CHAPTER 1

CHAPTER I - WHY ECONOMICS

INTRODUCTION

How do we decide to spend our money? Normally we compare the benefits of the purchase or investment to its costs. Someone considering the purchase of a new car might see better gas mileage and fewer repairs as benefits. Costs might include higher car payments and higher insurance premiums. Someone wanting a computer might be comparing benefits that a computer would give them in business and at home, to the cost of giving up other activities or items currently enjoyed.

Farmers, when deciding whether or not to purchase or invest in conservation, go through much the same thought process. Will the benefits from conservation outweigh the costs? Because the farmer is the Soil Conservation Service's major client, it is important that we understand the benefits and costs of conservation so we can inform our clientele. Economics is just one more tool to help us do a better job and to help the landuser make more informed decisions.

BENEFITS OF CONSERVATION

Benefits from conservation are numerous and occur offsite as well as onsite. This material examines onsite benefits in two parts; (1) productivity maintenance and (2) decreased production costs, and offsite benefits as a whole. A much more detailed record of conservation effects can be found in Sections III and V of the Technical Guide.

ONSITE

Productivity Maintenance

When we speak of maintaining productivity, we're really referring to maintaining crop yields by protecting the soil from erosion. To maintain yields, crops need sufficient nutrients and water. They also need a soil profile which allows adequate root growth with sufficient tilth and organic matter to allow the passage of nutrients and water.

When erosion occurs, crops are denied these basic needs to some extent. Wind erosion causes loss of soil moisture and degradation of the soil profile through removal of topsoil. Water erosion causes loss of topsoil, which reduces the quality and quantity of the soil, and causes loss of commercial nutrients. Water erosion can also cause onsite crop damage through gullies and sediment deposits within the field. Both voided areas and sediment deposits lower productivity by reducing or even eliminating crop stands in certain areas.

Productivity maintenance occurs as conservation measures are used to reduce soil loss and conserve moisture. Yields are maintained and in some cases enhanced through the use of conservation. These measures serve to sustain the basic needs of the crop by keeping soil, nutrients, and water where they are needed.

Decreased Production Costs

Some conservation measures are beneficial to the farmer because they reduce his costs of growing a crop. Certain tillage practices like conservation tillage and no-till reduce the number of trips over the field. This allows farmers to save time, fuel, and machinery wear. Other measures which convert row crops to other land uses permit the farmer to use less fertilizer and chemical inputs on these areas. Examples of this type of measure are field borders and grassed waterways. Both of these measures involve converting sometimes low yielding row crop areas (end rows and watercourses) into grass. The farmer saves production costs Because these converted areas usually require less inputs than do row crops.

OFFSITE

Offsite damages, which include deposition and reduced water quality, result as eroded sediment is carried off the field by the actions of wind or water. The sediment can fill in ditches, plug culverts, reduce the useful life of ponds, and destroy fences.

Sediment is also a carrier of farm pesticides and fertilizers. These substances travel on their own or with the sediment to creeks, streams, rivers, and lakes. The chemical substances pollute the water and reduce its usefulness for human consumption, recreation, and fish habitat. The most effective way to avoid surface water pollution is to keep the chemicals on the fields where they are applied. This

is one way that conservation measures have an offsite benefit. Any measure which helps to reduce soil loss and thus reduce the runoff of sediment and chemical pollutants, is useful in maintaining or improving surface water quality.

COSTS OF CONSERVATION

Given the far reaching benefits of conservation, why isn't its adoption more widespread? One reason is that, as with any investment or purchase, there is a cost involved. Conservation too has costs associated with its use.

The most obvious cost is in installing the measure. This cost includes all material, labor, and equipment needed to get the measure on the ground in accordance with SCS specifications. This cost is "up front" as it occurs when the items or services are purchased.

Operation, maintenance and replacement (OM&R) are costs which occur throughout the life of the measure. These costs insure that the measure continues to function properly. Fertilization of a waterway, replacing a pipe, or reseeding a terrace backslope are examples of OM&R.

A third cost of some conservation measures is the cost of lost production. When certain measures are installed, previous production from the area is foregone. Waterways take land away from cropland as do certain types of terraces. If the yields from these areas were low initially, the lost production is small and there might be a production cost savings. But, if previous yields were high, the cost of putting in waterways, for example, would also be high in terms of lost production.

Another cost occurs with some tillage practices. It is possible that applications of fertilizers and chemicals must be increased in some soils when switching to conservation tillage or no-till. Increased production costs must be accounted for in these situations.

HOW THE OVERALL AGRICULTURAL ENVIRONMENT AFFECTS CONSERVATION PURCHASES

Now that some of the benefits and costs of conservation have been discussed, how does the agricultural environment (interest rates, the farm program, politics, etc.) affect a farmer's decision to apply conservation? During times of prosperity, farmers have the ability to invest in long term conservation. In fact, in years of high profit, farmers are searching for ways to reduce their tax burden. Under current tax laws, conservation is an intelligent investment for this purpose. But, in bad times, taxes are not a problem because profits are low. And, since benefits from conservation sometime take time to materialize while most costs are up front, lack of cash flow becomes a big problem for many farmers.

We need to be aware of a farmer's economic situation as we make our recommendations. Measures with high installation costs, and benefits which take time to materialize, may be a good alternative from SCS's standpoint but not feasible for the farmer. In times of economic stress, applying part of a system, even though it will not completely solve the resource problem, is better than not applying any measures at all. At least the door remains open for the farmer when times get better to apply remaining practices of the resource management system and reap the full benefit of conservation.

ECONOMICS AND THE PLANNING PROCESS

The SCS National Planning Manual (NPM), describes planning as a flexible continuing process of identifying problems and opportunities, determining objectives, inventorying resources, analyzing resource information, and developing and evaluating alternatives to help land users make and implement decision towards management of their soil, water and related resources.

To accomplish the goal of effective planning, SCS uses a specific planning and implementation process consisting of ten elements in the delivery of assistance. This process is used in all instances where assistance is provided to decisionmakers, regardless of the expected outcome or scope of the

planning effort, regardless of the type of conservation treatments that are expected to be accomplished, and regardless of the source of funding to be used for implementation.

The degree of detail used in the planning process will vary with the type, method, and scope of assistance, complexity of the planning situation, and the recipient of assistance. Using the nine elements in the process in sequence creates a consistent method of providing assistance nationwide. The nine elements in planning and implementation are:

1. Identify the problem.
2. Determine the objectives.
3. Inventory the resources
4. Analyze the resource data.
5. Formulate alternative solutions.
6. Evaluate alternative solutions.
7. Client determines a course of action.
8. Client implements the plan.
9. Evaluation of the results of the plan.

The process requires the use of interdisciplinary skills to achieve the highest quality of assistance. Economics can and must play an important role in the planning process.