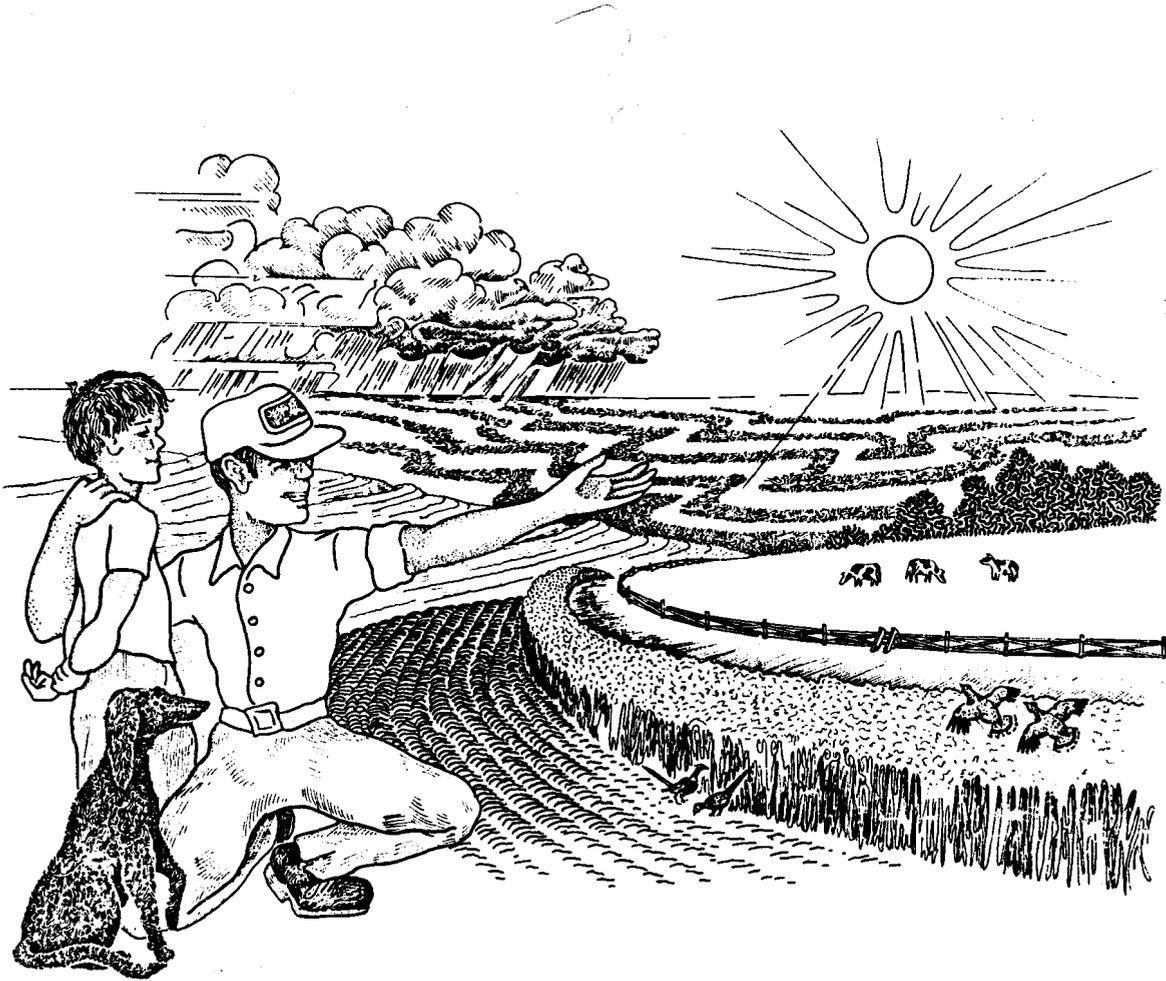




A Half Century of Progress ...
**KANSAS IS A
CONSERVATION LEADER**



**SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
SALINA, KANSAS
MARCH 1985**



Dust Bowl: Time of Despair

Several times in the Spring of 1934 and 1935, Kansas folks witnessed a fast-approaching wall of blackness that almost seemed to signal the end of the world. Noonday became like night. A person couldn't see anything over 200 yards away. Battering waves of fine soil particles almost smothered people, livestock, fences, and farm buildings. Drifts of constantly shifting fine soil particles filled roadside ditches and roads, covered fences, buried farm machinery, and destroyed plant growth with their abrasive action. Much of the soil's fertility was in the fine dust that was picked up by the wind and carried hundreds and even thousands of miles. The heavier infertile sand particles were left behind. Many people and animals developed respiratory problems. Dust filtered through closed doors and windows. Crop and livestock farming became difficult to impossible. Most of the benefit of heavy rains in May and June of 1935 was lost because there was little vegetation and few structures to hold the moisture where it fell.

All of this and more was happening in Kansas and elsewhere in the Midwest against a background of despair and massive unemployment during the Great Depression.

Land Abuse Throughout History

But Nature turning upon mankind for its abuse of the soil in the 1930s was nothing new in world history. Civilization after civilization has fallen for similar reasons. Thus fell the great Babylonian Empire, as the ancient Hebrew prophets had predicted. During most of recorded history, war, famine, and pestilence have so dominated people's lives that conserving soil and water resources have received little attention. These conditions still exist in much of the world.

In central and western Europe gentle rains and a humid climate allowed farmers to till the land for centuries



The long drought period of the 1930s, plus man's abuse of the land created the Dust Bowl across the Great Plains including western Kansas.



For centuries soil erosion has robbed the land of productive capacity. Millions of farmers have been forced to leave their land in North Africa, the Near East, China, Central America, upstate New York, North Carolina, Georgia, and countless other places.

with little need for soil conservation. But when Europeans settled on farms along the Atlantic coast of America, they found different climatic conditions. When they cultivated the thin and erosive soil, heavy rains washed it away. The only way many settlers could see to solve the problem was to move west to better land. They had no idea that good farmland would ever become scarce.

A few people heard President Theodore Roosevelt declare, early in the 20th century, that "When the soil is gone, man must go. And the process does not take long."

But it seemed that more farmers heard an official in the U.S. Department of Agriculture declare about the same time: "The soil is the one indestructible, immutable asset that the nation possesses. It is the one resource that cannot be exhausted."

Bennett Arouses the Nation

Of the latter statement, Hugh H. Bennett, father of the soil conservation movement, said: "I didn't know so much costly misinformation could be put into a single brief sentence."

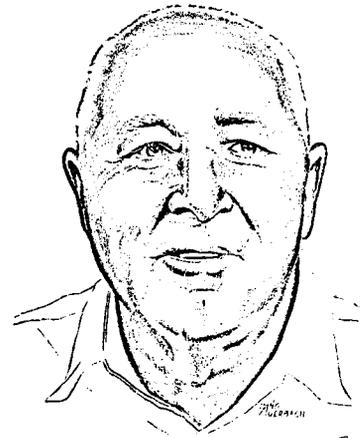
Bennett, a soil surveyor in the U.S. Bureau of Soils, lectured for years in the early part of the century on the dangers of soil erosion. In 1928 he co-authored a USDA publication called "Soil Erosion, A National Menace." He estimated that 1.5 billion tons of soil were being lost from the land each year in the U.S. The federal government responded by setting up 10 erosion research stations to study the problem, including one at Hays.

But soil erosion, caused by the action of wind and water, continued. Great Plains farmers who had their wheat seed blown out simply worked the land again and replanted. They fought low wheat prices by planting more land to wheat.

As a move to combat unemployment, and, incidentally, do something about soil



When you're out of soil, you're out of food!



Hugh H. Bennett was a tireless worker and leader for the cause of soil and water conservation. He turned the nation away from falling into an abyss of hopelessness over soil erosion.

erosion, the federal government established the Civilian Conservation Corps (CCC) on April 5, 1933. Some 33 CCC camps were established in 26 counties in Kansas alone. In its first year, the CCC workers, nationwide, built 420,000 small erosion control dams, planted 100,000 acres of trees, and built many larger structures.

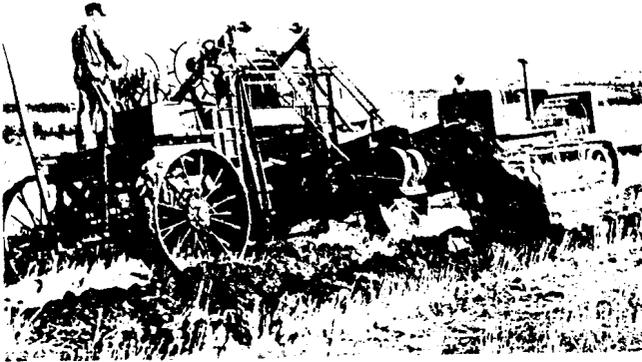
Demonstration Projects

Then on August 25, 1933, the Soil Erosion Service (SES) was established in the U.S. Department of the Interior. Bennett was named director. The Limestone Creek Watershed Demonstration Project, located mostly in Jewell County, was one of the first 10 projects established by the new agency. The federal government provided help to farmers who agreed to establish soil conservation practices. The Limestone Creek Project covered 130,000 acres. It was authorized on December 1, 1933, and went into operation in the Spring of 1934. Large numbers of CCC workers built terraces, ponds, waterways, and erosion control structures.

A series of neighborhood meetings in the Spring of 1934 in the project area resulted in over 300 applications from farmers within a few days. Several demonstrations were held on newly terraced fields, showing methods of finishing terraces. A series of meetings explained the idea of contour farming. Farmers responded well. But contour farming did not gain a strong foothold until 1937 when normal rainfall returned to the area.

Little effort was made at first to shift from corn and other clean-tilled crops to wheat in Jewell County. By seeding the more erosive slopes to legumes and grasses, it was thought that most of the remaining cropland could be used to grow corn, if terraced. Cropping system ideas became more semiarid-oriented by 1937.

For more than a year, until May 1935, every farm in the project area was devoid of crops. Thus the federal



Elevating graders were used to build terraces in 1934 in the Limestone Creek Watershed Demonstration Project.



One of many hand labor operations of CCC workers was the laying of sod in terrace outlets.

government was able to build over 1,100 miles of terraces, using large earth-moving equipment. Terracers operated around the clock in three seven-hour shifts. Because of the speed of the terracing program, it was not possible to prepare the outlets ahead of the terraces.



SCS employees provide technical assistance to landowners and operators in solving their land use problems.

Heavy rains of May and June 1935 destroyed the newly seeded and sod-stripped outlets, for the vegetation had no chance to take hold before that.

Another important phase of the demonstration work was gully control. Some 550 men from the Lebanon, White Rock, and Ionia CCC camps and 150 Works Progress Administration (later Work Projects Administration) (WPA) workers were kept busy building loose rock dams and post and brush dams in about every unstabilized small watercourse in pastureland of cooperating farmers. Many of these dams failed within two years, due to poor design and heavy rains. There was little technology developed for SES technicians to use, so they had to develop their own methods by trial and error. Shaped gully banks were seeded to grass, which, because of the drought, did not germinate.

Attempts to retire steep land from crop production to hay and pasture met with little success, due to a lack of moisture to germinate seed. Project technicians developed a special contour furrowing machine to cut a slice of sod and place it on the downside of the furrow. With the return of more normal rainfall in the late 1930s, this practice proved successful.

Dust Triggered Action

Meanwhile, the duststorms continued. Bennett estimated that the mighty "black blizzard" of May 11, 1934, moved 300 million tons of soil, ripping topsoil from some fields in the Great Plains to the depth of a plowshare.

Early in 1935, while testifying before a Congressional committee, Bennett recalled this duststorm, and two more like it in



A complete system of conservation practices protects soil, water, grassland, wildlife, and other natural resources.

March 1935. Bennett went on for hours, citing detail after detail of water and wind erosion in every corner of the nation. He had a method in prolonging the proceedings, for he knew another massive storm was underway in the Midwest. At the dramatic moment, it turned dark outside the Senate hearing room, as the duststorm enveloped the nation's capital. The legislators stood around the window awestruck at the drama unfolding before them. Soon afterward, Congress passed Public Law 46, The Soil Conservation Act of 1935, without a dissenting vote. It was the first soil conservation law in the history of the world.

SCS is Born

The law became effective April 27, 1935, establishing the Soil Conservation Service (SCS) as an agency in the U.S. Department of Agriculture. The Soil Erosion Service was abolished and Bennett became the first Chief of the SCS. He established SCS offices throughout the nation. Soil conservationists, engineers, agronomists, and other employees of the SCS began to give technical assistance to farmers and ranchers in planning conservation practices the landowners had agreed to carry out.

In 1936 Congress passed the Soil Conservation and Domestic Allotment Act. One of the provisions of this law was to establish a federal soil conservation cost-share plan. Today, the Agricultural Conservation Program (ACP) provides cost sharing to farmers through the USDA Agricultural Stabilization and Conservation Service (ASCS). The underlying philosophy is that controlling erosion and sedimentation is in the public interest. Therefore, farmers and ranchers should receive a measure of public funding to help defray the expense of costly conservation structures.

Conservation Districts

Progress was taking place, but not fast enough. Farm leaders around the nation then suggested that farmers have a

greater voice in the soil conservation program. So Bennett drafted a standard state soil conservation district bill. On February 27, 1937, President Franklin Roosevelt wrote to each Governor, urging the states to pass such a law.

Kansas was one of the first states to respond. A law authorizing the formation of conservation districts in the state went into effect on April 10, 1937. The State Conservation Commission was authorized under the act to assist conservation districts.

But time after time petitions to organize local conservation districts in Kansas were defeated at the polls. The required 75 percent majority of people were not yet ready to accept federal help in soil and water conservation. Finally, on June 22, 1938, the Labette County Conservation District became the first one authorized in Kansas. Interest was especially strong in that county because of the efforts of the Extension Service and local farmers and businessmen in promoting terrace building and contour farming. By the end of 1937, even before the conservation district was approved, a total of 2,000 acres of cropland had terraces installed. Then on July 29, 1938, a CCC camp opened at Parsons. The workers built a large number of terrace outlets, gully dams, and masonry spillways for ponds, and planted thousands of trees and shrubs. The first Soil Conservation Service employee arrived in the county on November 16, 1938, to assist cooperating farmers.

December 29, 1938, was an historic day, for on that date Pete Benson signed up as the first cooperating farmer in the district--and the state. Five days later, a CCC crew began conservation work on his farm. Fifty-one farms, covering 11,070 acres were signed up with conservation plans by June 1939. Contour farming was being practiced on 45 farms.

The Lyon County Conservation District was a close second in being organized in the state. Sixteen districts were

organized by 1941, with the Cooperative Extension Service playing a key role in organizing and assisting the new districts. The entire state was organized into conservation districts by 1954, one district for each county in Kansas. In 1944 the districts organized the Kansas Association of Conservation Districts to help advance the cause of soil and water conservation from the "grass roots."

Other Early Efforts

Kansas became involved in a variety of other early conservation projects. The Hutchinson area was a focal point of the Prairie States Forestry Project, the intent of which was to plant tree windbreaks all across the Great Plains. From 1935 to 1942, hundreds of miles of shelterbelts and shrub plantings were made in central Kansas. Many of these plantings have remained for 50 years.

An area of special wind erosion concern in Kansas in the 1930s was an arid sandyland south of the Cimarron River in Morton County. The federal government began buying land there in 1936, so that farmers would not continue to try to grow crops on the fragile soil. The SCS took over administration of the federal land in 1939 and began a program of reseeding the land to native grasses. The USDA Forest Service later took over the area, now known as the Cimarron National Grasslands.

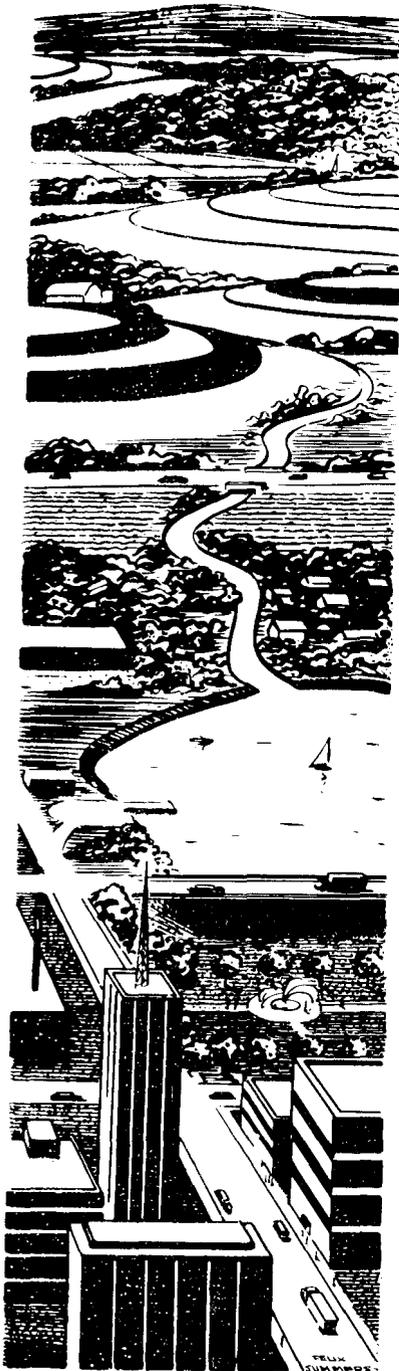
Another facet of the work of SCS is the soil survey program, carried on cooperatively with state experiment stations. A soil survey program existed even before SCS was founded. Hugh Bennett began his career as a soil surveyor in 1903. But the technology of the soil scientist has changed greatly over the years. SCS soil scientists are trained in the science of detailed sampling and identification of hundreds of soils and mapping their locations. Published soil surveys also give detailed information on suitability of various soils for many purposes, such as farming, home building, recreation, and septic tanks. Soil



An extensive windbreak planting program began in Kansas in the 1930s.



Flooding has been a severe problem in some parts of Kansas. Control of excessive runoff of water by land treatment and small flood control dams on a watershed basis has been highly effective.



Conservation treatment of the land keeps soil productive and controls water resources for the benefit of everyone.

scientists now have mapped almost the entire state of Kansas.

Flood Control

Periodic devastating floods in the U.S. prompted the SCS to become involved in flood control, starting with work in several key watersheds in the early 1940s. The U.S. Army Corps of Engineers undertook extensive construction of levees, large dams, and other structures to protect urban centers from floods. The large dams often inundated large areas of fertile cropland.

Hugh Bennett's concept of soil conservation involved erosion control on a watershed basis--the area of land draining into a given stream. Conservation district leaders understood the watershed concept that controlling soil erosion on the land also keeps water in place where it fell. Reducing water runoff also logically reduced the amount of sediment entering streams and reservoirs, as well as checked the impact of local cloudbursts.

A pilot program for watershed protection and flood prevention in 1953 was the first major national response to public pressure for upstream flood control. Under this program, small flood control dams were built in Chautauqua, Marshall, Brown, Lincoln, and Osage Counties. The first pilot dam completed was in Bee Creek Watershed in Chautauqua County.

Congressman Clifford Hope of Kansas co-sponsored Public Law 566, The Watershed Protection and Flood Prevention Act, which passed Congress in 1954. Under this law emphasis was placed on conservation treatment of land to reduce soil and water losses. The federal law also provided for the installation of a network of small tributary flood control dams. Local watershed districts were authorized under state law. They were organized to seek assistance from the SCS.

SCS personnel make geological investigations of possible dam sites, make detailed plans for works of improvement, and do

economic studies. Benefits of a project must exceed costs in order for it to proceed.

Some dams have been built with state funds in recent years. Several Kansas cities, in need of a better water supply, have helped finance multipurpose dams--dams that are larger and hold back more water than if built for flood control alone.

Nearly every year extremely heavy rains occur in one or more watershed project areas--abundantly proving the value of the projects. Annual benefits from projects completed to date in Kansas total \$17 million. Kansas has about the third largest watershed project program in the U.S.

At the same time, SCS, working with other agencies, has looked at flood control and water resource management from a broader perspective. In the late 1950s a cooperative study was made of the Kansas River subbasin of the Missouri River Basin. A cooperative study was also made of the Arkansas River Basin in Kansas in the late 1960s.

Great Plains Conservation Program

The Dust Bowl days of the 1930s are a chapter in the history of Kansas that need not ever be repeated, provided the conservation methods learned since those terrible days are maintained. In fact, from about 1953 to 1957, it was at least as dry for as long a period in southwest Kansas as in the 1930s. But there was no massive return to the ruinous conditions of the 1930s. The technology of stubble mulching--undercutting wheat stubble a few inches below the soil surface and leaving the stubble on top of the ground--developed during this period. SCS worked with other agencies in promoting the practice until a fourth of the nation's stubble mulched acreage was in Kansas.

A key development during the drought of the 1950s was the passage of the Great Plains Conservation Program of 1956, with its complete program of conservation



The Great Plains Conservation Program has done much to improve farming and ranching in that region.



The Manhattan Plant Materials Center has released several improved native grass varieties.

practices, accompanied by cost sharing. The law operates in parts of 10 Great Plains states, including 62 central and western Kansas counties. Its intent is to stabilize farming and ranching through long-term contracts in an area of erratic climate and economic conditions. For a number of years, requests for assistance under this program in Kansas have greatly exceeded available funds. It has been a model for other conservation programs.

Conservation efforts in Kansas have by no means been limited to cropland. Thousands of acres of land, relatively unsuited to crop production, were seeded to native warm-season grass mixtures in the 1950s. Much of this land has remained in native grass. The Great Plains Conservation Program gave a major boost to native grass seeding, especially on sandy land.

Improved native grass varieties also were essential to a successful seeding program. The SCS Plant Materials Center at Manhattan traces its origins to 1935 when USDA took over government nursery operations in Kansas and to 1937 when the first land was purchased at the present site. The Center has released several important native grass varieties, as well as a number of other plants that serve other conservation purposes, such as wind and water erosion control, wildlife food and cover, and beautification.

The development and growth of rotational grazing systems on the state's rangelands has also been significant in recent years, protecting the land against erosion, and maintaining the productivity of both the grass resources and of livestock.

New Emphases

During the 1960s, as more Americans became concentrated in urban centers, public concern arose over other kinds of damage to the environment that was taking place during the 1930s. Technological

advances were having serious effects on the environment. Overuse of pesticides, industrial air and water pollution, ocean oil slicks, and abuse of fragile public lands became major issues. SCS became involved in these issues mainly from the standpoint of controlling sediment and livestock wastes entering streams and reservoirs. Controlling soil erosion also reduces the amount of plant nutrients and pesticides attached to soil particles entering bodies of water.

The work of the Soil Conservation Service entered a new dimension with the passage of the Resource Conservation and Development (RC&D) section of the 1962 Food and Agriculture Act. RC&D areas were organized throughout the country to develop and carry out programs on community improvement and economic development, with emphasis on developing agribusiness, improving range and crop production, developing rural tourism, and improving social conditions in rural communities. Five RC&D areas were organized in Kansas, covering about a fourth of the state.

SCS entered a new era with the passage of the Soil and Water Resources Conservation Act (RCA) of 1977. The law called for public input into what Americans thought should be done to conserve and wisely use the nation's soil, water, and related natural resources. The law also authorized a periodic inventory of the condition of the land--its uses and the extent of soil losses.

As a result of public input through the RCA, a National Conservation Program was established with the key objectives of reducing excessive soil erosion, improving irrigation efficiency, reducing upstream flood damage, improving range conditions, and improving water management and quality.

Another part of the National Conservation Program was the targeting of assistance to areas of special need. Targeted areas in Kansas are northeast Kansas, where a severe soil erosion problem exists; and western Kansas, where a

declining underground water supply has made necessary improved water management of both irrigated and nonirrigated land.

Kansas - A Conservation Leader

Kansas has been a national leader in erosion control and flood prevention for many years. It's first in miles of terraces built and in acreage in grassed waterways--both major conservation practices in Kansas farm conservation plans.

Kansas also leads the nation in cropland acreage upon which some form of reduced tillage, including no tillage, is practiced. Conservation tillage has come to the forefront of conservation practices nationwide during the 1980s.

Hugh Bennett and other early soil conservation leaders were men of vision. But it is doubtful that they could have imagined the variety and complexity of conservation needs that SCS, local conservation districts, and other groups are vigorously attempting to meet today. We have come a long way in half a century, from desolation and despair, as well as ghastly gullies and early attempts to repair them, to today's multi-use reservoirs, and complete conservation treatment of cropland, management of native rangeland, and management of wildlife.

With this kind of soil conservation knowhow and enthusiasm we should be able to make even more progress in the future.

Kansas has come a long way from the depths of the Dust Bowl days. Kansas today ranks first in wheat and sorghum silage production and second in cropland acreage.

The farms and ranches of Kansas thus make a major contribution to the strength of the United States of America. Soil and water are, in fact, the very foundation of the strength of the nation. Our country's future strength and prosperity depend upon the protection of these valuable, vital, and irreplaceable natural resources.

However, the gradual and complex nature of soil erosion and its consequences make it hard to convince farmers, the general public, and the political system to take decisive action. Extensive damage to the land continues when decisions to act are delayed.

Many Groups Involved

The 50th anniversary of the Soil Conservation Service, April 27, 1985, is an important occasion to reflect upon all that has been accomplished in soil and water conservation during the past half century. However, this anniversary is much more than the birthday of an agency. It is a milestone of world importance in a voluntary conservation program that has involved more than two million American farmers, ranchers, and other land users.

The tremendous conservation progress in Kansas has been made possible by farmers and ranchers working with conservation districts and their many cooperating groups and agencies.



Kansas leads the nation in acreage of cropland planted with conservation tillage. There has been a sizeable increase lately in no-till planted acreage.