

## Case Study Development and Use

Completed case studies can be used to illustrate what the conservation treatment option can do for the resources on a particular soil type and resource use situation. Other land users with similar enterprises on similar soils may adopt resource management systems based on the documented impacts of the system.

### **Results**

Case studies provide a means to share conservation planning results. They are intended to be a relatively quick and practical means of providing potential cooperators in comparable resource situations with a vision of the way their current situation might be modified to achieve a desired resource condition. They are not intended to be definitive analyses of resource treatments which scientifically determine complete cause and effect relationships.

"Before and after treatment" information allows for estimating change. **The expected focus of case studies should be on the results or outcomes of treatment**, because exact cause and effect relationships between treatment inputs and conservation outputs (results) are difficult, and in some cases impossible to identify.

### **End Products**

Many end products can be derived from the development of case study information in addition to the case studies themselves:

- Brief information **brochures** containing highlights of the resource problems addressed, applied treatments, experienced effects, farmer satisfaction, etc.;
- Brief one-page **information sheets**, modeled after fact sheets;
- **Training materials** for instructing field professionals in planning and use of technical information;
- Local news and farm magazine **articles**; and
- Case study farms can be the focus of Soil and Water Conservation District **tours, Neighbor-to-Neighbor stops, and training exercises.**

## **Information and Data Collection**

A case study can be conducted as part of ongoing conservation planning work. Additionally, follow-up needed after the conservation plan has been implemented, will serve to verify or reject planning expectations and the results that the decision maker hoped to achieve.

Planning notes from an existing conservation plan might contain all or most of the information needed to produce a good case study. **Information in a case study should include data on the kinds, amounts, and timing of actions taken to implement conservation treatments.**

Typically, a case study will attempt to measure the level of inputs and outputs associated with a particular conservation practice or system. Important records may include farming operations undertaken, type of equipment used, dates of operations, number of operations to complete work, and the kinds and amounts of inputs such as seed, fertilizer, pesticides, tractor hours, fuel consumption and labor required.

The degree of detail and selection of input and output factors to collect data for, should be guided by common sense and professional judgment. Several methods for organization and development may be used and a minimum of data requirements must be met to help other farmers understand the consequences of their choice.

The data collected in a case study at a minimum must:

1. be specific for a conservation practice or system;
2. attempt to hold all variables not related to the conservation treatment constant
3. include the kinds, amounts and timing of treatment actions; and
4. identify the physical and biological effects associated with those actions.

To the extent that treatment significantly affects yields, erosion rates, and other observable indicators related to the resources of concern, such data should also be recorded. Any significant changes in operational and managerial conditions and decisions may also be noted.

## **Types of Case Studies**

Case studies can be based on:

1. comparison of the "before and after treatment" conditions on a single farm;
2. comparison of two separate, but comparable resource and land use situations on different farms or even on the same farm, i.e., one site "with and one without treatment"; or
3. simple recording of the results a producer experiences "with treatment" on a single site regardless of the "before" treatment conditions.

## **Potential problems with Case Studies**

Attributing change to a conservation treatment is potentially the most complex and uncertain aspect of case studies. Examples of the potential problems with case studies that could complicate the understanding of the effects of conservation are:

- Variability in weather, e.g., unusually low rainfall during the growing season could cause yields to be lower than the levels expected when you planned the conservation system.
- Changes in management such as a change in varieties planted, fertilizer used or as a result of lessons learned during implementation, e.g., modifying tillage depth or timing;
- Measurement errors with respect to inputs or outputs;
- Some other factor might change between before and after treatment observations, e.g., biological or chemical changes in the soil which might solely be a function of time and be unrelated to the treatment, i.e., increasing salinity; and
- Significant statistical variation with respect to yields or any other measurable outcome can occur which may or may not be related to the treatment.

### ***Summary and Conclusions***

Conducting case studies should not require significant efforts beyond normal conservation planning activities. Properly structured, they will provide additional insights on actual results from conservation treatments experienced by producers in the area. These insights will improve the field office knowledge about the outcomes of experienced producers.

Case studies will also help build a permanent record of treatment results that are very useful for selling conservation. They should also serve technology transfer purposes when shared between field offices and with other interested parties. The information contained in a case study enables planners with various levels of experience to have access to the knowledge of the best.