6.

Use and Conservation of Our Farm Lands

H. H. BENNETT
Chief, Soil Conservation Service, USDA

A LARGE SHARE OF THE ESSENTIALS OF OUR CIVILIzation come from the land—that thin layer of productive soil which covers part of the earth's surface. Most of what people eat comes from this surface layer of soil as do most of the clothes they wear and all of the wood from which man builds his dwellings and manufactures thousands of useful articles. From this soil also come various other raw products of industry including tobacco, linseed oil, cellulose, turpentine, and quinine.

This productive land—from which everybody lives, city and country people alike—is the nation's most important resource. It is the world's most important resource. The nation cannot survive as a people or as individuals without it.

For these reasons, every person in the entire nation—bankers and farmers, industrialists and laborers, professional people, educators and

students—has a vital stake in the permanent welfare of the country's productive land. It is not just the farmers' problem; it is evrybody's problem.

Today, a great many people of the world are rightfully concerned about their supply of productive land—whether or not there is enough to go round and what can be done to make what is left produce more. Not enough people are doing all they can to solve the problem, but the number of those who are trying is increasing.

Day by day, more people around the world are recognizing the fact that food comes very largely from the soil. They are learning that productive land is the base of all things—the foundation of the world's economy. Here in the United States people are beginning to see that every plant grown, all that is shared in the way of food and fiber with other people, even what we amount to as a great industrial nation begins with and rests on the sustained productivity of our agricultural land. The nation may have—in all probability will have, from time to time—difficulties with such temporary things as too little production or over-production. But there will remain the unalterable mathematical fact of a limited supply of land in the face of a continually increasing population.

LAND IS HEIR TO MANY ILLS

Land is not a permanent resource. Under many conditions land is extremely unstable, insecure, and impermanent. When wind or water moves across bare earth, some of the fragile soil is picked up and carried away. It may be moved hundreds of miles or only a short distance, but eventually large amounts are stripped off the land unless it is tied down with effective soil-conserving measures. Soil thus removed by erosion leaves the land poorer than it was. Often erosion leaves it unplowable or useless for further practical crop production. And people in this country do not haul erosion-displaced soil back to where it comes from. It is not commonly done anywhere. Many people do, however, haul topsoil off the land and sell it for use on lawns and in small gardens. (This wasteful process could be avoided in some degree by getting soil from stream bottoms, where it often is productive and deep, rather than from sloping uplands where it is shallow and often unproductive.)

If the land is flat and occupies low situations, it will accumulate harmful quantities of water and sometimes toxic salts, unless drainage outlets are provided and kept open and effective. This condition also reduces the productivity of the land or makes it useless for the growing of crops.

And land is heir to still other ills. But most or all of them can be cured, prevented, or improved with modern land use measures, if treatment is not postponed too long.

LATE STARTING

The nation would be much better off with respect to our supply of good land if interest in conservation on the part of Americans had become active a hundred years ago. When the United States was first broken up into farms, the average depth of the topsoil over the country was about 9 inches. Today, it is only about 6 inches. Thus, in a comparatively short time as the life of a nation goes, around a third of our productive topsoil has washed out of our fields in the direction of the sea. Moreover, much land has been slashed into an uncultivable condition by millions of gullies. As a result, about 50 million acres of once good cropland have been ruined for further practical cultivation and another 50 million acres of cropland is in about as bad condition. Also, more than half of the topsoil has been stripped from approximately another 100 million acres of cropland, and on still 100 million acres more the process of erosion is actively under way.

WHAT IS LEFT

People in the United States are not in danger of starving or even going hungry any time soon. They are very likely to hear of surplus production of some crops, before people cry out for food, as in the early 1930's. The stubborn mathematical fact remains, however—as already noted—that there are not unlimited supplies of productive land capable of producing indefinitely, as some uninformed people would have us believe. Since the nation has allowed almost half of its original supply of productive land to be severely damaged by soil erosion, waterlogging, and the like—millions of acres of it so severely damaged as to be incapable of further economic cultivation—there are now only about 460 million acres left that are suitable for use as good, plowable cropland. About 70 million acres of this 460 million acres must be cleared, drained, irrigated or otherwise improved before it can be tilled and planted to intertilled crops or small grains. All of it except about 80 to 100 million acres is subject to severe erosion if left unattended. Worse yet, the nation continues to let at least 500,000 acres of its farmland be ruined by excessive and unnecessary erosion every year, despite the great strides that have been made in soil conservation during the last 15 years. This means that this much, adding together the scattered damaged area, is being so damaged every year the average farmer cannot plow it any longer. And a great deal more is damaged in some degree every year by unnecessary erosion. Before this New Era of Agriculture based on soil conservation got into swing, the annual damage was even larger. Now, fortunately, the rate of damage is gradually being reduced.

This toll out of the country's limited and decreasing supply of productive land has brought us to the point where there is no more good land to waste. This becomes even more evident when our rate of population growth is considered, and the fact that around 70 million acres of the present cultivated area is too steep, too erodible, or otherwise too unfavorable for further cultivation. Too, it must not be overlooked that once good soil is swept off the land into the oceans, it cannot be recovered. The part that is left behind—subsoil—is vastly less productive and usually is more difficult to plow or is more erodible, even though some of it can be improved or made to produce quite well with good farming, including addition of available plant nutrients. But subsoil farming too often is the equivalent of bankrupt farming on bankrupt land. Even under the most favorable circumstances good farming on topsoil is more profitable than on erosion-exposed subsoil.

If the soil removal process is allowed to continue long enough, the land is finally unable to support good growths of grass or trees. As long as it is not stripped down to bedrock or subsoil of sterile sand or stubborn clay, however, a certain limited amount of production of useful plants and animals is possible. Some erosion-stripped land can be made to produce fair to good crops if enough fertilizer is applied, if soil-improving rotations are used, and if the producer is willing to take unusual care in the management of the land and crops. These efforts, however, must be paid for in one form or another. No person and no nation can discount soil erosion for very long by relying solely on fertilizers or machinery or soil-improving rotations, although they are all essential. The point of diminishing returns can arrive too soon and lead too quickly to insufficiency, especially where erosion is permitted to continue and rainfall allowed to run to waste.

In very recent years soil has frequently been listed as a "renewable" resource. The implication, apparently, is that eroded land can be "renewed" and restored in a practical way to its former productive condition. While this is partly true, too often the assertion succeeds only in deluding people who should not be misguided. Deeply eroded land cannot be "renewed" or restored to anything like its original productive condition within a few years. At excessive cost and under laboratory or research plot conditions it is possible, of course, to add fertilizers or manure and grow soil-improving plants in such a way as to stimulate growth and increase yield. This does not mean, however, that the orginal soil, now displaced, is being renewed in the sense of replacement. Moreover, man has not found it practical to bring back to his fields and pastures rich soil scattered over the floor of the oceans through the process of erosion.

Recently, the Department of Agriculture published the results of corn produced at the Northwest Appalachian Conservation Experiment Station at Zanesville, Ohio. The plot on which the corn was grown started out with topsoil and wound up at the end of 10 years with erosion-exposed subsoil. The range in yield of corn produced over the 10-year period 1933 to 1942, inclusive, was approximately 60 bushels the first year on topsoil, with a rainfall of 42.7 inches, to less than 2 bushels per acre the last year, on erosion-exposed subsoil, with a rainfall of 38.6 inches. The treatment was the same over the whole period; no fertilizer was used at any stage. The significant point is that by 1942, erosion had removed approximately 6 inches of productive topsoil, down to the level of exceedingly poor subsoil.

The Ohio Agricultural Experiment Station initiated an experiment in 1936 near Wooster to determine the relative crop production on topsoil and subsoil. Measurements were made of the yields of corn, oats, wheat, and hay on virgin topsoil and on subsoil under different systems of cropping and management. Results from the first 9 years (1937–1945) show the average per-acre yield for corn in a rotation of 2 years of corn followed by 1 year each of wheat and hay, for virgin topsoil without treatment, was 59.1 bushels per acre. This compared with an average yield of only 19.7 bushels per acre for similarly used subsoil. Where the best treatment, including lime, commercial fertilizer, and manure, was used in a 4-year rotation of corn, oats, wheat, and hay, the average corn yield for the topsoil was 91.3 bushels, compared with only 52.4 bushels for the subsoil.

Thus it is seen that on this exposed subsoil, which had a favorable structure but was lacking in organic matter and other available essentials for best crop growth, the yields of corn, oats, wheat, and hay remained substantially lower, irrespective of treatment. This, perhaps, is sufficient evidence to show that topsoil is one thing and subsoil another.

Soil that has lost some of its fertility as a result of prolonged or intensive cropping, or as a result of leaching, is renewable in the sense that (a) its fertility levels can be restored by applications of fertilizers and manure and the use of crop rotations and (b) its texture remains unchanged.

Land eroded down to unfavorable subsoil, however, is not renewable in any exact sense, except over periods of a great many years, even centuries. Too often it is not renewable in the practical sense.

Where gullying has set in, one can frequently appraise it as the beginning of the death stage of land unless quick action is taken to remedy the situation. Stated differently, the deadly gullying process usually sets in at that stage of erosion marking the completion of stripping off the topsoil.

Soil conservation surveyors have tried to find additional land to add to the 460 million acres of good plowable area. Thus far they have not been too successful, even though some tidal areas have been reclaimed by dyking and pumping and by setting automatic trapdoors for keeping out sea water.

More and more it looks as if the 460 million estimate is very close to the sum total of our stock of good land. That is a great deal of land—if it is carefully safeguarded from now on. It's good land, not mediocre; and it can be kept good with modern soil conservation. Unfortunately, with imprudent use, it can go from good to not-so-good, or even on to the condition of very poor or uncultivatable land.

THE SERIOUSNESS OF SHEET EROSION

Last year in the state of Washington, various parts of the state were subjected to exceedingly serious erosion, in addition to the destructive floods. In the Palouse country, one of the most productive wheat-producing areas on earth, it was found by field measurements that on many farms a ton of rich wheat soil was lost for every bushel of wheat produced during a single season of severe erosion (1948). You can find, I think, during years of heavy rains in various parts of the country that it often costs, on unprotected land, 20 bushels of soil to grow one bushel of corn. Twenty-five bushels of rich soil to produce one bushel of wheat or 20 bushels to produce a bushel of corn is a very high price to pay for our daily bread, in view of the limited area of the irreplaceable resource necessary to produce bread—that is, productive land. Our rapidly increasing population adds to the seriousness of the problem.

It is not easy to put an immediate dollar value on such a soil loss. Still we can't get away from the basic fact that we are rapidly losing the material out of which future farm dollars would be derived—if the soil were kept in the fields and out of the rivers and oceans.

Probably all of you have noticed that runoff of rainfall from unprotected, cultivated slopes is always muddy—muddy because the water is laden with rich soil swept off the land. You doubtless have seen, also, clear or nearly clear water trickling from woods and meadows, and from fields well protected against erosion. So, you really do understand what erosion is, although you may not have thought much about it or tied in muddy water in its exact relation to soil wastage by erosion. Some of us have not bothered to understand the relationship—that is, that muddy water is nothing but clear water discolored with soil washed out of unprotected fields by

every heavy rain. Too many have neither clearly understood nor appreciated the nature and dangers of sheet erosion.

Just what sheet erosion is and how it was damaging land was first shown in a survey of Louisa County, Virginia, in 1905. It operates something like compound interest working backwards: Taking off more and more from what's left instead of adding on more and more in a steady process of gain. A farmer thus gets poorer and poorer along with the land, as the rains obstinately dig deeper and deeper into the thinning layer of the good soil of the fields—that is, if anybody is willing to sit by and allow the process to go unheeded and unattended.

MODERN SOIL CONSERVATION

The science of soil conservation embraces the whole field of wise treatment and prudent use of farmland.

Modern soil conservation is based on sound land use and the treatment of land with all the appropriate measures that are needed to keep it permanently productive while in use. It means terracing land that needs terracing. It means contouring, strip cropping, and stubble-mulching the land as needed, along with supporting practices of crop rotations, cover crops, etc. It means gully control, stabilizing water outlets, building farm ponds. Locating farm roads and fences on the contour, planning steep, erodible land to grass or trees, development of good pastures and good management of them after they have been developed. Modern soil conservation, moreover, consists of doing these and still other necessary things. Where land is too wet, it calls for drainage; if it is too dry it calls for irrigation; if it is subject to wind erosion, it calls for stubble-mulch farming, wind-stripping, and windbreaks. If plant nutrients and organic matter have been depleted, it calls for fertilization and addition of organic matter; if water-soluble salts have accumulated in toxic quantities, it calls for drainage or leaching out the salts by flooding. Modern soil conservation calls also for the use of the best of the most adaptable varieties of crops as well as the most efficient tools available to farmers.

An indispensable part of modern soil conservation is a supporting program of research, such as will provide at all times all the advantages that progressive science can contribute. Moreover, modern soil conservation calls for the continuing maintenance of all effective work put on the land.

Modern soil conservation is based on the fundamental principle that every acre must be treated according to its capabilities and need. Parcels of land differ in their characteristics and in their ability to produce, often within a single field and sometimes within the limits

of an acre. There are no blanket, short-cut measures that we can substitute for complete, acre-by-acre soil conservation treatment of a farm. That is why the Soil Conservation Service divides the land into eight simple capability classes, according to slope, soil, erosion, drainage, and other factors of land character and condition. These capability classes are based on soil conservation surveys.

After the capabilities have been determined, a conservation plan or blueprint is made for each farm, based on the determined capabilities of the land. This is worked out by the farmer and technician working together—out in the fields and pastures and woodlots, not in an office around a table. This plan shows, field by field, the needed conservation practices on that particular farm for the present and for years to come, such as terracing, contouring, strip cropping, crop rotations, etc. It is a complete, scientifically balanced plan for which there can be no effective substitute. The physical condition of the land itself decides that point, except that the plan must agree as nearly as possible with the farmer's economic capacity or facilities to carry it out. And this method of scientific farm blueprinting is still another development of modern soil conservation. This is the basic plan of operation the Soil Conservation Service started out with on the day of its birth, September 19, 1933, and the plan that guides its program today.

It is a complex plan that must be made by trained technicians who know the land by virtue of their scientific training and experience.

Next comes the application of the practices called for in the farm plan—practices and combinations of practices needed for safeguarding and wisely using every acre of the farm. Here again the soil conservationist lends a hand, by giving technical assistance or supervision in the application of the practices to the land—right out on the land and never by issuance of written directions from the office.

The district, for its part, may be able to make available such special equipment as ditchers, heavy tractors, or other machinery that an individual farmer cannot afford to have himself, because of his limited need for such equipment individually. Such equipment, whether purchased by pooled funds of the district or obtained otherwise, usually is made available to district farmers at a reasonable daily or hourly charge to take care of its operation and maintenance. Often the district supervisors negotiate with private contractors to do conservation work according to plans made by technicians. Thus, for example, throughout the country during the fiscal year 1948, more than 14,000 private contractors were engaged in this kind of work in the districts, operating some 32,000 pieces of major equip-

ment of nine principal types (Table 6.1). These contractors own a large share of all heavy equipment used last year in 1,864 actively cooperating soil conservation districts, and this is being done in accordance with farm plans made for district operations by the technicians of the Soil Conservation Service. (This equipment has a new replacement value estimated at more than $220,000,000.)

SOIL CONSERVATION DISTRICTS

The various steps which are being taken to apply sound conservation measures to the land have been sketched above. This program of proved soundness is moving forward, as pointed out, with gratifying progress through the soil conservation districts of the nation. The districts are, for the most part, local units of state government and are proving to be the most effective device ever conceived for carrying out scientifically applied conservation treatment of the land in a practical, effective, and wholly democratic fashion. There are in the Soil Conservation Service, also, the first and by far the largest corps of trained, experienced soil conservation technicians in the world. And, what is also important, a constantly growing understanding of the importance of positive soil conservation is developing among the leaders and thinking people of virtually every part of our society—educational and religious, agricultural, business, and professional.

As of May 1, 1949, farmers and ranchers of the 48 states, Puerto Rico, Hawaii, Alaska, and the Virgin Islands had formed 2,100 soil conservation districts, all organized since August 4, 1937. (Fig. 6.1 and 6.2.) They cover 1,152 million acres. In Iowa, for example, there were, as of May 1, 1949, 92 districts, including approximately 32 million acres or 90 per cent of the area of the state.

These districts, as is generally known, are voted into existence by the local people under state enabling legislation. They are managed by local farmers, locally elected for their nonpaying jobs. Between 10 thousand and 12 thousand of these district governing officials, usually called district supervisors or directors, give unselfishly of their time and energies in the furtherance of soil conservation throughout the country. They are on nobody's payroll, and are obligated to no group, to no state, federal, or other outside authority. They draw on the support and facilities of everybody who can contribute something to district progress—state, county, federal, and private agencies, including business establishments, civic organizations, schools, banks, railroads, and others.

It is this kind of voluntary cooperation, initiated and carried on by the landowners themselves that is getting the soil conservation job done. And they are getting the job done right—by treating each acre of farmland according to its capability and need in a way that

TABLE 6.1

PRIVATE CONTRACTORS AND SOIL CONSERVATION DISTRICT EQUIPMENT JUNE 30, 1948*

SCS Region	Number of Districts	Number of Contractors	Wheeled Tractors	Crawler Tractors	Road Patrols	Draglines	Power Shovels	Ditching Machines	Well-Drillers	Bull-dozers	Pick-up Scrapers
1	Contractor owned		35	70	134	86	240	55	13	718	40
	District owned		11	9	9	9	0	2	0	59	5
	SCS loaned		2	8	6	14	0	2	0	51	18
Total	156	914	48	87	149	109	240	59	13	828	63
2	Contractor owned		2,915	1,296	202	521	75	46	338	2,169	717
	District owned		70	16	4	7	0	8	1	13	9
	SCS loaned		4	15	13	21	0	2	0	27	4
Total	353	3,948	2,989	1,327	219	549	75	56	339	2,209	730
3	Contractor owned		215	1,615	319	628	182	655	179	1,459	482
	District owned		1	3	2	4	0	2	0	6	23
	SCS loaned		6	52	0	23	1	3	0	44	19
Total	379	2,494	222	1,670	321	655	183	660	179	1,509	524
4	Contractor owned		1,116	1,132	627	347	23	5	351	1,606	529
	District owned		52	19	4	5	0	0	2	14	13
	SCS loaned		29	14	3	9	0	0	0	15	3
Total	280	2,961	1,197	1,165	634	361	23	5	353	1,635	545

5	Contractor owned		344	1,825	308	194	55	33	305	1,357	1,186
	District owned		48	28	3	1	0	0	0	28	44
	SCS loaned		27	139	4	11	2	0	0	91	104
Total	356	2,033	419	1,992	315	206	57	33	305	1,476	1,334
6	Contractor owned		221	1,016	106	114	53	44	324	686	778
	District owned		17	74	1	3	0	0	1	40	67
	SCS loaned		34	80	6	7	0	0	0	46	80
Total	208	1,127	272	1,170	113	124	53	44	325	772	925
7	Contractor owned		137	511	80	133	70	41	203	470	332
	District owned		3	11	0	1	0	1	2	12	10
	SCS loane l		0	23	0	16	2	0	2	39	23
Total	132	741	140	545	80	150	72	42	207	521	365
National Totals	Contractor owned		4,983	7,465	1,776	2,023	698	879	1,713	8,465	4,064
	District owned		202	160	23	30	0	13	6	172	171
	SCS loaned		102	331	32	101	5	7	2	313	251
GRAND TOTAL	1,864	14,218	5,287	7,956	1,831	2,154	703	899	1,721	8,950	4,486

* Prepared by Soil Conservation Service October 15, 1948

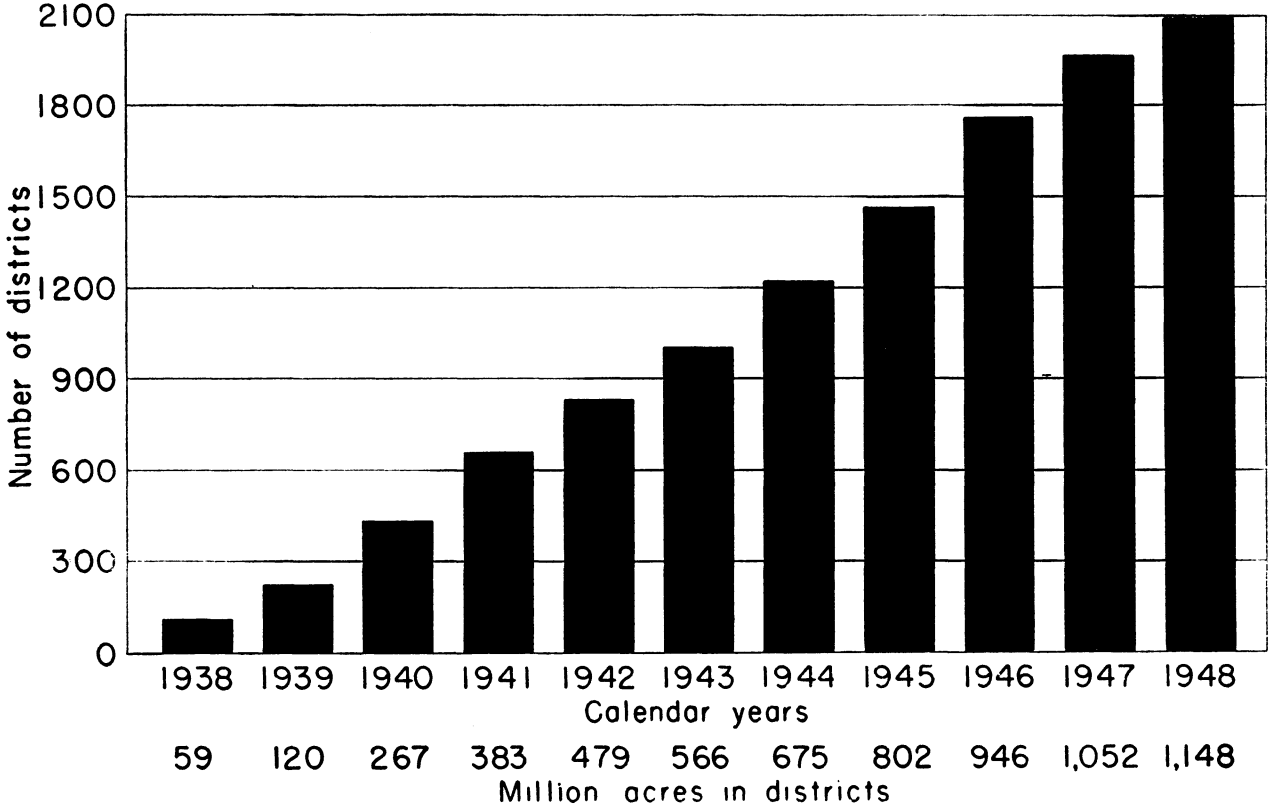

FIG. 61.—Number of conservation districts organized, 1938–48. (Cumulative by calendar years.) (Soil Conservation Service, USDA.)

makes it possible, through maintenance, to keep the land safeguarded permanently.

ERA OF SOIL CONSERVATION FARMING

Up to the first of 1949, farmers and technicians working together out on the land, in soil conservation districts, had prepared some 683,000 complete conservation farm plans, covering nearly 187 million acres, with 93 million acres treated with needed conservation measures. (Fig. 6.3.) The practices applied have included such items as:

17 million acres of contour farming;
4½ million acres of strip cropping;
25 million acres of stubble-mulching;
500,000 miles of terraces;
45 million acres of range and pasture improvement, with continuing proper management provided for;
3 million acres of wet farmland drained;
2½ million acres of dry land leveled or otherwise conditioned for irrigation;
125,000 farm ponds constructed in proper locations and with adequate watersheds adjusted to climatic conditions;
293 million acres covered by conservation surveys in detail; and
250 million acres covered on a reconnaissance basis.

These figures on accomplishments do not include the additional millions of acres which have been surveyed, planned, and treated through programs other than the soil conservation districts program. All together, they mean highly encouraging progress and they reflect a new era in American agriculture: The era of soil conservation farming.

Such progress could not possibly have been made but for the fact that farmers in soil conservation districts are working together in a highly effective manner; pooling their resources of labor and equipment, planning together, and helping one another in many ways.

SOIL CONSERVATION PAYS ITS WAY

Nothing has to be sacrificed in order to keep the land safe, healthy and productive. On the contrary, our experience on hundreds of thousands of farms proves that soil conservation actually pays a handsome immediate and long-time profit. Soil conservation is an investment. Is increases per-acre yields and income, benefits business, and safeguards health. It pays back more than it costs to the farmer, to business and professional people in town where he trades, and

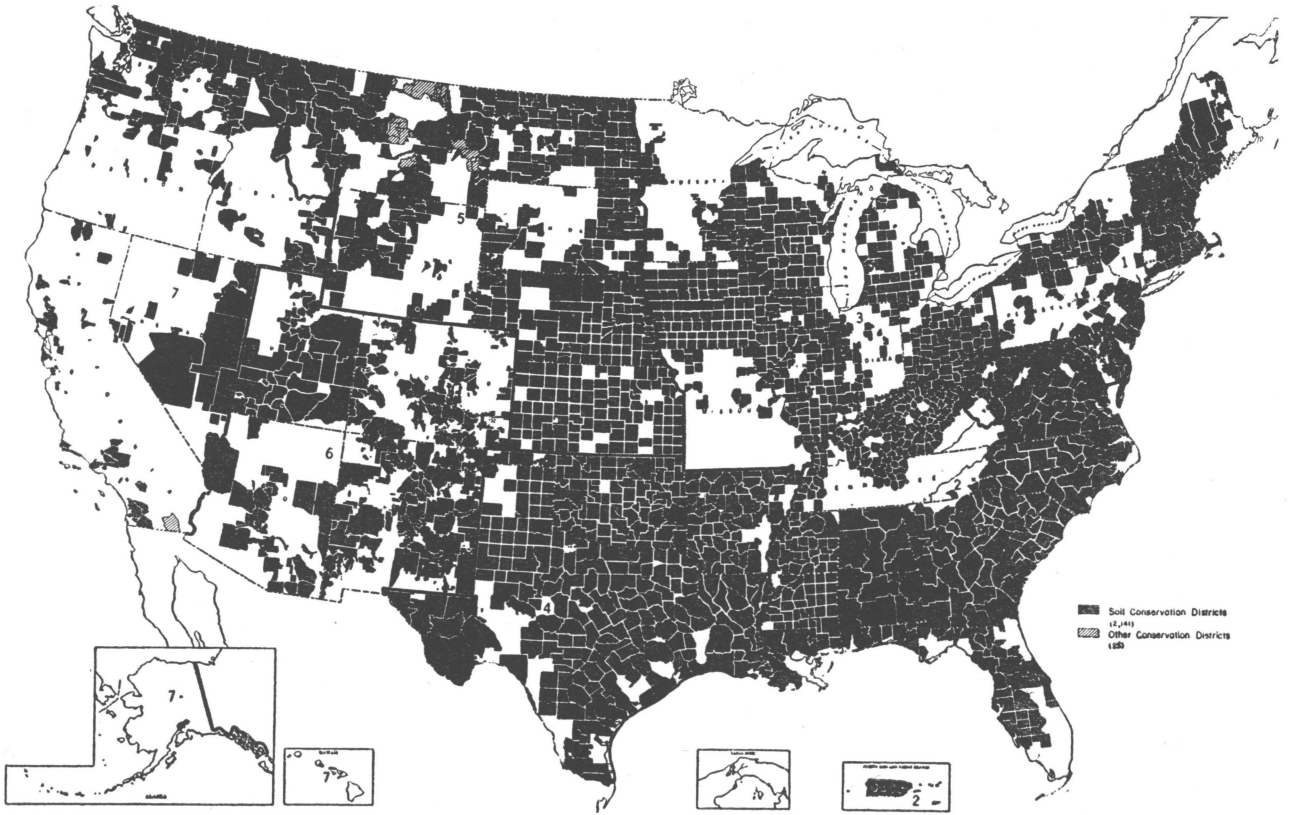

FIG. 6.2.—Soil conservation districts established as of July 1, 1949, and other conservation districts being assisted by the Soil Conservation Service. (Soil Conservation Service, USDA.)

to local, state, and federal governments which derive their revenues from taxes on production and earnings. It is a chain of increased wealth which stems, as does most wealth, from the land.

The recorded income for the 1945 crop year in representative areas from conservation-treated farms as compared to similar farms on which about half as much conservation work had been done, has supplied evidence of the profitableness of properly coordinated, complete soil conservation work. This report from farmers who keep books showed that the increased income from conservation farming on 984 farms averaged $4.90 an acre better than 888 comparable farms with relatively little conservation.

Previously, 9,300 representative farmers in all parts of the United States had reported that conservation farming for two years or longer had increased their per-acre yields, covering all major crops grown in the country, by 36 per cent on the average. These farmers had kept books on their operations, and the years reported on were not the peak price years.

There are a number of reasons why soil conservation increases income. The principal reason is that rainwater stored in the soil and the soil with its content of organic matter and other elements of fertility put into the land by nature and man are all retained in the fields to increase per-acre yields. Per-acre yields generally are largely responsible for farm profits—that is, good yields per acre are almost invariably more remunerative than low yields per acre.

SOIL CONSERVATION BENEFITS THE PUBLIC

It is not surprising, then, that both federal and state governments have found it to be in the public interest to appropriate funds for furthering soil conservation work. Soil conservation districts do not have the power to levy taxes or assessments. The farmers themselves pay for the materials, labor, and equipment used in putting their district conservation plans into effect. Practically all of the states have granted some funds for their soil conservation district programs. Funds are provided through federal appropriations for the technical services that the Soil Conservation Service extends to districts. For the fiscal year 1948, the cost of this technical assistance, plus limited amounts of equipment, planting materials, and the like, averaged $1.47 an acre.

SOIL CONSERVATION IS AN INVESTMENT

It has been estimated by the Soil Conservation Service that in 1948, for instance, the federal government retrieved the entire amount spent by the Soil Conservation Service on its soil conservation work.

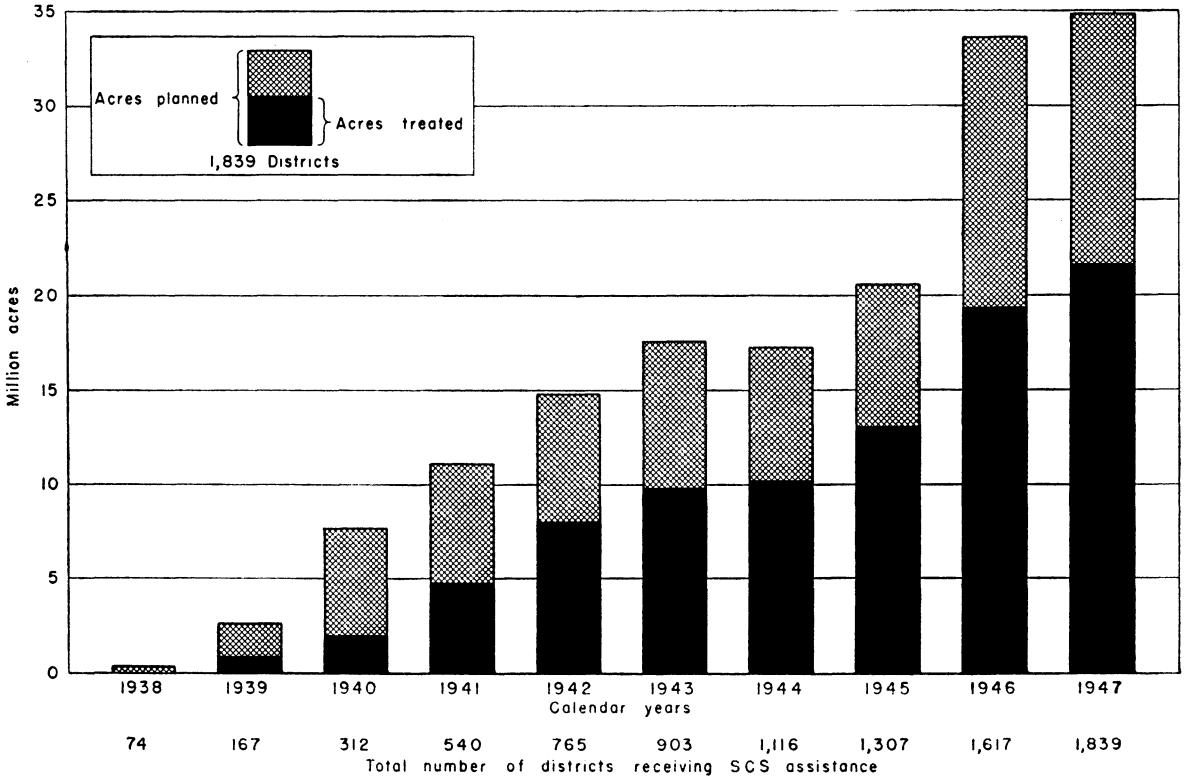

FIG. 6.3.—Acres planned and acres treated in soil conservation districts. (Soil Conservation Service, USDA.)

In addition, the government made a 77 per cent profit in increased income taxes paid on increased returns—a result of farmers applying effective soil conservation measures on their lands. Based on reports from district farmers and ranchers, that included 35½ million dollars in increased revenue tax from the use of soil conservation measures that the equivalent of 344,827 treated farms of 290 acres each—approximately 100 million acres treated—produced. Then, too, the extra income tax paid by retailers, processors, and distributors, who profited by the conservation farmers' extra production and spending—out of their approximately 245 million dollars increased income—brought the estimated total return to the federal treasury up to 69 million dollars. The 39 million dollars originally appropriated, plus some 30 million dollars more—profit on the investment.

In other words, the kind of soil conservation work under discussion is a good investment. It is a good investment for the farmer; it is a good investment for the public. It is a good investment, plus the accomplishment of an utterly essential conservation job.

MISUNDERSTANDINGS

How the United States should go ahead with carrying out its soil conservation job has been discussed quite freely in the last few years. Some have insisted that the way the Soil Conservation Service goes at the job is all right but is moving too slowly, or that soil conservation costs too much.

The answer to the last assertion has been given. To the former it can be said that the Soil Conservation Service working through soil conservation districts is now treating around 21 million acres of farm land each year. Or, to speak more nearly accurately, the equivalent of 31 million acres, counting the survey and planning work done each year. Twenty-one million acres of land efficiently treated—treated both scientifically and practically to the very best of man's accumulated knowledge and ability—is a lot of land.

Still, the job admittedly is not going fast enough. Go back a few years and it will be found that we were not putting any completely coordinated work of this effective kind on any land anywhere. Even those who have complained loudest have done nothing to help; either they did not understand what was needed or did not understand what was going on.

The soil conservation research program began in 1929 and the application work in 1933. When the action program was finally started, it was learned that much education was necessary. The work moved slowly at first. What is most encouraging at present is that the program is moving progressively faster from year to year. In the fiscal year 1941, 1.1 per cent of the total remaining soil conservation

job of surveying, planning, and application was completed. Last fiscal year (1948) the rate of progress had trebled—it was 3.3 per cent of the remaining job. Of the total job 15 per cent had been completed. With more facilities the work could go faster, and it should go faster. The job on the farmlands of the country could be finished up to the stage of maintenance by 1970. That should be done because of the large area of land that continues to be severely damaged each year.

EFFECT OF SOIL CONSERVATION ON FARM YOUTH AND BUSINESS

The Sylvania community of Lonoke County, Arkansas, formerly produced cotton as its main crop; but in the 1930's conservation farming was taken up by the community. A Soil Conservation Service CCC camp, located at nearby Jacksonville, began work in the Sylvania communty in 1936. A year later a soil conservation district was organized. It included this community and all of Lonoke and Pulaski Counties. Since that time, conservation farming—mainly dairy farming in this instance—has expanded rapidly.

At first, only a few farmers started dairying, and only in a small way, but as the acreage of hay and pasture crops expanded under the new conservation-farming program, more and more farmers went into the business. Today, dairying is the major enterprise on about 100 farms of the Sylvania community. It has grown into a million-dollar farm industry. The farmers are cooperators with the Lonoke-Pulaski Soil Conservation District.

A recent study of an average group of ten families, who were among the first to start soil conservation in the Sylvania community, shows that their farms are now paying from six to ten times more taxes of all kinds than they paid ten year ago. The study also reveals other outstanding farm advancements.

One of the most interesting of the findings relates to the children of the community. Of twenty-six children in ten families practicing soil conservation, nine have become partners with their parents in the dairy farming business; and eleven more have married and become dairy farmers themselves in the community. Three are still living with their parents attending high school. Only three of the twenty-six children have left the community.

A comparative study was made of an average group of ten families in another community, only five miles from Sylvania, who were still depending largely on cotton for their income. They were farming the same general kind of land; but few of them had even started conservation farming. Only eight of the thirty-three children in this group had married and settled in the community. Two minors were still in school; and twenty-three had left the community to seek

their livelihood elsewhere. And there were no father-and-son partnerships.

Most of the homes in the Sylvania community are painted and have modern conveniences; electricity, gas, hot and cold water, refrigeration, and sewage facilities. In contrast, few of the homes of the nonconservation farmers are painted or have any modern conveniences except electricity.

Undoubtedly, the better income from soil conservation, the better standard of living, and the brighter future were the chief inducements in keeping more of the young people on the farm.

The Louisiana Bankers Association gives a vivid description of what soil conservation has done for the Sylvania community. This association of bankers visited the community in July, 1947, and had this to say:

> "The community (Sylvania) was going broke 10 years ago. Soil erosion was cracking the land wide open and soil depletion had relentlessly cut down production until it took 4 or 5 acres to make a bale of cotton. The school district was in debt—teachers made as little as $40 a month. Most of the farmers owed money; it was hard for many operators to pay the interest on their loans, and some didn't.
>
> "But since that time has come a complete shift in the use Sylvania folks made of their land. They used to farm. Now they dairy. Their soil conservation district is responsible for the change. As a dairying community, Sylvania found it necessary to develop improved pasture. Here and there over the grass-covered landscape lie those pastures—7,000 acres of them. That acreage represents a 1,000 per cent increase in pasture during the past seven years. Soil Conservation Service technicians working in the soil conservation district have labored long hours the past decade helping farmers prepare land, seed proper mixtures of pasture grass and clover, and then manage the grass so it would produce its best.
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> "With the improved pastures to give their dairy cattle long-season grazing, the Sylvania dairymen send $3,500 of milk daily to the Terry, Mayflower, Singley, and Kraft dairy companies. The milk brings around 100,000 a month to the producers."

During the last year, farmers in one part of the Sylvania community graveled many miles of road, at their own expense, when informed that the state and county could not do the job properly. They needed all-weather roads for the trucks that took their milk to market. The bankers and merchants in the nearby town of Cabot are strong supporters of soil conservation, largely because of the results they have observed at Sylvania. Banks report that deposits from farmers of this community have risen more than 300 per cent and that farm income has increased more than 500 per cent. And the

merchants of Cabot report that everyone in town has benefited from the soil conservation and dairy farming program in the Sylvania community.

The Sylvania community is an outstanding example showing how conservation farming increases farm income, raises the standard of living, assures security for farm people, and keeps young people on the farm to insure a lasting and progressive agriculture and a more stable society. But the Sylvania community is not the only example of this; there are numerous other communities and hundreds of thousands of individual farmers scattered throughout the nation who have had similar results from their soil conservation operations.

These highly successful community and farmer group accomplishments are the best kind of proof that the soil conservation job can be successfully done on time, under our system of government. It is doubtful that the job could be done in a lasting way under any system of government where farmer initiative, spirit, cooperativeness, love for the land, and rewarding returns are stifled by dictated action.

HELPING OTHER COUNTRIES TO HELP THEMSELVES

The record of progress and accomplishment in the field of soil conservation in the United States during the last 15 years is quite sufficient to show what can be done by sound agricultural planning and application. Apparently a lot of other people around the world agree, because, during the last few years, 80 other countries have sent 475 agricultural representatives and "trainees" to the United States to study our soil and water conservation program in the field. Some of them working with Service technicians for as much as a year. These visitors have included agriculturists and scientists from nearly every part of the globe—from South America, Africa, Europe, India, China, Australia, Asia. Several countries already have national soil conservation programs under way, patterned after our own.

RUSSIA STARTS SOIL CONSERVATION

Recently, Russia—actually and potentially a major agricultural producing nation—announced (Moscow press dispatches, October 24, 1948) a 15-year conservation plan to protect its big wheat belt from damaging drought winds. The United States faced something of a similar problem, of course, in its wheat-producing Great Plains area during the 1930's and dealt with it with a high measure of success. In this, as in all the effective soil conservation work in which this country has pioneered, that success was due to the fact that: (1) the program was started on the right basis and continued on that basis (treating the land according to kind and need) and (2) democratic

methods of voluntary action which distinguish all such undertakings of public welfare in America, guided the program.

The news reports referred to described the newly announced Russian plan for its vast steppes area as calling for such items as three thousand miles of tree belts, 45 thousand reservoirs and farm ponds, and 80 thousand farms to be put under improved grass and crop rotations, with the program to be completed by 1965. In a land-short world beset by a rapidly mounting population, any bona fide undertaking for developing and preserving any food-producing land resource of a substantial area certainly is a move in the right direction. At the same time, it might be pointed out that such figures serve by contrast to emphasize some of the things we already have done in the United States in the field of soil and water conservation, chiefly in considerably less than 15 years.

For example, as of December 31, 1948, we had already planted 25,249 miles of windbreaks (shelterbelts), had built 126,192 farm ponds, and had applied conservation treatment of various kinds on 683 thousand planned farms in soil conservation districts alone.

Land already treated included at that time such items as 25,197,000 acres of stubble-mulching; 566,000 miles of terracing; 53,500,000 acres of pasture and range improvements; 17,000,000 acres of contouring; and 1,880,000 acres of improved irrigation.

As previously indicated, 1970 is our goal for completing the soil conservation job for the nation.

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