

THE SOIL AND WATER CONSERVATION PROGRAM IN NEW MEXICO

By

Robert C. Young*

I. Brief chronological history of the soil conservation movement in the U.S.A.

1930 - Congress recognized the erosion problem and appropriated money for soil erosion investigations. Soil Erosion Experiment Stations were set up under the direction of the Bureau of Chemistry and Soils and the Bureau of Agricultural Engineering.

August 25, 1933 - The Soil Erosion Service was established as a temporary organization in the Department of the Interior. Dr. H. H. Bennett was the first Chief. The first soil erosion project was established in Wisconsin.

March 25, 1935 - Soil Erosion Service was transferred to the U. S. Department of Agriculture.

April 27, 1935 - Congress passed enabling legislation (Public 46 - 74th Congress) establishing the Soil Conservation Service in the Department of Agriculture.

August 4, 1937 - The first soil conservation district in the United States was organized under State enabling laws - in North Carolina. Today there are over 2,700 soil conservation districts in the 48 states and three Territories, covering about 90 percent of the agricultural land.

There are 61 soil conservation districts in New Mexico, covering 85 percent of the farm and ranching units.

Practically all of the Soil Conservation Service resources are now earmarked for technical assistance to soil conservation districts, to flood control on eleven approved projects, and for assistance under Public Law 566, the Small Watershed Protection and Flood Prevention Act, which will be discussed later in this Seminar.

*State Director, Soil Conservation Service

II. In retrospect now after 20 years, it seems strange indeed that the conservation of water is not mentioned specifically in the original enabling legislature, setting up the Soil Conservation Service. For it did not take us long to discover that the conservation of soil and water are inseparable. If I may be permitted to paraphrase in somewhat "corny" fashion, a popular song, it would go something like this: "Soil and Water go together", like the song, "Love and Marriage". This fact you can't disparage, whether it be at a seminar or with the local gentry - it still is elementary. Regardless of how you look at the matter - you can't separate soil and water -- you can't have one without the other!

So for the past 17 or 18 years, we have always spoken of our program as one of conserving soil and water. However, for a number of practical reasons, we do think of the water part of our program under two broad phases:

- A. The conservation of water per se for its best use, but in New Mexico and the other Western States, primarily for its direct application on the land, under irrigation. (Also including drainage or other necessary water disposal.) This program includes practices which will improve the conservation of water at:
1. Source or supply - direct diversion - wells and springs.
 2. Transmission to the land.
 3. Land preparation for irrigation - land leveling - ditches and structures.
 4. Proper application of water.
 5. Drainage or other water disposal problems.

The principal water conservation practices used in New Mexico under this category are:

1. CONSERVATION OF WATER
 - (a) Canal construction or ditch construction
Constructing, cleaning or reshaping an open channel by removing earth or rock below the normal ground line.

- (b) Canal lining or ditch lining (includes pipe lines) - Installing an impervious lining in a canal to prevent seepage.
- (c) Closed drains -- Conduits laid to grade beneath the surface to remove excessive water from wet land. Includes tile, metal, stone, woodbox and other covered drains.
- (d) Drainage -- Collecting and removing excessive surface or ground-water from land to improve growing conditions, to permit tillage or harvest, or to prevent crop damage. It includes installation of open ditches, tile, pumps and levees, floodgates, and other methods for removal or control of excess water.
- (e) Improved water application -- The best practical use and control of available irrigation water under existing physical conditions, as an interim means of improving irrigation efficiency until more complete water management can be installed.
- (f) Irrigation water management - The use and management of irrigation water according to a planned farm-irrigation system where all necessary control structures have been installed, where the quantity of water used for each irrigation is determined by the need of the crop and the water-holding capacity of the soil, and where the water is applied at a rate and in such a manner that the crops are able to use it efficiently and significant erosion does not occur.
- (g) Land leveling -- The reshaping of the land surface to a planned grade to permit uniform distribution of irrigation water without erosion or to provide necessary surface drainage.

- (h) Open drains -- Ditches constructed for the purpose of removing surplus water from wetland; may also include cross-slope ditches on sloping land.
- (i) Pond and Irrigation dam construction -- Impounding water by constructing a fill across a stream or watercourse or by excavating a basin in the ground.
- (j) Spring development -- Improving springs by excavating, cleaning, capping, providing storage facilities or necessary fencing.
- (k) Waterway development -- Constructing or shaping a waterway and protecting it by establishing suitable vegetation with or without grade-control structures.
- (l) Well location and development -- Construction or improvement of wells, (including casing, installation of pumping equipment, and provision for storage facilities) for livestock or irrigation water.

B. The conservation of water in connection with practices primarily designed to control or minimize erosion or flood damage. Among these practices are:

- (a) Contour farming -- Farming in such a way that field operations, such as plowing, pitting, planting, or cultivating are done by following the contours of the land or by following terrace grades.
- (b) Terracing -- Constructing an embankment of earth or a combination of embankment and channel across a slope to control or retain runoff and check erosion.
- (c) Contour furrowing, chiseling or pitting (will be reported as one practice) -- Plowing furrows on the contour or pasture on land to reduce runoff and thereby provide added moisture to increase the forage.

- (d) Cross-slope farming -- Farming in such a way that plowing, planting, tillage, and other field operations are done across the general slope of the land, but not on the contour as in contour farming.
- (e) Check Dams -- A small, low dam constructed in a gully or other watercourse to decrease the velocity of stream flow. The purpose is to minimize channel scour or promote the deposition of eroded material.
- (f) Diversion dam -- A barrier built to divert part or all of the water from a waterway or stream into a different watercourse, an irrigation canal, or a water spreading system.
- (g) Debris basins -- The construction of a basin, usually at or near the point where a high velocity stream emerges onto an area of lesser gradient, to trap coarse sediment and debris which is removed periodically.
- (h) Diversion dikes and ditches -- Construction of ditches or dikes to divert the flow of water for the purpose of reducing erosion and flooding. Includes such items as seeding and sodding in the immediate waterflow area.
- (i) Floodwater retarding structures -- A dam with a fixed drawdown tube of concrete, corrugated metal, or tile and having an emergency spillway of concrete or grass. In some cases it may be installed primarily for the purpose of protecting land from inundation while in other cases may be used principally to reduce the flow and permit use of a more economical system of stabilizing structures. Sometimes called detention dam or reservoir.

- (j) Water spreading -- Diverting flood-water from a watercourse or gully and spreading it over a relatively flat area for erosion control, to increase the forage by flood irrigation, or to replenish groundwater supplies. Usually done by constructing diversions, dikes, or other structures that will divert and distribute runoff.
- (k) Roadside erosion control -- Controlling erosion along roads and highways through the use of vegetation, structures, or grading.
- (l) Streambank stabilization -- Protecting streambanks from erosion by the use of vegetation and structures.