

Role of USDA, Natural Resources Conservation Service (NRCS) in Production of a Wholesome Food Supply

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United States Department of Agriculture, Natural Resources Conservation Service (USDA, NRCS) provides conservation planning and technical assistance to clients (individuals, groups, and units of government). These clients develop and implement plans to protect, conserve, and enhance natural resources (soil, water, air, plants, and animals) and to address their social and economic interest (SWAPA + H).

Planning involves more than considering individual resources. It focuses on the natural systems and ecological processes that sustain the resources. The planner strives to balance natural resource issues with social and economic needs through the development of conservation management systems (CMS) often referred to as conservation plans.

To achieve the goal of sustained wholesome food supply, many partners work together to provide the decision maker (client) with viable alternatives. These alternatives provide different ways to meet the client's objective and meet the quality criteria of the resource concerns. Each alternative is evaluated to determine its effect and impact on the natural resources.

The development of alternatives and the implementation of a conservation plan is the culmination of many cooperative efforts. State and federal agencies such as Colleges and Universities; Research from Institutes of Food and Agriculture Science; USDA, Agriculture Research Service; Cooperative Extension Service; private individuals, commodity groups and agriculture cooperatives have all played a major role in developing and transferring present day knowledge and technology to the decision maker.

The end product is a conservation plan that combines management and conservation practices that, when installed, will achieve a specified level of treatment for all resources. Plans contain soil maps with interpretations; worksheets and jobsheets such as forage inventories, erosion estimates and cost estimates; operation and maintenance agreements and

procedures; a plan map showing land use, fields, acres, and locations of various practices to be applied, a record of the client's decisions, other useful maps, sketches, and designs; and a Conservation Effects for Decision making worksheet reflecting site-specific information.

The planned conservation system is evaluated as to the effect it will have on the resource concerns (SWAPA + H). The following considerations and/or problems are evaluated:

- soil
 - Erosion - Sheet and rill, wind, and irrigation induced concentrated flow (ephemeral, classic gully, streambank; soil mass movement; roadbed and construction sites)
- Condition - tilth, compaction, soil contaminants
- Water
 - Quantity - Seeps, flooding, subsurface water, restricted capacity, conveyance
 - Inadequate outlets
 - Restricted capacity, water bodies
 - Water management - irrigated
 - Water management - nonirrigated
- Quality - Contaminants
 - Aquatic habitat suitability
- Air
 - Quality - Sediment, smoke; chemical drift, odors; fungi, molds, pollen
- Condition - Temperature, air movement, humidity
- Plants
 - Suitability - Adapted to site, intended use
 - Condition - Productivity, health and vigor
 - Management - Establishment, growth, harvest, and nutrient management
- Pests
 - Animals
 - (Domestic and wildlife)
- Habitat - Food, Cover/shelter, water
- Management - Population/resource, balance, animal health

A simplified example of a partial alternative considering the resources is provided below:

Farmer X has 100 acres of row crop and 200 acres of grazing land. Water for the livestock

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Manuscript received 26 Feb. 1997.

is supplied in two 100 acre pastures. The planner follows a three phase, nine step process. In the process an inventory and analysis shows soil loss from sheet and rill erosion rates of 15 tons/a (3 times that to maintain the soil resource base), a near by stream laden with sediment and fish kills occurring 2-3 times a year, production of the row crop is about state average, input of fertilizer is **high**, there is a large lake down stream from the farm and it is experiencing eutrophic conditions and has periodic undesirable algae bloom, the grazing area has several shallow gullies throughout the two pastures, the pasture grasses have some areas that are very short and over grazed while other areas have mature grasses that are not grazed, game birds and deer are seldom seen on the farm.

One alternative Farmer X may consider is to apply the following conservation practices as a part of an overall conservation plan.

Residue Management, Strip Till

Effect Reduces soil loss to the level so that it will maintain productivity; water quality improvement by reducing the amount of sediment carrying attached nutrients, reducing the amount of sediment in the stream, and reduce one possible cause of eutrophication of the off site lake; increased crop production build organic matter in the soil thus improving nutrient and water holding capacity, reduced cost from most inputs, increased management level.

Nutrient Management

Decreased cost and increased production by applying only the amounts needed, in the appropriate form, and in a timely manner; reduced eutrophication of lake by reducing the amount of dissolved nutrients going to the lake.

Pest Management

Increase net profit by scouting and applying appropriate pest control measures (biological, chemical, and/or mechanical). Improve water quality and wildlife habitat by using pesticides with less potential for leaching and/or runoff and considering the aquatic index, reduce chemical health hazards to human, plants and animals; promote beneficial insects.

Prescribed Grazing (Includes Support Practices such as Fencing, Watering Trough, and Pipeline)

Develop a more desirable plant community, better utilization of forage, increase production of forage, produce more animal units (domestic and wildlife), reduce erosion, improve water quality.

There are many alternatives that could be chosen and each would have different effects on the resources. Our natural resources are so closely related and interdependent. The example above only demonstrates a partial alternative with some of the possible effects described.

When one or more resource is manipulated, the impacts on the others must be considered. The production of a plentiful, wholesome, sustained food supply must have the support of the many partners and we must provide the best available assistance to the land use decision maker.