

50,118, and a considerable number had left before the census was taken in 1890.⁵ According to one estimate, half the population of western Kansas departed between 1888 and 1892. Twenty vacant towns stood witness to the effects of drought on the entire economy.⁶

Farther south in Texas, farming had not supplanted ranching to any great extent. Generally, the farms were larger than those of the other plains states which had been limited in size by the homestead laws. Having larger farms, Texans were better able to persevere through the drought.⁷ Drought also struck the northern plains, and population declined in some areas. As would be the case in the future, drought was not as devastating as it had been in Nebraska, Kansas, and Colorado.⁸ Emergency relief measures did not begin with federal assistance in the 1930s. Already in the 19th century state governments were being called upon for assistance. A Mendota, Kansas, housewife wrote to Governor Lewelling in 1894, "I take my pen in hand to let you know that we are starving to death. It is pretty hard to do without anything to eat here in this God forsaken country....My husband went away to find work and came home last night and told me that he would have to starve....If I was in Iowa I would be all right." With such conditions widespread, several state and private organizations undertook relief measures. The Nebraska legislature appropriated \$200,250 in 1891, mainly for food and grain. Colorado provided \$21,250 to supply farmers in eight counties with seed for the 1891 planting season.⁹ Kansas spent \$60,000 for the same purpose in 1891. In response to the 1886 drought in Texas, the state gave \$100,000 in aid to 28,000 individuals.¹⁰

The drought dislodged the belief among farmers as well as the scientific community that rain followed the plow; that growing crops and plowed fields induced greater rainfall.¹¹ With that faith destroyed, farmers and agriculturalists were ready to make concessions to the climate and turned their attention to adjustments in farm management, cultivation methods, and drought resistant crops.

The hardy qualities of the "Turkey Red" wheat brought to the plains by Russian-German immigrants around 1873 became obvious during the dry years. Mark Carleton and others now set out to discover other crops suitable to the area.¹²

Farmers began to adapt their cultural practices to the climate. Hardy Webster Campbell became the chief promoter of dry farming, although some of the measures predated his involvement in the campaign. Campbell's *Soil Culture Manual* (1902) recommends deep fall plowing, thorough cultivation before and after seeding, light seeding, alternating summer fallow, tillage during fallow and crop years, sub-surface packing, and inter-row cultivation.¹³

With the return of favorable weather in the first decade of the 20th century, dry farming spread across the plains. Cattle raising was also prospering. Both ventures received a shock with the return of drought in 1910. The dry farming method had some sound elements, but it was no panacea for withstanding drought. The dry farming movement was practically destroyed in South Dakota, leading one critic of its more exaggerated claims to surmise that it was time to "to cut out the cheap talk about dry farming and talk cows."¹⁴ Actually the cows were not fairing all that well either. Selling during the drought, 1910-11, and losses during the winter of 1911-12 reduced Great Plains herds seventy percent. The reduction drove many ranchers out of the business. The turnover of ownership benefited the land. Newcomers had a better idea of the value of good range management, both to their pocketbooks and to the conservation of the range.¹⁵

The 1910-13 drought in the southern Great Plains brought another problem. A small "dust bowl" developed in Thomas County, Kansas. Although dust storms were not confined to Thomas County, the storms that swept over 65,000 acres from 1912-14 were probably as severe as any since. Responding to the need to reduce dust storms, Kansas State College issued its first bulletin on wind erosion control in 1912.¹⁶

The return of rain in 1914, high prices, and government exhortations to produce for the war effort led to an expansion of wheat growing in the Great Plains. The wheat acreage in the plains areas of Montana, North Dakota, and South Dakota increased from 2,563,000 acres in 1909 to 4,903,000 acres in 1919. Nationwide profits on wheat rose from \$56,713,000 in 1913 to \$642,837,000 in 1917. Between 1909 and 1924 plains farmers increased the wheat acreage by 17,000,000 acres. Even the drought in 1917-1921 did not measurably slow the change. Many settlers gave up in the northern plains but acreage figures for wheat held steady. Nor did the drop in wheat prices in the early 1920s have much effect. Farmers responded to declining prices by planting more to recoup dwindling profits. Another 15,000,000 acres went from grass to wheat between 1924 and 1929. Much of the expansion in the late 1920s took place in the southern plains where wheat acreage increased 200 percent between 1925 and 1931. With only a few interruptions the years 1914-1931 had been good in terms of weather.¹⁷

The Dust Bowl

The 1930s ushered in another prolonged drought. Scant use of structural, cultural, and vegetative water conservation measures further complicated the problem. The lack of rainfall prevented good stands of wheat and left the ground barren for wind erosion. By August 10, 1933 there had been thirty dust storms in the vicinity of Goodwell, Oklahoma. Another year of drought in 1934 left 97,000,000 acres in eastern Colorado, western Kansas, eastern New Mexico, and the panhandles of Texas and Oklahoma susceptible to wind erosion. Newspaper reports brought the storms national attention. A reporter for the *Washington* (D.C.) *Evening Star* supplied the term "dust bowl" to describe the area.¹⁸ The dust bowl, or the worst of the general blow area, was in Baca County, Colorado; the six most southwestern counties in Kansas; Cimarron and Texas counties, Oklahoma; Dallam and Sherman counties, Texas; and a portion of Union County, New Mexico.¹⁹

The Soil Conservation Service and its predecessor, the Soil Erosion Service, had increasingly turned their attention to the area. By the end of 1936, SCS had established fifty-five demonstration projects in the Great Plains with a heavy concentration in the worst wind erosion areas. When the projects began in 1934, only 10,454 acres in the project areas were being farmed using soil and water conservation measures. With its large force of Work Projects Administration and Civilian Conservation Corps labor, plus the work of farmers, the Service made progress. The results at the conclusion of 1936 were impressive--conservation measures in place on 600,000 acres--including 155,000 stripcropped acres, 200,000 contour tilled acres, contour furrows on 85,000 acres of grasslands, and 3,600 miles of terraces on 65,000 acres. Additionally, 200,000 acres of grassland were under management to prevent overgrazing. The acreage of erosion retarding crops had been increased twenty-eight percent. With the adoption of conservation district laws by the states, beginning in 1937, the Service extended its technical assistance to areas outside the demonstration projects. The Service assisted in contour listing (an emergency wind erosion control practice) 2,500,000 acres in 1936.²⁰ The federal government spent \$793,000 for emergency wind control measures under its Agriculture Conservation Program in 1938. The total drought emergency expenditures for cattle and sheep purchases, feed and forage, seed, loans, and erosion were \$212,916,000 in 1936, \$2,735,000 in 1936, \$515,000 in 1937, and \$1,000,000 in 1938.²¹

Other government programs involved planting windbreaks in the shelterbelt project supervised by the Forest Service. The Farm Security Administration and the Bureau of Agricultural Economics purchased what were termed "submarginal lands" under the land utilization program. After revegetating the land, the government proposed to lease it for grazing. SCS eventually assumed leadership of both programs.

The Plains in the 1940s

Again the rain and war seemed to arrive at about the same time. Weather in the Great Plains improved in 1940. The government called on farmers to produce food for the military forces and the allies when World War II began. As SCS employees entered the armed forces, the reduced staff was instructed that "Emphasis should be given to the widespread application of conservation practices that contribute the most to maintaining or increasing yields and that can be (1) applied with little or no additional use of farm labor, equipment, power and production supplies and (2) furthered with the minimum of technical assistance." Nationwide, World War II had varying effects on soil conservation. The situation in the Southeast and Mississippi Delta improved in 1943-44 when compared to 1935-39, due partially to the reduction of row crops. The Corn Belt had significant losses compared to 1935-39. The Great Plains showed little change after the recovery from the dust bowl but there was cause for concern about the future.²²

H. H. Finnell, regional conservationist at SCS's Amarillo (Texas) office and an authority on wind erosion control, was concerned. He conceded that the World War II plow-up had not been as extensive as that of World War I. Nonetheless, he saw future problems. Farmers had planted pinto beans on loose, sandy soils in New Mexico, cotton on sandy land in Texas, and wheat on thin soils in Colorado. Finnell particularly directed his ire at absentee land speculators in Colorado, who had tried to get Colorado's soil conservation law nullified in the state supreme court and who were lobbying to have the lands reclaimed under the land utilization program put up for sale.

Not only was the use of submarginal land for crops detrimental to the soil, according to Finnell, but also it could not be justified economically. The profits from wheat for a few years would not compensate for revenue lost on grazing while the range was being re-established. Finnell called for a special type of agriculture for the area:

A more logical and permanent remedy would be the

development of an intermediate type of agriculture to use marginal land. This land is just as capable of being efficiently operated as any other lands, provided the demands made upon it are kept within its natural moisture and fertility capabilities. Ranching is not intensive enough to resist temporary economic pressures; while grain farming is too intensive for the physical limitations of the land. A special type of agriculture for marginal land is needed. It must use the land more intensively than ranching and at the same time more safely than grain farming. Men of stable character and more patience than those who ride on waves of speculation will be needed to work this out.²³

The trend continued as prices held up after the war because of demand from countries where war had disrupted the agricultural economy. Between 1941 and 1950 farmers broke out about 5,000,000 acres. The estimate was that 3,000,000 acres of this land was not suitable for cultivation. In fact, some of it had not previously been in crops.²⁴

Drought of the 1950s

An extended drought and dust storms returned in the 1950s. Western Nebraska ranchers travelling to their annual convention on June 8, 1950 had hazardous driving conditions and saw roadside ditches filled with soil. Most of the 100,000 windswept acres in Scottsbluff, Box Butte, Morrill, and Sioux counties were summer fallow fields with no conservation practices or irrigated sandy land for beets and beans.²⁵ The worst blowing of the 1950s was yet to come. SCS surveyed the plains and located the most susceptible areas. The survey cited the bean growing area of Colorado--Pueblo, Crowley, El Paso, and Lincoln counties. The wheat had died over large parts of the

Oklahoma panhandle. Chase and Perkins counties, Nebraska, were listed as critical, as was central Kansas. There were problems in the cotton growing areas of Lamesa-Lubbock, Texas. Eastward across the plains, the western cross timbers of Oklahoma and Texas planted in cotton, wheat, peanuts, and watermelons had also experienced blowing.²⁶

The Department of Agriculture set up a Great Plains Committee in April 1950 to study the problem and make recommendations. The drought continued, leaving acre after acre without any vegetation to protect it from erosion. The dust storm that signalled the national awakening to the "filthy fifties" occurred on February 19, 1954. H. H. Finnell observed the storm from Goodwell, Oklahoma. He wrote to Tom Dale of SCS:

... conditions in the marginal zone are worse than in the 1930s because poorer lands under more arid conditions have been exposed to wind erosion in a wider territory than in the 1930s.....it will be more difficult to subdue than the wild lands of the 1930s. Catastrophe to the land has already exceeded that of the 1930s, but due to the absence of financial straits and hysteria which existed in the 1930s, farm abandonment has been much slower to gain headway....I had hoped the lessons of the 1930s would be more widely grasped and acted upon than they have been. I don't know how many times this thing will have to happen to the Southern High Plains before the idea of safe land use soaks in. The agricultural potential of the area was measurably lessened by the experience of the 1930s and will be again. Too much Class IV land is being

physically transformed into Class VI and VII.²⁷

Newspapers treated the nation to stories that depicted little difference between the drought of the 1950s and that of the 1930s, except for the absence of outmigration. The *Washington (D.C.) Daily News* proclaimed that the "new dust bowl" was "in roughly the same place on the map as the old one."²⁸ Actually there had been some significant changes. The area subject to wind erosion was larger and encompassed all of the area of the 1930s. More significantly the centers of the worst areas had shifted and expanded. The area in New Mexico stretched from Quay down to Lea County. Adjoining it in Texas, the blow area was bounded by Palmer County on the north and Ector County in the south. The Colorado blow area extended from the eastern border to El Paso and Pueblo counties. The points of the triangular area in Kansas were Wallace, Finney and Morton counties. With the exception of Baca County, Colorado, and Morton County, Kansas, most of the earlier dust bowl was not included. The conservation measures of the 1930s had obviously helped. After another three years of drought, some of the older dust bowl had been included, but the problems were not as persistent as those of the newer areas that Finnell had pointed to in his 1946 article.²⁹

The Colorado legislature made \$1,000,000 available to dust bowl farmers in March 1954. The U.S. Department of Agriculture spent \$13.3 million on emergency tillage in 1954 and another \$9,275,000 in 1955. The Agriculture Conservation Program funds spent on drought emergency conservation measures in twenty-one states, 1954-56, totaled \$70,011,000. Colorado, Kansas, Oklahoma, New Mexico, and Texas used \$37,848,000 of the funds. Additional funds went to other drought relief measures.³⁰

USDA and the Great Plains Agricultural Council

While the relief measures were being extended to the plains states, the USDA continued working through its committee on land use problems in the Great Plains to

develop a program to reduce the need to respond periodically with emergency measures. The Soil Conservation Service suggested to the committee that the government use "financial assistance to encourage farmers to convert cropland to grass with the federal government paying at least 50 percent of the cost and making an agreement to continue the program over a 5-year or longer period."³¹ The full committee elaborated on the proposal. The report recognized that "diverting the 6 to 8 million acres of cropland that are unsuited for cultivation to grassland is largely a problem of voluntary action or land use regulation, hence it must be handled mainly by State and local governments and individual owners." But "cost-sharing payments....might be increased and spread over a period of 3 to 5 years while grass is being established." To discourage a subsequent plow-up it might be necessary to use "restrictive covenants and surrender of eligibility for allotments, loans and crop insurance."³²

Meanwhile, the Great Plains Agricultural Council, born during the drought of the 1930s, had begun to develop a long-range program. Representatives of the USDA met with council members on May 31-June 2, 1955, to develop a program. A later meeting, July 25-27, refined the proposals. President Dwight D. Eisenhower transmitted the council's "Program for the Great Plains" to Congress on January 11, 1956. The program did not specify that cost-sharing for conservation practices would be offered through contracts with farmers and ranchers. It did, however, call for sharing the cost of "installing and establishing those practices which are most enduring and most needed but which are not now a part of their normal farm and ranch operations. The ACP cost-sharing program on those practices that are intended to bring about those land use adjustments required for a long-range program will be accelerated and rates of payments made more flexible."³³

The Department of Agriculture was already considering the specifics of how the program might be implemented, including long-term contracting. Donald A. Williams,

Administrator of the Soil Conservation Service, wrote to Assistant Secretary of Agriculture Ervin L. Peterson that the soil conservation districts would be a perfect device for implementing whatever plan Congress adopted. Williams made it clear that the districts could incorporate these new activities into their existing programs so as "to insure a permanent, sound coordinated land use and management program in the Great Plains area." To emphasize SCS's interest in the new program Williams made it clear that he was "prepared to ask SCS personnel to aggressively work with the district governing bodies to the fullest extent possible in this effort."³⁴

Public Law 84-1021

Congressman Clifford Hope of Kansas introduced a bill (H.R. 11833) on June 19, 1956, that was to become the Great Plains Conservation Program. The bill provided that the Secretary of Agriculture could enter into contracts, not to exceed ten years, with producers. No contract was to be signed after December 31, 1971. The Secretary was to designate the counties in the ten Great Plains states that had serious wind erosion problems. The contracts would outline the "schedule of proposed changes in cropping systems and land use and of conservation measures" to be carried out. The bill further stipulated the obligations of the grower and made the provision that any acreage diverted to grass would not affect commodity acreage allotments for the time of the contract. Not more than \$25,000,000 was to be spent in any year, and the total could not exceed \$150,000,000. Assistant Secretary Peterson testified before the House Committee on Agriculture on June 28, 1956. Peterson responded mainly to questions concerning how the program differed from the new Soil Bank. Representatives from beef producing states expressed concern over the effects of putting more land to grazing purposes when cattle prices were already depressed.

Karl C. King, a Pennsylvania congressman, but a native of Reno County, Kansas, thought that buying the land would be cheaper than applying conservation measures. Congressman Hope interceded to

explain what the program planned to accomplish in terms of farm management. One of the problems of the plains had been the pattern of outmigration during drought followed by a wave of new settlers when the weather improved. Each new group had to learn the tough lessons that came with the drought. The proposed program, as Hope explained it, would assist farmers and ranchers through the drought, improve farming and ranching techniques, and lessen the impact of future droughts.

The hearings concluded after John A. Baker of the National Farmers Union testified in favor of the legislation. Baker, who would later oversee the Great Plains Conservation Program as Assistant Secretary of Agriculture, had some reservations. He wanted it known explicitly that the new program would be a "partial supplement, not a substitute for existing programs." The possibility that the Farmers Home Administration could deny credit to farmers who did not follow a conservation plan was also of concern. Baker stated that plains farmers and ranchers had "some qualms and some apprehensions about these master plans." Nonetheless, the Union supported the bill.³⁵

In reporting out the bill on July 7, the committee emphasized that the program was voluntary and that participation would not be a necessary condition for making acreage allotments, FHA loans, agricultural credit, or eligibility for other Department of Agriculture programs. One proposal to speed up the conversion of land not suited for cropping back to rangeland had been to make crops on that land ineligible for federal crop insurance. Although the committee did not specifically mention the insurance program, the report gave their view on possible linkage of USDA programs.³⁶

The House of Representatives passed the bill on July 23, and the Senate concurred without changing the bill on July 26. President Eisenhower signed Public Law 84-1021 on August 7, 1956, with the statement that the act authorized the "Secretary of Agriculture to enter into long-term contracts with farmers and ranchers in the

Great Plains states to assist them in making orderly changes in their cropping systems and land uses which will conserve soil and water resources and preserve and enhance the agricultural stability of that area."³⁷

SCS Selected to Administer Program

It then fell to the Department of Agriculture to develop a plan for administering the program. Actually, the agencies within the Department were at work on plans before the President signed the legislation. Donald Williams of SCS and Paul Koger of the Agricultural Conservation Program Service had discussed implementation. They agreed on a number of points but could not agree on which agency should administer the program. Both wrote to Assistant Secretary Peterson in early August. Williams presented a detailed proposal for administering the program with SCS as the lead agency. Koger pointed out that ACPS had traditionally dealt with the cost-sharing aspects of conservation programs. Both agencies continued to work on plans and awaited the decision. The Commodity Stabilization Service supported the ACPS. The Great Plains Agricultural Council suggested that the county Agricultural Stabilization and Conservation committees handle the cost-sharing aspects of the services.³⁸

Peterson resolved the issue in Secretary's Memorandum No. 1408 on December 10, when he assigned responsibility to SCS. He also announced the creation of the Great Plains Inter-agency Group, composed of all the cooperating USDA agencies, to develop the policies and procedures. The same day Williams appointed Cyril Luker to chair the group and called a meeting of the state conservationists of the ten Great Plains states to work on the new program.³⁹ Assistant Secretary Peterson attended the first meeting of the Inter-agency Group on December 17 and reiterated what he expected from it. He emphasized that "short term activities must be consistent with the long-range objectives." Whatever the group developed had to have the understanding and support of the Great Plains Agricultural Council.⁴⁰

Luker appointed task forces on information, cost-sharing and contracts, farm and ranch planning, and meshing the legislative authorities of the various agencies. The group sought and received advice from outside. Federal, state, and local officials and representatives from cattle and sheep raising groups and farm organizations held a January meeting in Denver to draw up suggestions. During the next weeks the task forces met and reported back to the full group with their majority and minority findings. Again Peterson met with the group and stated that the matters on which there was no unanimity had left the group on "dead center." The differing views should be documented and presented to him for resolution. Peterson resolved several issues at the meeting. The scheduling of practices was a technical matter and should be included in the farm plan, because the single practice concept conflicted with the long-range good of the program. Certification of installment of measures would be the responsibility of SCS.⁴¹ As the work of the group progressed the Assistant Secretary was called on for additional decisions, the main one being whether SCS would serve as the contracting agency because it had responsibility for helping the owner develop the farm and ranch plan for the entire unit. Therefore, SCS should have responsibility for insuring that the practices were installed as scheduled and that they be maintained throughout the life of the contract.

The SCS people participating in drawing up the list of cost-share practices could draw upon over two decades of experience of working with farmers and ranchers. Also, managing the lands acquired under the land utilization program gave SCS technicians an opportunity to test various conservation measures. The conservation practices in GPCP accordingly reflected this field experience.⁴²

Great Plains Inter-agency Group

Not surprisingly, the question of cost-sharing for irrigation came up for discussion. The majority of the Farm and Ranch Planning Task Force wanted to exclude irrigation, but J. B. Slack of the Farmers

Home Administration and Jefferson C. Dykes of the SCS disagreed. They pointed out that irrigation was needed on some small ranches to achieve the goal of economic stability by providing supplemental feed. It would help bring about the desired land use change on the rest of the farm. The fear that it could encourage carrying more animals than the ranch could support would be corrected in the contract. The minority view prevailed, and irrigation was included.⁴³

The matter of establishing the exterior boundaries for the program did not occasion much controversy. The criteria developed by the group included physical and climatic conditions that made crops undependable, erosive and deteriorated soils, and the need for land use change and conservation measures. The group solicited the states' suggestions on counties to be included under the criteria. Under this criteria, the boundary generally corresponded with the one proposed in the Great Plains Agricultural Council's program for the plains. As to which counties would initially be designated, the group added the element of local interest and initiative. It would be better to get the program off to a good start in counties where farmers were asking for assistance and then expand to the rest of the area.⁴⁴

With many of the details worked out, those who worked on the program anxiously awaited the appropriations hearings. Peterson and Williams testified before the House Committee on Appropriations and requested \$20 million per year. Again they were called upon to explain how the new program differed from the Agricultural Conservation Program. Peterson emphasized the hope that the money spent on GPCP would reduce the amount needed for emergency drought programs. The committee appropriated \$10 million for the year.

In the months following the hearing, the group firmed up the policies and procedures, refined the list of practices, established the percentage of cost-shares for each practice, developed a handbook, and trained the SCS staff in drawing up

contracts. The work unit conservationist was well acquainted with developing conservation farm plans, but the element of contracting was new.

Beginning of GPCP

Berthold Sackman of Stutsman County, North Dakota, signed the first contract on December 19, 1957. The same day, Walter L. Wood and Robert H. Hunt of Gaines County, Texas, signed contracts.⁴⁵ These three and the subsequent contracts were to provide from 50 percent up to 80 percent of the average cost of conservation measures and included a schedule for the coordinated implementation of measures. The plans called for an assortment of complimentary conservation measures to stabilize the farm or ranch in accordance with the owners' objectives.

There were cost-sharing items for establishing vegetation on lands previously cropped and for reseeding range. Irrigation for pasture and forage, fencing, and development of water supplies supported the shift to rangeland and were designed to prevent overgrazing. Conservation measures for cropland included contour stripcropping, terracing, grassed waterways, land levelling, reorganizing irrigation systems, and windbreaks. The terms "permanent" and "enduring" were used to describe the conservation measures. GPCP architects hoped that farmers and ranchers would maintain the measures after the expiration of the contract. The fact that they were willing to pay part of the cost of installation boded well for long-range retention.

Such reluctance as there was on the part of owners centered on the contractual aspects of the program. Farmers had over twenty-five years of experience in dealing with government supervised acreage allotments and commodity price support programs. The notion of entering into a contract with obligations on both sides was a novelty. The work unit conservationists, as they were called in the 1950s, explained the new approach and pointed out the benefits.

Any reluctance to enter into a contract soon withered as farmers and ranchers saw the

benefits neighbors derived from signing up. It was not long before the applications exceeded the amount of money available--a condition that has continued throughout the history of GPCP. By September 1959, twenty months after the first contract was signed, there were 3,142 contracts covering 8,597,385 acres with a federal obligation of \$16,794,041. There were 2,579 applications for assistance in SCS offices throughout the Great Plains states.⁴⁶

Limitation on Irrigation and Contract Size

Despite the impressive start, Williams and Luker found reason to reevaluate some aspects of the guidelines. Some of the early contracts had been larger than anticipated, with a substantial part of the funds going to irrigation. Actually, accelerated land treatment could be carried forward more rapidly under large contracts, but the trend held some dangers for the continuation of the program. With limited funds going into the large contracts, many applications would go unserved. Eventually, there would be criticism that GPCP was only for large farmers and ranchers. Expensive irrigation construction could easily absorb most the money provided in individual contracts. There was a fear that the package of inter-related conservation measures for the whole land unit would be neglected and that critics would regard GPCP as a production, not a conservation program.

Williams and Luker proposed to the state conservationists in the Great Plains states that the amount spent on irrigation in individual contracts be limited to one-fourth of the contract with a \$2,500 maximum. They developed a set of priorities to be used in selecting contracts to fund. Units having difficulty converting from cropland to permanent vegetation; units having wind and water erosion problems on rangeland or cropland suited to continuous cropping; and units having erosion problems requiring cooperative action by several owners would have priority. They further advised that the size of the farm or ranch should not determine the priority of assistance but that "a sufficient number of medium and small farms and ranches should be scheduled to

provide a representative balance in the use of resources."⁴⁷

State conservationists Lyness Lloyd of North Dakota and H. N. "Red" Smith of Texas objected to the percentage limitation on irrigation practices. Lloyd stated that the change would hinder the stabilization of ranches while the conversion to ranching was being made. Irrigation was needed to provide cattle feed and pasture while former cropland was being returned to range.⁴⁸ Smith said the alteration in the program would reduce support for GPCP and eliminate a large part of the state from participation. He wrote, "The principal leadership in the Great Plains portion of this state have a strong interest in irrigation farming....The proposed fund limitation for irrigation practices would particularly eliminate irrigated cropland in this state from participation."⁴⁹ Objections notwithstanding the limitation of cost-sharing on irrigation practices went into effect. A year later on May 29, 1959, SCS placed a \$25,000 limit on individual contracts.⁵⁰

Protecting the Cropland History

The supporters of GPCP managed in 1960 to correct an aspect of the legislation which was viewed as an impediment. Some farmers who were willing to convert cropland to grass or to crops better suited to the land nonetheless wanted to retain the option of keeping the crop allotments and any payments due them. Public Law 1021 had protected the cropland history of the farm for the period of the contract. President Eisenhower signed Public Law 86-793 on September 14, 1960, to protect the cropland history for twice the length of the contract.

Diversity of GPCP Contracts

While the Washington office and state staffs wrestled with administrative and legislative details, significant progress in implementing conservation measures was taking place. GPCP contracts reflected the geographical diversity within the plains, the various types and sizes of agricultural units, and the objectives of individual farmers and ranchers.

D. H. and Charlene Dean of Claunch, New Mexico, made a total conversion from cropland to ranching. To convert 2,000 acres to grazing land, the Deans installed three ponds and three miles of water lines for livestock, six miles of cross fences, and controlled brush on 845 acres.

Rancher-farmers had more of a mixture of conservation measures for cropland and range. Walter Markel of Gray County, Kansas, had an 804 acre farm. He added 1,800 feet of diversions, installed 21,000 feet of terraces, and contour farmed and stubble mulched 231 acres. Thirty-nine acres were furrow seeded. For better grazing distribution he added 330 rods of fences. Markel had belonged to the local soil conservation district since 1949. He was in some ways typical of many who used GPCP to make progress on a farm conservation plan that they had envisioned for years.

GPCP contracts were used near Dumas, Texas, to solve flooding in the town. Ten farmers constructed 22,120 feet of waterways. In the process, 2,560 acres of irrigated cropland were also protected.

In addition to individuals, it was also possible for groups to sign contracts. A dozen FmHA-financed grazing districts in Montana held GPCP contracts in 1968. The contracts called for over 10,000 acres to be seeded and reseeded and for putting up 39,000 rods of fences. The reseeded range provided twenty-five percent more forage by 1968, with other acres remaining to be reseeded under the contracts.⁵¹

The use of a GPCP contract on the Dee Hankins farm in Wichita County, Texas, demonstrated the rehabilitation, both physically and economically, of worn-out land. The 815 acres (665 cropland, 140 acres rangeland 10 acres farmstead) had been sold six times in four years. Much of the farm was waterlogged and denuded because of salt deposits. The plan called for 65 irrigated acres, 267 dryland crop acres, 161 acres of irrigated pasture and 312 acres of rangeland. Concrete irrigation ditches were used for water conservation on the

irrigated part. Two hundred acres of waterlogged and salt denuded land was seeded to sideoats grama and native grasses. The acres planted in coastal Bermuda grass were hayed, grazed and provided strips of sod to sprig other farms. The farm became economically viable and remained so until Hankins sold it for suburban development.⁵²

State Trends in GPCP Contracts

Although there was much diversity of conservation practices established on individual farms and ranches, there were some state and regional trends in the 1960s. Based on the percentage of total expenditures for each practice (1957-1972), North Dakota, South Dakota, Montana, and Nebraska led in establishing permanent vegetation on former cropland. Oklahoma and Texas were by far the leaders in reseeding rangeland. Only in North Dakota was stripcropping significant. That state also led in establishing windbreaks, followed by South Dakota. Leading in percentage expenditures on terracing were Kansas (30%), Nebraska (20%), and Texas (17.5%). New Mexico and Wyoming had the most activity in dam construction for erosion control, and Montana easily spent the most on water-spreading. Land leveling was most prevalent in Colorado and Kansas. Only Montana spent over 10 percent of its money on fences. Controlling invading mesquite and other undesirable shrubs was understandably highest in the two southwestern states, New Mexico and Texas.⁵³

Congress Extends GPCP

The program had become so popular that each year's allocations to states were usually obligated early in the year for contracts that had already been written. As the expiration date of P.L. 1021 approached, farmers, ranchers, conservation district supervisors, and state officials hoped and worked for the extension of the program. All groups had some idea how the program might be improved, but the main objective was to have it extended. Most senators and representatives from the Great Plains states cosponsored the legislation. At the hearing before the House Committee on Agriculture, Congressmen George H. Mahon and

Richard C. White of Texas and Thomas Kleppe and Mark Andrews of North Dakota testified for the extension. Several other congressmen inserted statements into the record. Norman A. Berg, Associate Administrator of SCS, testified for the Department of Agriculture.

Berg could point to 56,601,700 acres covered by 31,122 contracts. Thirty-seven percent of the funds had been spent to establish vegetation or for reseeding. The average contract had been about \$3,500, covering 1,822 acres. Earlier Congressman Richard Crawford had inserted even more impressive information from "Red" Smith of Texas concerning the long-range objective of the program. A survey of the 4,050 expired contracts in Texas determined that 93.3 percent of the conservation measures had been maintained. Many of the 271 owners who had not maintained conservation practices did so in order to participate in commodity allotment and diversion programs.

Along with requesting the extension, Berg supported changes that would confirm the contribution the soil and water conservation districts had been making to GPCP. Farm conservation plans, developed with district assistance, had been used as the basis for contracts. The change in legislation acknowledged this arrangement. Another provision would allow contracts on non-agricultural land that had erosion. Enhancement of fish, wildlife, and recreation in the plains would be eligible for cost-sharing.⁵⁴

At the 1956 hearings, only the National Farmers Union had supported the GPCP. Now the Farm Bureau and National Grange added their support to that of the Union. The National Association of Conservation Districts enthusiastically supported the extension. Lyle Bauer, Area Vice President, spoke for the extension and the provision to define the role of soil and water conservation districts. The House reported out the bill. After a conference to work out some changes suggested by the Senate committee, the legislation was signed on November 18, 1969. Public Law 91-118 extended the program ten years with a ceiling of \$300

million and an annual budget not to exceed \$25 million.

Boundary Extended

The House of Representatives hearings in 1969 created a new "legislative history" that allowed expansion of the exterior boundary. Most of the counties within the original boundary had finally been included. In fact, SCS had already added five outside the boundary. Within a month of the signing of the first contracts, SCS recommended adding an additional 22 counties. Donald Williams explained the situation to Assistant Secretary Peterson. "The interest of local people had not developed sufficiently to include this list of counties at the time the initial list was submitted for consideration July 3, 1957." By the end of 1958, the Secretary had approved another 78 counties.⁵⁵ Thereafter, there was steady growth until there were 417 designated counties on January 1, 1968. State conservationist "Red" Smith proposed in 1963 that the boundary be extended to include the western cross timbers where there had been wind erosion in the 1950s. He made a good case for the needs of the area. Williams responded that the legislative history would not permit such an extension and that, before any extension, the whole boundary should be studied. Furthermore there was already a backlog of applications, and the lower than authorized appropriations created a "need to concentrate the program in the 422 counties within the original approved boundary."⁵⁶ F. A. Mark summed up the feeling of the state conservationists. Unless additional funds could be had, any extension would "play havoc with needs in the existing authorized area."⁵⁷ The National Association of Conservation Districts favored extending the principles of GPCP but favored keeping the original boundary. The *Great Plains News* informed district members that the original boundary should probably have been drawn farther west in the northern plains and farther east in the southern plains. They asked rhetorically, "once the boundary is changed where can the stopping point be?"⁵⁸ With the new authority provided in the GPCP extension, the number expanded from 424 in January 1970 to 469 counties in 1972. The number

remained there until Public Law 92-263, signed on June 6, 1980, extended GPCP for another ten years. Another 49 counties then entered the program, bringing the total to 518.⁵⁹

Contract Size Increased

The matter of the limitations on contract size and irrigation costs have continually been discussed throughout the life of GPCP. On one side have been state and local people who favored an increase. But the administrators of the program have had to be attentive to criticism during the 1960s of large payments to individual farmers. The differences in the conservation program and its long-term goal and in commodity programs has not always been obvious to those unfamiliar with the specifics of the programs. The fact that plains farms and ranches were, of necessity, larger than those in humid areas has also led to misunderstanding. A group of state officials and other GPCP leaders suggested in 1975 that the contract limitation be raised to \$40,000 and irrigation practices to \$7,500. There was little consensus among the state conservationists responding to the proposal. Some wanted the increase; some did not. Some said that the change would neither hinder nor help GPCP. Interestingly, the attitude in Texas had changed. Edward Thomas, state conservationist, wrote that "some restraint is needed to keep the use of irrigation practices compatible with the legislative intent of the program."⁶⁰ The limitation remained in effect until Norman Berg, Chief of SCS, raised the limits to \$35,000 total and \$10,000 for irrigation in November 1980. By then, inflation had more than negated any effect the change would have had on the uniqueness of the program.

Special Practices

Some of the toughest administrative decisions have concerned approving "special practices." These are designed to allow flexibility for state and regional problems for which the standard GPCP cost-share measures are not adequate. Usually the requests are for sound conservation initiatives, but, nonetheless, are recurring, annual practices which do not meet the

criteria of being "enduring." Requests to cost-share for stubble mulching and planned grazing systems have been denied. Approval has been given to the construction of stock trails for livestock distribution, initial planting of tall wheatgrass for wind erosion control, and drip irrigation to get windbreaks established. Recently Norman Berg, Chief of SCS, approved conservation tillage as a special practice.⁶¹ Considering the durability of farm machinery and the initial investment required, it would seem to fit into the "enduring" category.

Special Areas

The success and popularity of GPCP have been such that it inspired suggestions that other sections of the United States could benefit from similar programs. Programs for other specifically designated areas have not succeeded in Congress. The problem of wind erosion may actually have been a benefit in getting legislation enacted for the Great Plains. The dust storms that blew over cities in the 1930s and 1950s awakened urban residents to the problem in the plains and created a feeling of empathy. The deterioration of resources in other areas has not been as visible to persons outside the immediate area. Thus, these problems have not received similar national attention. But there has been one significant development. The Agriculture and Food Act of 1981, as reported out by the committees, included a special areas conservation program to "identify and correct erosion-related or irrigation water management" problems. If the law is enacted, the Secretary of Agriculture can provide technical assistance and share the cost of conservation measures. Under this program, the areas would not be designated in the legislation. The Secretary would have the discretion of selecting areas to participate.⁶² It need hardly be noted that the record of GPCP convinced senators and congressmen of the value of a similar program for their states.

Other USDA Programs

Throughout the life of GPCP, there have been suggestions and attempts to merge GPCP with other cost-sharing programs. The argument that has spared GPCP from merger or elimination has been SCS's ability

to demonstrate the necessity of linking cost-sharing, technical assistance, and good farm and ranch management to attack a special problem in a special area.

Various cost-sharing and loan programs administered by different agencies need not overlap or create rivalries to the detriment of the conservation effort. During the GPCP Inter-agency Group meetings, the Farmers Home Administration offered to adjust its loan procedures to fit GPCP. This adjustment made it possible to advance FmHA loans in consecutive years to owners and, thereby to assist in carrying out the conservation plan under GPCP. The eligibility of GPCP participants for conservation reserve payments under the now expired soil bank, the long-term agreements, and ACP payments administered by the Agricultural Stabilization and Conservation Service has varied through the past twenty-five years. Cost-sharing funds under ACP could contribute to achieving conservation farming and ranching. However, the Agricultural Stabilization and Conservation Service (ASCS) ruled that after January 1, 1979, participants in GPCP would not be eligible for the ACP cost-sharing program.⁶³ Prior to that time the ability and willingness of the SCS district conservationist and the FmHA and ASCS representatives to develop a working relationship has been crucial to coordinating programs for the best effect.

The matter of meshing acreage allotments and the commodity price supports that go with them has been of greater concern to those who framed or directed GPCP. Generally, these programs were regarded as being incompatible with the objectives of GPCP because these programs encouraged farmers to plant land to crops that were better suited by capability to grassland or less erosion inducing crops.

In assessing the impact of acreage allotments, one must consider the total effect of farm prices on conservation. The experience of the late 1920s and early 1930s is illustrative. When farmers who have mortgage payments to meet are faced with declining commodity prices or prices that do not keep

pace with inflation, the tendency is to expand production to reap an ever diminishing profit on each acre--regardless of the capability of the land. Without endorsing a particular commodity price system, it should be recognized that a healthy and stable agricultural economy is conducive, even necessary, to good conservation farming and ranching.

The Part of GPCP in SCS History

The Great Plains Conservation Program has been significant in the development of SCS and can be regarded as a third era in its history. The agency began operations through demonstration projects and provided WPA and CCC labor, seed, plants, equipment, and other supplies. The Service then shifted to working through conservation districts. The labor, equipment, and supplies ceased being available with the onset of World War II. The conservation effort then rested on the ability of conservation district supervisors and SCS conservationists to convince land owners of the benefits of conservation. The Small Watershed Act (1954) and GPCP provided SCS with the inducement of cost-sharing to accelerate the conservation work with local governing bodies and individuals. The lessons learned on contracting and cost-sharing in GPCP have been the model used for land treatment in Small Watershed Projects, the Resource, Conservation and Development Program, the Rural Abandoned Mine Program, and the Rural Clean Water Program.

GPCP also changed the role of the individual SCS conservationist to a limited extent. The GPCP contract was much like a good conservation farm plan, only more detailed. Under the contractual arrangement, he had to certify that both parties, government and individual, met their obligations. Insuring compliance with some aspects of a contract, such as preventing newly seeded range from being grazed too soon, was a new task for the conservationist. These new management roles brought a closer working relationship between the conservationist and the farmer that eventually benefited the land. Not only did farmers and ranchers learn better farm and

ranch management techniques, but also the expertise of the conservationist increased. Improved stewardship of land has resulted.

The contract between the individual and the government has been the aspect of GPCP that made it unique. SCS technicians annually reviewed contracts to insure that cost-sharing monies were spent and practices maintained as specified in the contract. Although breaches of contracts were the exception, SCS in some cases cancelled contracts and collected payments made to violators. Such vigilance, combined with a willingness to make changes in contracts when justified, early established the reputation of GPCP as a unique conservation program.⁶⁴

A Unique Conservation Program

The burden of keeping GPCP attuned to its objective also fell on the administrators in the Washington office. During the last twenty-five years, national agricultural policy has fluctuated between using various programs to promote production of commodities and de-emphasizing production programs to reduce surplus commodities. It is usually expected that all agricultural programs be adjusted to the goal. GPCP has had to operate in the varying climate of national agricultural policy and yet retain its objective. As SCS and the National Association of Conservation Districts were preparing in 1968 to ask for an extension of the program, William Vaught, supervisor of GPCP operations, spoke to the Great Plains conservation district leaders about retaining the uniqueness of GPCP.

Don Williams, in maintaining a personal interest in the program, has held steadfast over the years in his efforts to keep faith with Congress. And I might add that it has not been an easy thing to do. He has been under constant pressure to relax some of the restrictions....as we move into the process of attempting once again to solicit the support of Congress...we can be

thankful for his determination. I think we have kept the faith with Congress and its intent to provide a unique program-- regional in nature--to help us solve those tough wind erosion problems.⁶⁵

The succeeding administrators, Kenneth Grant and R. M. Davis, kept the program on course. The present Chief, Norman Berg, "grew up with the program" and knows the elements that have to be retained to keep it unique. The administrators and chief have relied on specialists to advise and carry out the daily operations of GPCP. Cyril Luker started the program as head of the Inter-agency Group and was followed by Norman A. Berg, William L. Vaught, John W. Arnn, Julius H. Mai, John J. Eckes, and Guy D. McClaskey.

Impact of GPCP

Of necessity, the success of the program must be judged in terms of the land and its condition, compared to the 1950s. What happened to the land? SCS estimated in 1956 that between 11 and 14 million acres were in cultivation in the plains that should be in grass. SCS had to estimate the figure because soil surveys and land capability studies had not been completed. Before the enactment of P.L. 1021, the Service increased the hiring of soil scientists for surveying the plains states. Furthermore, the state conservation district associations concurred in plans to shift experienced soil scientists from the prairie and mountain sections to the plains to accelerate the soil surveys.⁶⁶ By September 30, 1980, 2,869,062 acres of former cropland had been converted to grassland. An undetermined percentage of this has reverted to crops since the expiration of contracts. Developments in conservation tillage and drought resistant crops have reduced the hazards of cropping marginal lands. With the need to spread the use of conservation tillage, it is desirable not to present it as the new "panacea" that makes complementary conservation measures unnecessary. Drought resistant crops have been of great benefit in controlling wind erosion.

However, if the drought is so prolonged on some sandy land that spring germination is impossible, it will make little difference whether the seeds are of drought resistant varieties or not.

Other questions surround the success of GPCP. Did irrigation for pastures and for forage make cattle raising possible for ranchers who did not own enough land for dryland ranching? Have we seen the last of the wild fluctuations in the number of cattle on the range during droughts and good years? Has the program halted the cycles of migration out of the plains during droughts and land speculation in the good years that resulted in each succeeding generation repeating the mistakes of the past? Were farmers and ranchers better able to withstand droughts? Studies in North Dakota and South Dakota indicated that this was the case. In short, did GPCP bring about the agricultural and resource stability promised in 1956? A study of these questions and others would be of interest on the county, state, and regional level. All of them may not be answerable by quantification, or by the numbers. Many who participated in GPCP as farmers, ranchers, district conservationists, or conservation district supervisors believe that the judgment is in the affirmative, or partially so, on many questions.

Donald Williams recently summed up his dual feelings of success and frustration over the conservation movement in general. "It seemed like we would get to a certain point and then something would happen. The war would break out. The price of wheat would go up, and the farmers would go out and plow up the land again. So there you are; you had to back up and start over again in a way. But we never went clear back to where we were before. We had a better starting point so that we were able to get ahead."⁶⁷ No doubt many regard GPCP as a significant development in the push to "get ahead" with conservation work.

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New Authorities and New Roles: SCS and the 1985 Farm Bill

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Since passage of the Soil Conservation Act in 1935, the U.S. government has tried in various ways to promote soil conservation. Federal policy-makers have promoted research; created an agency of technically trained people to carry soil conservation information to the farming community; encouraged the growth of conservation districts; shared in the cost of establishing soil conservation practices on farms and ranches; and tried innovative approaches, including long-term contracts, such as those in the Great Plains Conservation Program.

Title XII, Conservation, of the Food Security Act of 1985 (Public Law 99198), added a new array of soil conservation provisions designed to link soil conservation to eligibility for other U.S. Department of Agriculture (USDA) Programs. The framers of the various clauses especially wanted to eliminate the possibility that commodity price support programs encouraged poor soil conservation practices or the loss of wetlands.

The Environmental Movement Extended

Inclusion of provisions in the 1985 farm bill to reduce soil erosion can be seen as an extension of the environmental movement. Traditional soil conservation groups, the National Association of Conservation Districts (NACD) and the Soil and Water Conservation Society (SWCS); USDA officials who were favorable to the concept; members of Congress and their staffs; and academics all contributed. But major changes in legislation require active lobbying from some groups. The environmental groups' new emphasis on soil erosion was not a turning of attention away from earlier issues, such as preserving woodland, wild rivers, wetlands, and reducing pollutants in air and water. Rather, it represented a wider view encompassing agricultural land.

Many individuals and organizations in the environmental movement who lobbied for the act are now monitoring the progress. They and the older soil conservation groups--NACD and SWCS--came to be known as the "conservation coalition."

While soil erosion would undoubtedly have attracted the attention of environmental groups eventually, events in the U.S. farm community accelerated the process. In the early 1970s, only a couple of years after passage of the National Environmental Policy Act, events brought soil erosion to the attention of the public. After several decades of U.S. agricultural surpluses, grain prices began rising in the early 1970s as the Soviet Union purchased large quantities. Grain exports in 1973 were double those in 1972. Prices of wheat, soybeans, and corn in 1974 were 208 percent, 133 percent, and 128 percent, respectively, of what they were in 1970 (2). In response, USDA eased production controls, including the requirement that "set-aside" be held out of production as a condition of participation in price-support programs. Secretary of Agriculture Earl L. Butz proclaimed, "For the first time in many years the American farmer is free to produce as much as he can" (5).

USDA encouraged production in the belief that increased foreign demand was a long-term trend that might well make price supports and production controls unnecessary. Early on, the rush to produce also threatened some long-established conservation measures. By late 1973, according to Butz, USDA was receiving reports of the "heedlessness of some producers." He wrote in the *Journal of Soil and Water Conservation* that reports from the northern Great Plains told of "plowing up grassed waterways, shallow hilltops, and steep

slopes...and tearing out windbreaks that took many years to establish." From the southern Great Plains, there were "reports of speculators breaking ground and preparing to plant cotton on thousands of acres of native rangeland that have never been used for crops before" (5). Farmers converting to irrigation did remove wide windbreaks, but, later, an SCS survey found that new plantings of narrower windbreaks had more than offset windbreak losses in most Great Plains states during the period 1970 to 1975 (28). Whatever the actual magnitude of the loss, aerial views of the shifts from some older, wide windbreaks to irrigation systems vividly illustrated what took place.

An SCS survey of cropland expansion in July 1974 found that farmers had converted 3.6 million acres of grassland, 400,000 acres of woodland, and 4.9 million acres of idle land to cropland. About 4 million of the 4.9 million converted acres had inadequate erosion control. At the time, public attention centered on the Great Plains, but land conversions took place in all regions. The eroding land was scattered throughout the United States, with the heaviest concentrations in the Corn Belt, western Great Plains, southern Coastal Plain, eastern Piedmont and Coastal Plain, and the southern High Plains (15). During the early 1980s, the prospects that domestic and export demands might absorb all U.S. production would prove illusory as good crop years worldwide and loss of markets, in part because of crop embargoes, took a toll. But the trend that began in 1973 continued. Food and feed grains were planted on 294 million acres in 1972, 318 million acres in 1973, 326 million acres in 1974, and 363 million acres in 1981 (41). Thereafter, cropland devoted to food and feed grains went into a slight decline.

Total land in crops had declined in the 1950s and 1960s. The land brought into production during the 1970s and early 1980s actually restored the U.S. cropland base to its level immediately following World War II. It was not the same cropland in all cases because some cropland was converted to other uses. The expansion

involved some land not used for production over the past 40 or so years (16).

The expansion of acreage in grain crops also turned people's attention to soil erosion. Questions arose about the wisdom of expanding grain production for export, hoping to reduce the balance of payments, but at the same time causing more soil erosion as a consequence. Was this a case of mortgaging the future? While some of the attention focused on trade and agricultural production policies, the effectiveness of soil conservation programs also came under scrutiny--both the technical assistance activities of SCS and the financial assistance programs administered by the Agricultural Stabilization and Conservation Service (ASCS). In the late 1970s the General Accounting Office (GAO) issued several reports on conservation activities, including *To Protect Tomorrow's Food Supply, Soil Conservation Needs Priority Attention*, which reviewed the Agricultural Conservation Program (ACP). ACP provided cost-sharing money for soil conservation practices with farmers. Critics of the program believed much of the cost-share money was spent not on soil conserving practices but on practices that enhanced production of crops that were already in surplus and costing the government through price support payments. A related criticism was that the more prosperous farmers, often owners of the best land, were in a better position to take advantage of cost-sharing; thus, much of the money was spent on less erodible land rather than on the land most at risk. Finally, program reviewers believed that both the ACP funds and SCS technical assistance should be targeted to the most critical erosion areas, rather than being distributed evenly across the country (11, 25). Some of the criticism was ahistorical, taking the view that little had been done in the way of conservation in the past. That view gave little recognition to shifting gains and losses over time in the soil conservation movement.

Congress' most significant act in response to the concern over soil erosion, however, was passage of the Soil and Water Resources Conservation Act of 1977 (RCA). The RCA

process, as it came to be called, required the USDA to report to Congress on four interrelated topics: the status and condition of America's natural resource base, the present and likely future demands on these resources, the programs needed to protect and enhance these resources for sustained use, and any new approaches that may be needed (12). Government observers in the United States often scoffed at the prospect of another study as a way of evading a difficult issue. In retrospect, the RCA seems to have become one of the instrumental factors in passage of the conservation provisions of the 1985 farm bill. Previous studies of conservation needs by SCS had concentrated on identifying conservation problem areas and needed conservation work. The studies started under RCA concentrated on quantifying soil erosion. Earlier, in the Rural Development Act of 1972, Congress provided for a continuing land inventory and monitoring program that collected information for the RCA studies. The National Resources Inventories (NRI), which became linked to the RCA process, had compiled information on land cover, small water areas, flood-prone areas, irrigated land, conservation needs for various land uses, water erosion, wind erosion, prime farmland, potential for new cropland, land capability classification, and wetlands. The availability of this information, as well as the public comment process established under RCA, provided a forum for numerous individuals, organizations, other government agencies, and academics to express their opinions. The inventories supplied the raw material of analysis and debate. Conferences and special volumes flourished as soil erosion became one of the main environmental issues in the late 1970s and early 1980s (37, 38).

Austerity Begets Targeting

Under RCA, USDA analyzed the data and submitted a program of recommendations to Congress. It fell to the incoming USDA administration in 1981 to complete the proposed program and forward it to Congress. The formulation of the program and the discussions of legislative initiatives took place in a climate in which there would be

little additional money for soil conservation; rather, there might be less. As Congress, USDA agencies, and public interest groups debated the final RCA report and recommendations, Congress completed the 1981 farm bill (12). The Agriculture and Food Act of 1981 (Public Law 97-88) included several major conservation provisions.

The Farmland Protection Policy Act sought to minimize "the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses." Throughout much of the 1960s and 1970s, the continuing loss of fertile and generally fairly level land, especially "prime farmland," to development meant that the major soil conservation topic was prime farmland and planning development in agricultural areas, rather than soil erosion. The National Agricultural Lands Study, an interagency-sponsored study of the problems and issues, was completed in early 1981 (9, 29). Another provision of the act, the Conservation Loan Program, made it possible for farmers to borrow from the Commodity Credit Corporation to install conservation practices. The Matching Grants for Conservation Activities would go to local units of government through state soil conservation agencies. The RCA report submitted to Congress had included matching grants. The Special Areas Conservation Program would accelerate technical and financial assistance to farmers and ranchers in areas with severe soil erosion or other resource problems. USDA would contract with farmers or ranchers to carry out conservation. SCS, in the Great Plains Conservation Program, had developed long-term contracts with farmers covering the whole farm or ranch that served as a model for the special areas program. The information gathered in the RCA process to identify soil erosion problem areas would be used to identify special areas. USDA did not include special areas in the report submitted to Congress, but Congress added a section on it (19, 30).

The administration did not request additional funds for the matching grants and special areas. The RCA recommendations, however, included a proposal on

"targeting" as another way to direct funds and people to problem areas. USDA did not have additional funds for special areas, but did start a targeting program. The action came under existing law and did not require legislative authority. The RCA report to Congress recommended that soil conservation programs be moved away from the traditional first-come, first-served allocation and shifted to designated resource problem areas where excessive soil erosion, water shortages, flooding, or other problems threatened long-term agricultural productivity. SCS and ASCS were to devote an additional five percent of their technical and financial assistance to the targeted areas until 25 percent of their funds were going to targeted areas (39, 40). From its national office, SCS designated 10 targeted areas in 1982. In 1983 the states submitted proposals for additional targeted areas.

In 1983 SCS undertook another program to shift resources to problem areas. The areas of the country that created soil conservation districts early on had laid claim to SCS people and funds because the agency worked through districts. But years later, in the 1980s, the areas with the greatest concentration of SCS personnel did not tally with the greatest erosion problem areas being identified in studies. SCS began adjusting the formulas for allocating funds and personnel to states by giving greater weight to resource problems. In cases where the one or two people stationed by SCS at the district office constituted the major part of the operation, the changes seemed ominous. Also, districts tended to see themselves as having a broader natural resource role than just soil conservation. At any rate, when Congress heard from the districts, the issues of targeting and adjusting the formula for allocating monies to states had become inseparable. Congress in 1984 froze the adjustments (23, 24, 34). Under the conservation provisions of the Food Security Act of 1985, the obligation to make highly erodible land and wetland determinations and to help farmers with conservation plans caused SCS to put people and resources where they were most needed.

A Changing Climate

Meanwhile, other events shaped the legislative climate in which the conservation sections of the 1985 farm bill would be considered. The Great Plains, scene of the renowned Dust Bowl of the 1930s, provided some of the impetus. Between 1977 and 1982 wheat farmers planted large tracts of grassland in Montana (1.8 million acres), South Dakota (750,000 acres), and Colorado (572,000 acres). In some places the resulting wind erosion proved a nuisance to neighboring farmers as windblown dust covered irrigated pasture and piled up against fences. Some vocal and effective local landowners wanted action, especially Edith Steiger Phillips of Keota, Colorado. She persuaded county commissioners in Weld County to take action against out-of-state interests who plowed up adjacent grassland for wheat production (33). She and others created sufficient sentiment for action that Colorado Senator William Armstrong introduced a bill (S. 1825) in 1981 that would deny USDA program benefits, including price support payments, to farmers who converted fragile land to cropland. The bill applied only to land west of the 100 meridian that had not been in crops during the preceding 10 years. Owners would not be eligible for price supports on that land unless they entered into a long-term agreement with the secretary of agriculture to protect it with soil conservation practices. The bugabear of outside investors looking for tax breaks and a quick return on investment usually showed up in discussions of the Great Plains and soil conservation. Certainly, there were some large operations, but surveys conducted after the outcry indicated that Coloradans had owned most of the converted land for some time before planting it to small grains. They responded, it seems, to the prospects of more profit in grain production than from rangeland (18, 20).

The Armstrong bill, dubbed the "Sodbuster Bill," did not become law in its first version, but it did occasion congressional hearings and furthered discussion. The Colorado Cattlemen's Association, the American Farm Bureau Federation, and traditional soil conservation and environmental groups testified in favor of the bill.

The grassroots actions to support legislation gave greater credence to Washington-based pressure for linking soil conservation and commodity programs. In addition to Weld County, other counties in Colorado and Petroleum County in Montana passed ordinances to try to prevent plowing of native grassland (20, 26).

The bill provided a forum for the conservation groups to promote a broader conservation section. NACD, for example, testified that denial of participation in USDA programs because of sodbusting should not be limited to price-support programs. Other suggestions further defined the marginal land in terms of land capability classification and set in process an attempt to define fragile land and, eventually, highly erodible land (17).

In 1981 Senator Armstrong incorporated many of these suggestions in an amendment, "Agricultural Commodity Production on Highly Erodible Land," to an agricultural appropriations act. It passed the Senate but was eliminated in the conference committee (35). In the next congressional session he introduced S. 663, "Prohibition of Incentive Payments for Crops Produced on Highly Erodible Land." The bill still pertained to sodbusting, or land that had not been cultivated during the past 10 years. The sodbuster bill drew wide support from such organizations as the American Farm Bureau Federation and the National Farmers Union. Peter C. Myers, chief of SCS, spoke for the department in support of the bill (36).

During 1983 there were additional hearings on the sodbuster and other soil conservation initiatives that eventually came to be included in the farm bill. While USDA supported the sodbuster provisions, the department consistently held that soil conservation initiatives in other bills introduced in 1983 and 1984, such as a conservation reserve program or a certified voluntary set-aside, should await consideration of the 1985 farm bill (32).

During the interim period between the 1981 and 1985 farm bills, the PIK (Payment-in-

Kind) program provided an example of how farm programs could deflect conservation aims. USDA needed to reduce crop surpluses to boost prices and hopefully reduce the cost of price support programs. Out of several options, USDA officials in the early 1980s selected PIK, just one of several tools at their disposal that could be used in price support programs. It offered the possibility of reducing crop surpluses, which were depressing prices, by paying farmers in-kind, with farm commodities, to reduce their planted acreage. Proponents of tying conservation to the farm programs often held that commodity programs encouraged farmers to push their cropland base to the limit in order to be able to participate in annual set-aside programs. Conversely, farmers who voluntarily put erodible land into pasture, forests, or cover crops found that such land was not eligible for programs like PIK. The voluntary set-aside, a key element in some bills introduced in Congress, sought to address this problem. Reports that the "conservation-use acres" under PIK achieved less for conservation than projected also highlighted the problems of programs in which conservation was a secondary benefit (3, 9, 22).

Another Opportunity

The 1985 farm bill provided the next opportunity to incorporate conservation into agricultural programs. Developments in the farm economy also made for some significant changes. U.S. farmers had lost significantly in export markets. During the embargoes on grain to the Soviet Union, other countries increased production and exports. The rising value of the dollar further weakened the American farmer's position as an exporter. Farmers were caught in the price-cost squeeze, especially those who had bought land and equipment in the 1970s and who were faced with long-term, high interest loans on land and equipment whose value had declined. The percentage drop in farmland values in the five years after 1981 was the greatest for any five-year period since the Civil War (21). Many farmers had little borrowing equity for operating loans. In such a climate the security of price support programs became crucial. With the dramatic increase

in the cost of commodity programs (\$17.7 billion in fiscal year 1985), the administration began looking for ways to reduce costs in the future. Not only were individual farmers in trouble, but the whole farm credit system administered by USDA and the Farm Credit Administration was tottering. All these matters required attention from Congress (4).

Urban interests had for some time bargained with farm state representatives in giving their support to agricultural programs. In some cases, the legislation benefited both sides, as in the school lunch and food stamp programs. In what turned out to be a very prophetic analysis, Don Paarlberg, an agricultural economist who served in the Eisenhower, Nixon, and Ford administrations, reasoned at the beginning of the Reagan years that the food programs were popular enough to stand on their own. The newer scenario was more likely to be urban congressmen voting for farm legislation if that legislation included performance in soil conservation provisions (31). The Paarlberg prophecy came to pass in the 1985 farm bill. The conservation coalition, representing the traditional environmental groups with urban support and the primary soil conservation organizations, mobilized their forces for a strong conservation section.

The conservation provisions were tied to USDA programs. Any sort of government intervention has never been popular with the farming community. But the proponents had several ready arguments. Farmers did not have to participate in programs; so conservation seemed an equitable trade for public taxpayer support of farm programs. Also, experience and years of analysis of USDA programs pointed out how conservation programs and price support programs worked at cross-purposes. The conservation programs had encouraged voluntary dedication of land to its best uses, frequently to less intensive uses, such as pasture, hay, and rangeland. Another element of public support brought about adjustments through rental or contracting arrangements. But the price support programs sent the message to farmers that they should maintain their cropland base in order to participate to the

maximum in price support programs. There was less incentive to adjust production to price or to make the land use changes that matched land to its best uses. In a sense, farmers who voluntarily retired land to less intensive uses were penalized because they reduced the size of their potential payments under commodity programs.

The framers of the conservation sections in the 1985 farm bill had years of experience and observation and studies to rely on in writing the provisions. There had been congressional hearings on various bills after 1981. Many of the provisions that eventually appeared in the bill were laid out earlier in a report, "Soil Conservation in America: What Do We Have to Lose?", issued by the American Farmland Trust (1). Coalition members presented extensive testimony early in 1985 before the Senate Agriculture Committee. Some of the more active participants included Ken Cook, now of The Conservation Foundation, Bob Gray of the American Farmland Trust, Norm Berg, Washington representative for SWCS, Maureen Hinkle of the National Audubon Society, Neil Sampson of the American Forestry Association, Charlie Boothby of NACD, and Justin Ward of the Natural Resources Defense Council. In mid-March Sierra Club lobbyists Dan Weiss and Rose McCullough and club members visited hundreds of members of Congress to press their conservation agenda. The group had also worked with USDA officials. The movement to link conservation with commodity programs benefitted from the presence of two strong conservation advocates in the department in John Block, secretary of agriculture, and Peter Myers, chief of SCS and, later, assistant secretary for natural resources and the environment. Block had earlier announced that he believed use of soil-conserving practices was a reasonable request to make of farmers receiving USDA assistance. Myers served as the liaison to Congress and reported weekly to John Block. Wayne Chapman of SCS, who was serving as a legislative fellow with the House Committee on Agriculture, provided communication between the Congress and the department. Numerous individuals in SCS and other USDA agencies provided

analysis on various provisions included in the bill (6, 10).

Under the support and chairmanship of Congressman Ed Jones of Tennessee, the Subcommittee on Conservation, Credit, and Rural Development of the House Committee on Agriculture had long been the incubator for new soil conservation legislation, including many forerunners of the conservation provisions in the 1985 farm bill. During April 1985, Senator Richard Lugar of Indiana chaired sessions of the Senate Committee on Agriculture, Nutrition, and Forestry on the reauthorization of the 1981 farm bill. At these meetings the conservation coalition laid out its agenda.

The Matter of Implementation

As with many laws, it was not the framing of the law but the writing of rules and guidelines for implementation that has created the most debate and disagreement. SWCS sponsored a special conference, "American Agriculture at the Crossroads," in the fall of 1987 to discuss implementation issues (27). There have been some disagreements over how rigorously the Conservation Reserve Program (CRP) should be restricted to the most highly erodible land; the uses of the CRP land, especially for grazing and hay; the treatment of cover crops, such as alfalfa in a crop rotation, under conservation compliance; the definitions of wetlands for swampbuster; and, finally, the implementation of conservation compliance.

Probably the most difficult jobs in implementing the conservation provisions have been those of the SCS soil conservationists in field offices who work directly with farmers. Excluding the national office, four technical centers, and the state offices, there are about 7,000 SCS employees in the field. SCS estimated that work on the conservation provisions would require about 70 percent of that staff's time until 1995. To date, much of the time has gone to making highly erodible soil determinations; updating field office technical guides with conservation systems for that particular region, its soils and traditional cropping

patterns, and writing conservation plans. A field is considered highly erodible if one-third of its soil map units, or as much as 50 acres in it, are highly erodible. About 120 million acres on 1.7 million out of the 2.3 million farms in the United States are affected. SCS concentrated first on conservation compliance and is now turning its attention to making wetland determinations. Of the estimated 70 million acres of wetlands, about 5 million acres have potential for conversion to cropland and thus are affected.

Not only has there been a high work load, but there has also been the stress associated with rendering unpopular options. Conservation compliance has resulted in a role change for soil conservationists. They can still be, as they have been in the past, friends with farmers. But at times they may need to make determinations on highly erodible land or wetlands that are unwelcomed. The ability to work with the farmer toward a mutually acceptable solution is a challenge for soil conservationists. Because of this need, states have begun to focus more of their training for field office employees on stress management, conflict resolution, and public relations skills to prepare them to deal more effectively with the publics that they serve.

The Food Security Act also has some implications for the work of SCS. Operating soil conservation programs under the conservation provisions will lead to greater integration of economic analysis into farm conservation planning and the design of conservation practices. The process has already started. Researchers in experiment stations have, from the early days of the soil conservation movement, undertaken economic analysis of soil conservation programs to assist farmers and to promote the programs. At other times, researchers have tried to analyze motivation to reveal why farmers adopt conservation practices. Will farmers adopt conservation practices only if it can be demonstrated conclusively that they are profitable? Are farmers significantly motivated to adopt conservation practices by the conservation ethic? What needs, other than economic viability, do

farmers have that may provide the incentive for conservation? Future analyses of the response to conservation compliance legislation may provide some answers to these questions. Conservation compliance focuses more attention, both on the part of the farmer and SCS, on the benefits, costs, and motivations involved in soil conservation.

Also, the economic aspect should influence the range of options available to farmers. That is to say, it should influence the design of conservation systems. One criticism of soil conservation practices has been that too often practices have not been designed for small farmers with limited resources. This, of course, is not a new concern. When speaking of working with minority groups, Kenneth E. Grant, then administrator of SCS, said in 1972, "We may have to invent ways to install practices that do not require expensive specialized equipment or costly materials" (14). The number of minority farmers has continued to decrease drastically, but there have been significant increases in the number of small and part-time farmers. With conservation compliance, the need exists to design systems and practices for limited-resource farmers and part-time farmers that are economically feasible. Economists should be involved, along with the engineers, agronomists, and earth scientists, in working out a whole range of options with varying degrees of effectiveness and cost efficiency.

Conservation compliance also provides an opportunity to reduce the gap between conservation measures planned and conservation measures applied. Of all the people SCS assisted with conservation plans in 1968, only 65 percent actually applied at least one conservation practice. A few years later, the figure had dropped to under 60 percent, and, indeed, 65 percent was viewed as a reasonable goal (14).

A little historical perspective on this matter is in order. When Hugh Hammond Bennett was successful in securing emergency relief administration funds to conduct demonstration projects in 1933, there were other

competitors for conservation funds. Bennett successfully argued against an emergency terracing program and made the case that there was more to soil conservation than terracing. When the Soil Erosion Service started contacting the farmers in demonstration project areas, they worked out conservation plans for the whole farm. The concept was and is good. But the agency has still had to struggle with a couple of problems. First, in judging progress in soil conservation on the land or the employee's effectiveness, completion of plans could too readily be confused with accomplishments. Conservation compliance has changed the focus. The farmer is more likely to look at his or her operation as a whole when making decisions about the crop rotations, cover crops, and other aspects of a conservation system. Planning and application of conservation practices should correlate more closely than ever before.

The Food Security Act should also lead to greater coordination of SCS recommendations to farmers with advice to the farmers from other federal agencies and the state extension services. Again, the historical reasons are illustrative. The early proponents of SCS argued successfully that attention to soil conservation from USDA was lagging and that a separate agency was appropriate. Opponents of a service devoted solely to soil conservation held that soil conservation was only one aspect of farm management. Any assistance to farmers in soil conservation should be delivered along with other assistance in animal or crop production and the other facets of farm management. But SCS has maintained its independence. In delineating responsibilities within USDA to avoid conflicts soil conservation has been treated as a separate component of farm management. Admittedly, the boundaries were blurred. With the requirements of conservation compliance, farmers are likely to insist that USDA speak with one voice and that farmers receive information on soil conservation that is coordinated with advice on other farm matters that they received from other agencies.

The Food Security Act emphasis on linking soil conservation to other assistance available from USDA and trying to add some consistency to program objectives is only the latest of numerous devices tried. We--society--have relied on research, science, technology, and education in delivering information on soil conservation directly to farmers. As a society we have helped pay for conservation through cost-sharing. Through purchase or rental, we have tried to retire or change the uses of erodible land. Appeals to farmers have varied from stewardship to profitability as a reason for soil conservation. None of these ways to promote soil conservation proved a panacea, but all had and have merit. The results of the conservation provisions have not run their course. In our complex society we dare not hope for perfection. But we can recognize the legislation as a significant addition to the quest and our work toward an enduring agriculture.

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Agriculture That Fits the Environment: A Look Backward and Forward

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The search continues for an agriculture that fits the land as well as maintains it. Public opinion polls increasingly identify the environment as a major public concern.

Through legislation passed by Congress and signed by the President, this concern has been translated into action affecting numerous aspects of life in the United States--including life on the farm. Within the past decade, laws such as the Food Security Act of 1985, the Clean Water Act amendments of 1987, and the Conservation Program Improvements Act of 1990 (part of the 1990 farm bill) called for modifications in programs and development of new ones in USDA. The intent of the new laws is to ensure that USDA's programs are compatible with our environmental objectives.

But, if we are to maintain environmental quality, we must have a mechanism and a source of knowledge to turn legislative intent into action on the land. Fortunately for the American public and American farmers, earlier concerns over soil and water conservation led to a system that helps producers farm efficiently while still meeting environmental objectives. Without the scientific research, the practical experience, and the development of institutions at the local, State, and Federal level, public concerns about the environment would be far more difficult to translate into action at the farm level.

Looking Backward

New crops, new climates, virgin soils, and new social and governmental systems

influenced agriculture. Conversely, agriculture influenced the environment. It wasn't long before perceptive people could recognize that the meshing of agriculture with the environment of North America was not completely harmonious.

During the 18th and 19th centuries, Americans borrowed and developed methods for soil conservation. Growing concerns in the 20th century led to the development of Government programs to help farmers use the soil while at the same time reducing erosion. Starting in 1929, USDA focused on research, setting up experiment stations to test methods of soil conservation.

The Soil Conservation Act of 1935 established the Soil Conservation Service (SCS) to work with farmers. With the encouragement of President Franklin D. Roosevelt and USDA, States passed laws to allow farmers to create conservation districts. Since 1937, farmers, ranchers, and other landowners have created nearly 3,000 conservation districts and, all along, the SCS has had trained soil conservationists working with these local conservation districts and the farmers. It is this system--the experience, knowledge of land and resources, familiarity with the local landowners, and governmental institutions--that makes it possible to shape on-farm management to meet national goals.

At the same time SCS was developing expertise in soil conservation, some developments in agriculture did not bode well

for conservation. Part of the problem was the increasing specialization of agriculture. The mixture of cropland and livestock had allowed for many conservation techniques, such as using the steeper lands for pasture and hay, rotating crops, and interspersing close-growing crops into strip-cropping to retard runoff. But increasingly, American farms specialized in a few crops or in livestock.

USDA's commodity price support programs also affected soil erosion. For some time, people believed that some USDA programs had encouraged poor land use. In the 1930s, during a time of low prices for agricultural commodities, laws such as the Agricultural Adjustment Act of 1933 set up a system of price support payments to farmers. The payments were supposed to help maintain supplies and prices, thereby leveling out the peaks and valleys of prices and supplies of agricultural commodities. Fifty years later, critics of USDA programs held that these programs, including crop insurance, encouraged farmers to keep very erodible land in production. A larger issue involved fairness, and the feeling on the part of many that farmers should use methods that conserved resources if they were to receive financial assistance.

Recent Legislation

The National Environmental Policy Act of 1970 addressed some USDA programs, but by no means all of them. Partly impelled by concern over agriculture's impact on the environment, Congress passed the Soil and Water Resources Conservation Act of 1977 (RCA). The act mandated a continuing appraisal of the Nation's soil, water, and related resources. From this information, USDA was to develop a long-term National Resources Program.

The second National Conservation Program was issued in 1988 and set priorities through 1997. It calls for reduced erosion and improved water quality, and encourages State and local governments to assume additional responsibility in soil and water conservation. The results from the studies, debates, and pilot projects started under RCA found their way into national farm

legislation, first in the 1981 farm bill, and to a much greater extent in the Food Security Act of 1985.

The Conservation Reserve Program is intended to remove highly erodible land from production by paying farmers an annual rental for 10 years under a contract. The conservation provisions of the 1985 farm bill required that farmers comply with these environmental objectives if they wished to continue to participate in certain other agricultural programs, such as commodity price supports, crop insurance, loans, and farm storage facility loans. Under the "Highly Erodible Land" provision, farmers had until 1990 to develop a conservation plan, approved by USDA and local conservation districts, and until 1995 to complete the implementation of the conservation plan.

Sodbuster, another part of the Highly Erodible Lands provision, was designed to discourage erodible land from being brought into production. If land had not been used for an annual crop during 1981-85, it could not be used for crop production unless acceptable conservation methods were used. The Swampbuster provision, officially titled "Wetland Conservation," was included to slow the conversion of wetlands to cropland. Farmers who converted wetland and produced agricultural commodities on it after December 23, 1985, the date of the act's passage, would be ineligible for certain USDA program benefits.

The Task of Making Laws Work

Within USDA, SCS has generally provided the technical assistance and advice while the Agricultural Stabilization and Conservation Service (ASCS) has handled financial assistance.

Bringing the intent of the conservation provisions of the Food Security Act of 1985 from the halls of Congress to farm operations has required substantial work. This includes writing definitions, establishing rules and procedures, and giving the public time to offer opinions and suggestions.

The field staff in about 2,800 field offices has dealt directly with conservation districts and farmers. That work has kept SCS and ASCS busy during the past 5 years and will require most of the time of the SCS staff for the coming 4 years. After developing the criteria for defining highly erodible lands, SCS field staff identified the highly erodible land with soil surveys and field examinations. The agency accelerated soil surveys to areas not already covered by the published soil surveys.

SCS and other Federal agencies, especially the U.S. Fish and Wildlife Service of the Department of the Interior, took the definition of wetlands in the farm bill and developed criteria for identification in the field. In 1988, SCS started making inventories of wetlands. In some areas where wetland inventorying has progressed, especially in the pothole region of the North-Central States, many farmers have appealed the designation of some of their lands as wetlands for purposes of the Food Security Act, and local SCS employees in those areas must review these appeals.

The 1985 law required that farmers have a conservation plan by January 1, 1990, and that they fully implement it by January 1, 1995, in order to stay eligible for a variety of USDA programs. The task for SCS field staff was to formulate 1.3 million plans covering 135 million acres. Farmers and SCS now face a greater task than writing plans--designing and installing, by 1995, all of the conservation practices that have been agreed to in the plans.

New Role for SCS

The work associated with the Food Security Act of 1985 created a new, unaccustomed role for the agency and the field staff. Previously, SCS worked strictly on a voluntary basis. Now SCS must make decisions about whether farmers are complying with the law. A vast majority of farmers participate in farm programs to some extent and are affected by the law.

One method used to reduce erosion has been to take erodible land out of production. As a requirement for participating in

Government price support programs started in the 1930s, farmers often had to set aside lands on an annual basis. The Soil Bank of the late 1950s and early 1960s promoted a longer term shifting of cropland to trees or grass through contracts. The general criticism of these programs has been that the purpose of the price support programs was to reduce crop acreage rather than to conserve soil. In the case of the Soil Bank, the program was not aimed at the most erodible land; farmers could sign contracts and enroll any land they chose.

Under the Conservation Reserve Program (CRP), only land determined to be highly erodible was eligible. From the time of the sixth signup under the CRP in 1988, the criteria have been changed at intervals to allow the entrance of filter strips, floodplain scour lands, and finally wetlands into the program. These lands, however, constitute only a very small fraction of the acres allowed. As of 1990, landowners have enrolled 34 million acres in the CRP. SCS also gives advice on planting methods used to establish grasses and then checks to ensure that the work has been done properly.

Impact on Water Quality

Another concern related to agriculture has been the impact of agriculture on water quality. Part of the concern involves the sediment in water caused by erosion. The use of irrigation can lead to salinity problems. Dairying or raising livestock in a small space, with many such operations concentrated within a watershed, can also cause water quality problems. One of the most complicated problems is determining the exact effect of agricultural chemicals such as nutrients and pesticides. While the first task is understanding the nature and the extent of the problem, there is then the challenge of devising practical remedial measures and getting landowners to use them.

One of the earliest efforts to understand the water quality problem came out of the Great Lakes Water Quality Agreement with Canada in 1972. In that agreement, USDA

and the Canadians defined the problem and developed solutions.

During the 1970s USDA learned a great deal from the Rural Clean Water Program (RCWP), which included a number of pilot and demonstration projects. The projects tested the value of various methods as well as the feasibility of getting farmers to use them.

President George Bush's State of the Union message on February 9, 1989, included a major water quality initiative that pertained to the work of several agencies.

One of the most promising recent developments in water quality has been greater cooperation within USDA to give farmers advice on the use of agricultural chemicals at the same time that they receive advice on soil and water conservation measures.

Since the 1960s, entomologists in the Extension Service, State experiment stations, and Agricultural Research Service have worked on integrated pest management systems. One of the objectives of these systems is to reduce the amount of chemicals used in insect control. At the same time, agronomists in these agencies have developed ways to use chemical nutrients so that there will be little runoff into surface water or seepage into the ground water.

SCS has worked with the Extension Service to develop recommendations in SCS's technical guides, usually one for each county, that will include information about where and when these chemicals can be used effectively, but in a manner that keeps movement to ground and surface waters to a minimum. These same technical guides also provide the basic information on soil and water conservation measures. The promise is for a better environment through greater cooperation within USDA and, hence, greater service to farmers.

Looking Forward

Concern over the environment seems to be a constant and prominent feature on the political landscapes of both the recent past

and the near future. Farmers and the State and Federal agencies with which they work will live in this climate of concern. But in a larger sense the recent legislation is part of a longer quest for agriculture that fits the environment, in which the impetus for adaptation is not a response to legislation but an acknowledgment of the forces of nature.

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