use or crop that can achieve erosion rates consistent with the FOTG.

For the majority of HEL acreage in the U.S., it is likely that one of these alternatives can provide the required erosion control without causing undue economic hardship to farmers.

3. Coordination Across Political Boundaries

In accordance with current SCS policy (See 450 General Manual part 401.1 [c] [2]), it is the responsibility of states to coordinate conservation planning across field office, county, and state boundaries. Where similar rainfall, soils, and crop situations, etc., cross borders, similar conservation systems should be recommended. Therefore, the economic information SCS uses must be sufficiently consistent across these boundaries. National Technical Center (NTC) specialists have the responsibility to ensure technical consistency across state lines and will be available to assist states in achieving this coordination.

4. Sources of Basic Data

Use existing data, analyses, and results of other studies where available and appropriate. Data from watershed project evaluations; river basin studies;

conservation planning activities; Resource Conservation and Development (RC&D) measures and projects; Resources Conservation Act (RCA) special studies; and state sponsored studies can be used. Published crop budgets (from, e.g., SCS, Economic Research Service [ERS], university Extension Service, and Erosion Productivity Index Calculator [EPIC]) will save time and help improve the acceptability of our recommendations. Be sure such secondary data are appropriately related to the R, K, and LS parts of the Universal Soil Loss Equation (USLE).

Data regarding such items as yield response to erosion or practice application, soil conditions and interpretation, costs of management and enduring practice application, etc., that cannot be obtained from the above or other existing sources such as Sections II, III, and V of the FOTG and Soils-5, need to be provided by SCS soil scientists, ecological scientists, engineers, agronomists, geologists, and field office specialists.

5. Selecting Required Sets of Conservation Systems

Systems of conservation practices to treat erosion problems on highly erodible cropland should already have been formulated in the FOTG. These conservation systems should reduce to acceptable levels all types of erosion, including sheet and rill, wind, concentrated flow (both ephemeral gully and classic gully) and irrigation-induced. Economic information is useful to evaluate these alternatives to determine which are practical for various situations. The decision to accept or reject for economic reasons those systems that will be offered to farmers must be made in consideration of two facts: 1) that the FSA requires farmers to control excessive cropland erosion if they wish to continue to be eligible for certain Farm Program benefits; and 2) the FSA

legislative report makes it clear that farmers complying with the Act should not be faced with an undue economic burden. This decision to accept or reject systems is not the responsibility of the economist. The role of the economist, in combination with the other specialists, is to provide information that will enable the STC, or the STC's designated agent, to make those decisions while having the best possible understanding of the consequences.

The need for and level of detail desirable in the economic analysis is dependent upon the complexity of the erosion problems, the characteristics of the conservation systems, the state of the local economy, and presence of social conflicts. The level of analysis may range from a comparison of the accomplishments and the cost effectiveness of each of the systems to a full assessment of all costs and effects of each system in an analysis of changed farm income.

There are two types of conservation systems that will be considered here. They are the Basic Conservation System (BCS) and the Alternative Conservation System (ACS). BCS's are made up of the components of resource management systems, as defined in the FOTG, that provide acceptable levels of erosion control to comply with FSA. The BCS's will provide acceptalbe control of wind, sheet and rill, ephemeral and classic gully, and irrigation-induced erosion.

ACS's are components of the basic conservation systems that allow treatment something short of full treatment to soil loss tolerance. Evaluation of these systems follows the same procedures used in evaluating BCS's. The required level of treatment is determined by the STC.

The economy of the local area, off site impacts, cultural impacts, and other social effects may be important considerations in selecting the approved set of ACS and the required level of erosion control treatment.

The following section describes how conservation systems may be analyzed to assure sound and defensible decision making.

a. Cost Effectiveness Analysis.

When needed, the recommended minimum economic evaluation is a cost effectiveness analysis of each set of basic conservation systems proposed for a specific resource area. A resource area can be defined by soils, crops, topography, climate, cultural practices, sociological conditions, and other significant factors.

Cost effectiveness analysis is an examination of the relationship between the costs of systems of conservation practices and the level of erosion reduction realized by the systems measured in dollars per ton. The costs and the erosion reduction should be expressed as per acre amounts (i.e., $/ton/acre and ton/ac). The costs should include those needed to install, operate and maintain the system. For enduring practices costs include the annual costs of installing the practice plus annual costs of operation and maintenance. For management practices the change in crop production costs should be used. The change in production costs should include the annual ownership and operating costs of new capital expenditures, such as conversion from conventional to a no-till planter, incurred as a result of applying the

practices. It may alternatively include the rental cost of that equipment where only small acreages must be treated. Do not include the costs of technical assistance or administration.

To assure that the costs of all systems are accounted for on a common basis, costs should be converted to average annual values using current year (1987) prices, and current interest rates paid by farmers (assumed to be ten percent). The capital cost of each practice may be amortized over its expected life. Most variable crop production costs are annual values and will not need to be amortized. However, when capital expenditures are involved they will need to be amortized over their expected life.[2]

SCS-approved methods have been established for computing sheet and rill erosion and wind erosion. Therefore, for each resource area in which sets of conservation systems are formulated, sheet, rill, and wind erosion rates should be computed, for both situations "without treatment" and "with treatment." These rates should be expressed in per acre values. The differences between the rates of erosion without treatment and with treatment are the sheet, rill, and wind erosion reductions for each conservation system.

Occurrence of severe ephemeral gullies is sufficient to justify their treatment until an SCS-wide method or methods is approved. For some areas, technical judgement indicates that ephemeral gullies on two-percent slopes and greater are severe enough to require enduring practice treatment. Similar

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[2]See Section 6 for acceptable procedures.

determinations may also be made for other areas. Where possible, an estimate of erosion resulting from ephemeral gullies should be made. To keep the analysis simple, the per acre quantities may be added to the per acre sheet, rill, and wind erosion figures.

Damage from erosion induced by irrigation is treated similarly to that resulting from ephemeral gullies if the quantity of erosion can be adequately estimated. If estimates cannot be made, the presence of significant irrigation-induced erosion should be noted in the remarks for appropriate conservation systems.

Again, since the approved computation methods are established for only sheet and rill and wind erosion, the costs and erosion relationships for the cost effectiveness analyses may be limited to the per acre rates of sheet and rill and wind erosion. Exhibit 1 shows how this information can be displayed for effective decision-making.

b. Change in Farm Income Approach

For many of the resource areas a preferred level of analysis will include an evaluation of change in net farm income. The following guidelines are presented for use in computing the net farm income effects of the conservation systems forumlated to meet the conservation compliance provision of the FSA. These economic evaluations should be based on both the cost of the conservation system and on the changes in yields and production costs as reflected in crop budget information.

The onfarm benefits accruing to any conservation system can generally be captured as the difference in net farm income without treatment compared to net farm income with the treatment. Benefits will accrue from three principal sources: 1) preventing yield losses associated with the deterioration of the soil resource base; 2) prevention of "now-time" erosion damage, i.e., preventing annual crop damages and/or increased costs that are caused by erosion and sediment deposition; and 3) the yield enhancement effect of practice such as the water conservation impact of terraces.

It is difficult to capture the off site or downstream effects of erosion control when using a changed farm income approach unless the farmer is charged for those damages (e.g., when increased road maintenance costs due to sediment are the responsibility of the farmer). SCS may, however, subjectively consider the presence or absence of significant off site effects when making a decision as to which of a number of systems to approve for farmer use. Such effects may "tip" a decision that could easily have gone the other direction and should be recorded for future reference if needed.

One of the problems associated with determining erosion control benefits is that there are no widely accepted procedures to estimate yield losses, "now-time" erosion damages, or yield enhancement effects. However, these factors have been measured and estimated in various places in the country, and the appropriate physical scientists (agronomists and soil scientists especially) can often supply sound technical judgements regarding the extent to which both yields and costs are impacted by various conservation practices and systems. Some of this information may also appear in Sections II and III of the FOTG.

It should be noted that in using the "with" and "without" treatment approach, the important thing is to capture the difference in income and effects rather than the absolute magnitude of farm income. This suggests a partial budget analysis rather than a whole farm analysis. However, care must be maintained to assure that partial budgets are prepared for farm enterprises that are similar in size and nature to the "typical" farm operation in the area.

The evaluation period should be equal to the longest lived practice in each of the sets of systems being analyzed and compared. When estimating changed net income, use the same evaluation period for all systems that will be compared. When comparing only costs (or cost effectiveness), use only annual costs and erosion reduction rates. Care must also be exercised to assure that you do not double-count damages. This can easily occur when part of the damages is included in the system costs.

Finally, work closely with counterparts in adjoining states to ensure consistency in the data and assumptions used in the analyses.

6. Acceptable Technical Procedures

Analysis of conservation cost data should be handled in accordance with procedures that are established in the Economics of Conservation Handbook and the Economics Handbook for Water Resources. Amortization of capital expenditures for conservation systems can be done using the CBS conservation complement of the SCS Crop Budget System (CBS). Spread sheets can also be used.

Analysis of changed farm income will follow standard economic procedures using partial budgeting. This approach is also described in the above-listed handbooks. The actual analysis may be accomplished using manual data manipulation techniques such as ARMSE or by using any of the approved computerized evaluation procedures such as ICE, DRYCROP, LANDVAL, ERCON, JPLDG, SCSCOSTS, etc. In areas where classic gullies are being evaluated, a land value analysis may be used instead of a crop budget analysis. Training in any of these techniques is available from the NTC.

Bordering states may use different procedures for economic evaluation so long as they yield similar results (i.e., the set of acceptable conservation systems is the same for resource areas that cross state boundaries). The objective is to achieve consistent and defensible results in an efficient manner--not to use the same procedures.

Another item that should be noted is that the real loan period for enduring land treatment practices is much shorter than the practice life. For example, the useful life of a terrace system may be 25 years. However, a loan for the cost of installing the practice may be only five years. In this case, the five year annual payments are about two-and-one-half times the 25 year annual values. This needs to be considered when analyzing conservation systems.

7. Individual Exceptions and Appeals

Requests for exceptions and/or appeals are expected to be generated by situations that are significantly different than the conditions expressed in the "generic" example. SCS does not expect to be regulary involved in

economic or social analyses of individual farm situations, debt/asset ratios, farm finances, or social/cultural concerns. Such procedures are not within the normal technical capability or responsibility of SCS. However, where a farmer's request for exception or appeal deals solely with a significantly higher cost of conservation than is typical for the soil resource/cropping situation, an individual analysis of cost effectiveness or changed net income may be both desirable and acceptable.

8. Responsibilities

Proper evaluation of both costs and changed farm income associated with sets of conservation systems requires input data from soil conservationists, district conservationists (DCs), agronomists, soil scientists, engineers, and others. We expect that in many cases, a team of area and/or state office staff specialists will conduct the "generic" evaluations needed to carry out the FSA mandates in an efficient manner. The SCS state economist is responsible for the technical adequacy of the economic evaluations. The NTC sociologist can provide technical assistance for assessing social acceptability and the potential for introduing new systems in a particular area.

The NTC will assist the STC by providing technical services, training, and assistance for these specialist teams and will provide coordination among adjacent states and NTCs upon request.

Appendix A - Decision Display Guide Sheet for Basic and Alternative Conservation Systems March 30, 1987

County/State: _____ Area Description: _____

MLRA: _____ Acres in Farm Unit: _____

Crop/Crop Rotation: _____

(1)	(2) Description of Conservation System	(3) Remaining Erosion Rate (tons/ac/yr)	(4) Ephemeral Erosion	(5) Estimated Install. Cost ($/acre)	(5a) Changes in Production Cost per acre/per yr.	(6) Average Annual Cost ($/ac/yr)	(7) Cost Effectiveness ($/ac/yr/ton erosion red.)	(8) Changes in Yields (units/ac/yr)	(9) Change in Net Income ($/ac/yr)	(10) Other Information
1.	Present Situation Without Treatment			0			0	0	0	
2.										
3.										
4.										
5.										
6.										
7.										
8.	Non-Compliance									

Description of resource area/cropping system covered by guide sheet: The information to be filled in here should make it easy for the farmer to readily identify with the typical or "generic" situation covered by the guide sheet. For example, it might cover wheat, wheat/fallow, or wheat/pea situations in Whitman County, Washington on shallow hilly soils, 10-30% slopes.

Column (1)--System No.: Under normal situations, fewer than five alternate systems will be presented to the farmer, including the untreated (present) situation, and the non-compliance situation. More systems may be evaluated in determiing which system will be acceptable and which are unacceptable, but the unacceptable systems need not be shown to the farmer unless it is desire to show the full range of the analysis.

Column (2)--Description of Conservation System: This will contain a short, complete statement of the system requirements such "conservation tillage, contour cropping, and grass waterways."

Column (3)--Remaining Erosion Rate: An average of all erosion in tons per acre for each described system. It will include, where possible and appropriate, estimates of sheet, rill, wind, gully (ephemeral and permanent), and irrigation induced erosion.

Column (4)--Ephemeral Erosion: Check in this column if there is a serious ephemeral erosion problem under each conservation system that is not controlled.

Column (5)--Estimated Installation Cost: An estimate of the per acre installation cost of enduring practices plus, where necessary, an estimate of the total costs of purchasing a special piece of equipment such as an air seeder needed for conservation tillage. The estimates should enable the farmer to quickly estimate his out of pocket cash costs of implementing each system.

Column (5a)--Changes in Production Cost: The increase or decrease in variable costs of production with the system applied. Change is measured from the level of variable production costs, in the present situation without treatment.

Column (6)--Average Annual Cost: The average annual cost of owning, operating, repairing, maintaining, and replacing the conservation compliance system plus the changes in variable production costs on a dollars per acre per year basis.

Column (7)--Cost Effectiveness: This is the average annual cost (Column 6) divided by the erosion reduction (Column 3 present situation minus the Column 3 system erosion rate). The figure is expressed in $ per ton per year.

Column (8)--Changes in Yields: This column shows any short term changes in yields of crops caused by implementing the conservation system designated in Column 2. These data will be expressed in common units such as bushels, tons, cwt, etc., per acre per year. Be sure to specify the units. Note that this column will not normally include the long term yield changes due erosion-induced changes in the productive capability of the soils.

Column (9)--Change in Net Income: This column expresses the effect on net income of implementing a conservation system. The data can be developed by comparing crop enterprise budgets using a with and without approach using a manual or computerized system. Where possible, the analysis should include changes in costs, short term yields, and long term productivity changes.

Column (10)--Other Information: This column should contain any relevant information not included in any previous data that woul help the reviewer interpret or make decisions based on the previous data. It should especially include information about socia and cultural effects and concerns and may consider off site effects to the extent that those effects could influence the decision.

APPENDIX B

Example Analysis of Conservation Compliance Systems

DESCRIPTION

The situation described here is representative of that found in east-central "Somewhere" on Upper Coastal soils (MLRA 222). The typical situation is characterized by a farm producing 100 acres of soybeans. Slope lengths for the highly erodible soils in this example average 250 feet and slopes average 4 percent. The current yield for soybeans is 25 bu/ac and yields are expected to decline at the rate of 5 percent per inch of top soil lost. Sheet and rill erosion, with the current management system, is 19 ton/ac/yr; and the Erosion Index, based on an allowable erosion rate of 4 tons/ac/yr, is 12.3 tons/ac/yr. In addition, these soils have an unquantified level of ephemeral gully erosion.

Because of the nature of farming in this area, it is not practical to reduce the number of acres of soybeans grown on a given farm. As such, alternative conservation compliance systems are limited to those which produce a soybean crop each year. Two time horizons were analyzed: 25 years and 5 years, which represent the farmer's loan period. All costs and commodity prices are current 1987 values. An interest rate of 10 percent was assumed when average annual values were computed.

ALTERNATIVES

Technically feasible and socially acceptable conservation practices

include: Terraces (150 foot spacing), Contour Farming, Conservation Tillage, and Cover Crop. Five conservation systems were developed from combinations of the above conservation practices. See Exhibit 1 for a summary of alternative conservation systems.

RECOMMENDATIONS

The most effecitve conservation system, based on the 25 year period of analysis, is the Wheat-Soybean double crop/conservation tillage system (Number 4). Excluding the costs and the returns for the wheat crop, the cost per ton of soil saved is $1.00, which is less than half the cost of the next most cost effective alternative. In addition, if the costs and returns for the wheat crop are included, it is the only alternative with a positive change in net income. However, this alternative does not address the ephemeral erosion problem. The most cost effective alternative that solves both the sheet and rill, and ephemeral gully erosion problems is the terrace/contour farming/conservation tillage alternative (Number 2). One drawback is that it does have a moderately large negative impact on net income.

The short term analysis does not alter the relative position of the alternative conservatino systems. It does, however, increase the aversage annual cost per ton of soil saved as well as further reduce net income.

******EXAMPLE NET INCOME ANALYSIS *******

Exhibit No. 1A - Guide Sheet for Display of Effects of Conservation Compliance Systems

County/State: Somewhere
MLRA: 222
Crop/Crop Rotation: Soybeans (Bu/Ac)
Price Base: 1987
Period of Analysis: 25 Yrs

Area Description: Upper Coastal Soils
Acres in Farm Unit: 100 acres
Date: March 1987
Interest Rate: 10 %

No.	Description of Conservation System	Remain Eros (TAY)	Ephm Eros	Est Instl Cost ($/Ac)	Ave Ann Cost ($/Ac/Yr)	Cost Effec-tiveness ($/Ac/Yr/Tn)	Change In Yld * (Unit/Ac/Yr)	Change In Net Income ($/Ac/Yr)
1.	Without Treatment	19	X	$0.00		$0.00	0.13	($5.18)
2.	Terraces, Contour Farming, Cons Till	4		$275.00	$30.30	$2.02	0.00	($25.12)
3.	Terraces, Cntr Frm, Cons Till, Cover Crop	4		$275.00	$60.30	$4.02	0.00	($55.12)
4.	Double Crop Sybns & Wheat, Cons Till **	8	X	$100.00	$11.02	$1.00	0.03	$14.58
5.	Conservation Tillage Cover Crop	9	X	$100.00	$41.02	$4.10	0.04	($37.57)
6.	Terraces	17		$175.00	$19.28	$9.64	0.11	($18.59)

Notes:

* The change in yield is based solely on the change in long term productivity.

** Installation Cost and Average Annual Cost do not include $65.00 wheat variable production cost because it is offset by the income from wheat. The Change in Net Income does include the Net returns from the wheat crop.

******EXAMPLE LEAST COST ANALYSIS*******

Exhibit No. 1B - Guide Sheet for Display of Effects of Conservation Compliance Systems

County/State: Somewhere
MLRA: 222
Crop/Crop Rotation: Soybeans (Bu/Ac)
Price Base: 1987
Period of Analysis: 25 Yrs

Area Description: Upper Coastal Soils
Acres in Farm Unit: 100 acres
Date: March 1987
Interest Rate: 10 %

No.	Description of Conservation System	Remain Eros (TAY)	Ephm Eros	Est Instl Cost ($/Ac)	Ave Ann Cost ($/Ac/Yr)	Cost Effec-tiveness ($/Ac/Yr/Tn)	Change In Yld (Unit/Ac/Yr)	Change In Net Income ($/Ac/Yr)
1.	Without Treatment	19	X	$0.00		$0.00		
2.	Terraces, Contour Farming, Cons Till	4		$275.00	$30.30	$2.02		
3.	Terraces, Cntr Frm, Cons Till, Cover Crop	4		$275.00	$60.30	$4.02		
4.	Double Crop Sybns & Wheat, Cons Till *	8	X	$100.00	$11.02	$1.00		
5.	Conservation Tillage Cover Crop	9	X	$100.00	$41.02	$4.10		
6.	Terraces	17		$175.00	$19.28	$9.64		

Notes:

* Installation Cost and Average Annual Cost do not include $65.00 wheat variable production cost because it is offset by the income from wheat. The Change in Net Income does include the Net returns from the wheat crop.

******EXAMPLE NET INCOME ANALYSIS (LOAN PERIOD)*******

Exhibit No. 1C - Guide Sheet for Display of Effects of Conservation Compliance Systems

County/State: Somewhere
MLRA: 222
Crop/Crop Rotation: Soybeans (Bu/Ac)
Price Base: 1987
Period of Analysis: 5 Yrs

Area Description: Upper Coastal Soils
Acres in Farm Unit: 100 acres
Date: March 1987
Interest Rate: 10 %

No.	Description of Conservation System	Remain Eros (TAY)	Ephm Eros	Est Instl Cost ($/Ac)	Ave Ann Cost ($/Ac/Yr)	Cost Effec-tiveness ($/Ac/Yr/Tn)	Change In Yld * (Unit/Ac/Yr)	Change In Net Income ($/Ac/Yr)
1.	Without Treatment	19	X	$0.00		$0.00	0.13	($1.72)
2.	Terraces, Contour Farming, Cons Till	4		$275.00	$72.54	$4.84	0.00	($70.82)
3.	Terraces, Cntr Frm, Cons Till, Cover Crop	4		$275.00	$102.54	$6.84	0.00	($100.82)
4.	Double Crop Sybns & Wheat, Cons Till **	8	X	$100.00	$26.38	$2.40	0.03	($3.32)
5.	Conservation Tillage Cover Crop	9	X	$100.00	$56.38	$5.64	0.04	($55.23)
6.	Terraces	17		$175.00	$46.16	$23.08	0.11	($45.94)

Notes:

* The change in yield is based solely on the change in long term productivity.

** Installation Cost and Average Annual Cost do not include $65.00 wheat variable production cost because it is offset by the income from wheat. The Change in Net Income does include the Net returns from the wheat crop.

APPENDIX C

GLOSSARY

Alternative Conservation Systems (ACS): Combinations of conservation practices that provide acceptable erosion control in Designated Areas for conservation compliance. They are formulated by Technical Specialist Teams and would in general result in less erosion reduction than Basic Conservation Systems.

Economically Practicable Plan: A conservation plan that proposes a system of conservation practices that is cost effective and capable of being installed from a economic perspective. Items to consider include the state of the economy in the designated area and the financial conditions of farmers in general in the area.

Technically Feasible Plan: A conservation plan that meets the erosion control technical standards found in the Field Office Technical Guide. In some areas it may not be physically possible to meet these standards and stay in crop production. Such situations may provide justification for establishing a Designated Area.

Basic Conservation Systems (BCS): Combinations of conservation practices that adequately control soil erosion on cropland. They are the erosion control components of a Resource Management System.

Resource Management Systems: Combinations of conservation practices that conserve the total resource base by meeting acceptable erosion rates, water quality, and maintaining acceptable ecological and management levels for the selected resource use.

Cost Effectiveness Analysis: A procedure that compares the costs of various alternatives in relation to a common physical measure. For example, the cost per acre per ton of reduced erosion is a measure of cost effectiveness of a conservation system.

Net Farm Income Analysis: A procedure that identifies the change in net income brought about by applying various alternatives. It is based on a comparison of "without treatment" net income to "with treatment" net income.

Amortization: A technique that converts a capital cost (e.g., installation cost) to equal periodic payments. The amortized payments include the capital cost and interest. For soil and water conservation practices, capital costs are amortized to annual payments.

Evaluation Period: The time period, in a Net Farm Income Analysis, over which benefits and costs are compared. In many cases, this period is the longest life of any of the practices in the alternative conservation systems. For Cost Effectiveness Analysis, since the benefit stream is not analyzed, there is no true evaluation period and it is only necessary to compute the annual costs of each practice. When working in Designated Areas it may be necessary to also consider the Loan Repayment Period as an alternative Evaluation Period.

USDA Program Benefits: Defined by the FSA as any type of price support or payment made under authority of the Commodity Credit Corporation Charter Act (CCCCA); a farm storage loan made under authority of CCCCA; crop insurance through the Federal Crop Insurance Act; disaster payments; any loan made, insured, or guaranteed under the Consolidated Farm and Rural Development Act; or any payment made for agricultural storage by the Commodity Credit Corporation.

Socially Acceptable Plan: A conservation plan that is comprised of conservation practices which are commonly adopted in the area and do not conflict with religious, educational, cultural, political, and family values.

Economy of the Local Area: The financial and business conditions of a community or small region. It is used here to help identify Designated Areas. Items to consider are: The financial condition of farmers and the multiplier effect that a BCS or an ACS would have on the local economy.

Deterioration of the Soil Resource Base: The reduction of the long-term productive capacity of the soil.

Now-Time Erosion Damages: The damages to crop production as the erosion is occurring. Examples include washing seed out of the ground, loss of lime and fertilizer, and resulting sediment deposition on seeds and plants.

Loan Repayment Period: The time frame in which a loan must be repaid. This is generally shorter than the life of many enduring conservation practices.