REPORT TO THE CONGRESS

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

Some Problems Impeding Economic Improvement Of Small-Farm Operations: What The Department Of Agriculture Could Do

This report discusses problems impeding the economic improvement of small-farm operations and research and extension efforts of the Department of Agriculture and land-grant colleges for improving the efficiency of small-farm operations. Although various Department of Agriculture agencies assist farmers, the report discusses research and extension activities because of concern about whether enough of these activities have been directed to the problems and operations of the small-farm operator.

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This report discusses some of the problems impeding the economic improvement of small-farm operations and what the Department of Agriculture could do to fully exploit the potential national and individual benefits of extension and research programs to encourage and help small-farm operators to improve their farming operations.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget, and the Secretary of Agriculture.

Comptroller General
of the United States

Contents

ABBREVIATIONS

USDA	U.S. Department of Agriculture
GAO	General Accounting Office

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

SOME PROBLEMS IMPEDING ECONOMIC IMPROVEMENT OF SMALL-FARM OPERATIONS: WHAT THE DEPARTMENT OF AGRICULTURE COULD DO

D I G E S T

Many small-farm operators may be helped to increase their incomes through more intensive and specifically directed extension and research programs sponsored or financed by the Department of Agriculture.

The Department should:

--Identify small-farm operators in their productive years who depend on the farm as their primary source of income and categorize them according to their resources, abilities, educational experiences, and willingness to improve their operations by using available technology and efficient management practices.

--Estimate the costs and benefits of programs needed to extend training and technical assistance to small-farm operators having the potential for improvement and present the information to the Congress for its consideration.

--Examine the potential for research uniquely designed to improve the economic position of small-farm operators and, if such potential exists, consider the priority of such research in relation to other federally funded agricultural research.

--Establish procedures for (1) evaluating the economic and social impacts of future research that could greatly change the productivity, structure, and/or size of existing farms, and (2) determining the assistance small-farm operators would need to plan for and adjust to the resulting changes.

(See p. 26.)

The consensus of knowledgeable Government and nongovernment people is that, although various factors contribute to small-farm operators' having relatively low volumes of farm sales, failure to use available technology and efficient management practices effectively is a primary reason many have lower volumes of farm sales than they might have and a major factor limiting improvements in their farming operations. (See p. 11.)

Although some publicly supported extension and research projects have related to the needs of small-farm operators, the Department and land-grant colleges have not made a concerted effort to solve problems impeding the economic improvement of small-farm operations. Also they have not adequately (1) evaluated the economic and social impacts of production-efficiency research nor (2) determined the assistance that small-farm operators need to plan for and adjust to changes brought about by such research. (See pp. 18 to 21.)

Demonstration projects sponsored by cooperative extension organizations and the Tennessee Valley Authority have shown that some small-farm operators are capable of increasing the productivity of their land and increasing their incomes. The type and intensity of assistance provided, and resulting accomplishments, differed widely between those projects as did the abilities and resources of participating farmers. (See pp. 12 to 17.)

More complete data on small-farm operators is needed to determine the type and extent of assistance which would be useful and to provide the basis for planning extension and research programs oriented to the specific, known needs of small-farm operators. Such programs could aid in meeting the world's food and fiber needs as well as increasing these farmers' incomes. (See p. 22.)

The Department disagreed that it should take actions to intensify its efforts to extend training and technical assistance to small-farm operators. (See pp. 24 to 26.)

CHAPTER 1

INTRODUCTION

Farming is a highly competitive and risky industry. Each year fewer people earn their livelihood by farming. The trend has been toward fewer farms that are larger and highly mechanized. Farmers who do not increase the size of their farms, mechanize their operations, or otherwise update their farming practices soon become noncompetitive and eventually drop out of the mainstream of farming.

To help farmers produce and market food and fiber efficiently, the U.S. Department of Agriculture (USDA) has, over many years, carried out and helped finance agricultural research and extension activities aimed at gaining and applying knowledge and technology efficiently to the biological, physical, and economic phases of producing, processing, and distributing farm and forest products.

In recent years, much concern has been expressed about whether enough of this research and extension activity has been directed to the problems and operations of the small-farm operator. During deliberations on the Rural Development Act of 1972 (7 U.S.C. 1921 note (Supp. II)), several Senators indicated that special research and extension efforts were needed to assist in improving the farming operations and incomes of small-farm operators and thereby encourage them to remain on their farms.

This report discusses (1) some of the problems impeding the economic improvement of small-farm operations and (2) research and extension efforts of USDA and land-grant colleges for improving the farming operations of small-farm operators.

Other USDA agencies--such as the Agricultural Stabilization and Conservation Service, Farmers Home Administration, Soil Conservation Service, and Farmer Cooperative Service--provide technical and/or financial assistance to farmers, including small-farm operators. According to USDA, these and other USDA agencies use and supplement the resources of USDA's Extension Service and land-grant colleges, and the interaction of their programs with research and extension efforts is widely known in rural America. Although we recognize that other USDA agencies provide assistance to farmers, we concentrated our review on research and extension activities because of the concern expressed about whether

enough of these activities have been directed to the problems and operations of the small-farm operator.

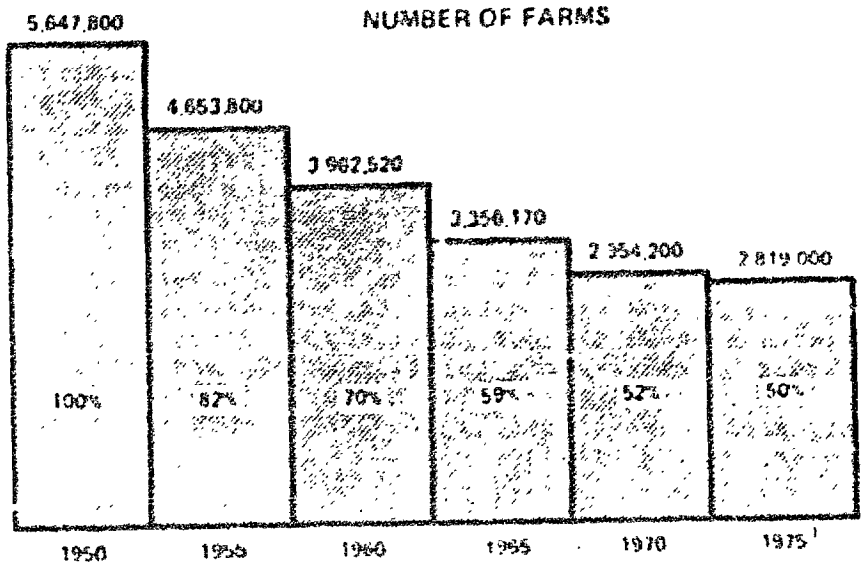
CHANGES IN FARM NUMBERS AND SIZE

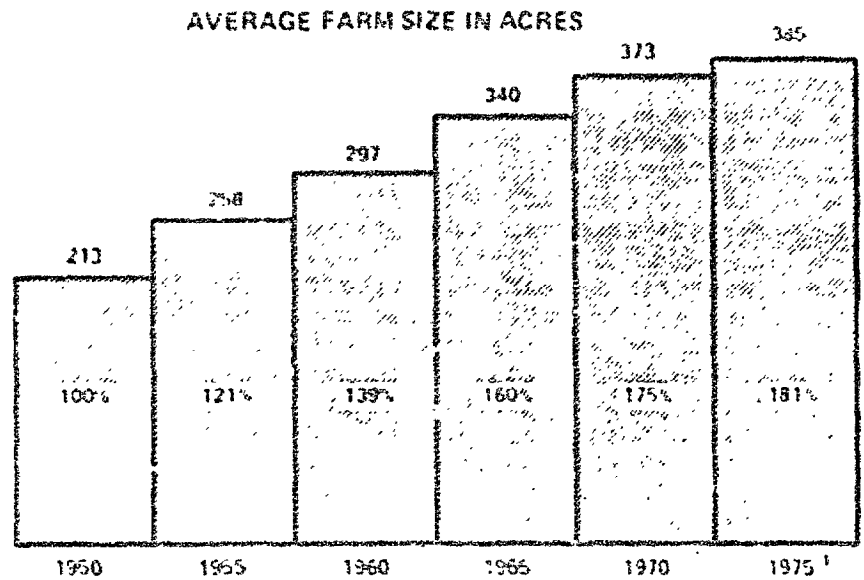
Agricultural statistics show that the number of farms in the United States has steadily declined since 1935. From 1950 to 1975, for example, the number of farms decreased about 50 percent. At the same time, the total land in farms decreased only about 10 percent and the average farm size increased about 81 percent. The changes in farm numbers and size from 1950 to 1975 are depicted in the graphs on page 3.

Generally, the farms with the least amount of farm sales have gone out of business. As shown in the following table, for example, the number of farms with gross annual sales under $20,000 decreased by about 1.8 million between 1960 and 1973. Because of increased prices, production efficiencies, and farm size, about one-third of these moved into the category of farms with gross annual sales of $20,000 and over. The other two-thirds, however, went out of business.

Gross annual sales	Number of farms 1960	Number of farms 1973	Percent of change 1960-73
Expanding farm sector:			
$40,000 and over	113,000	446,000	294.7
$20,000 to $39,999	227,000	563,000	148.0
Total	340,000	1,009,000	196.8
Declining farm sector:			
$10,000 to $19,999	497,000	332,000	-33.2
$5,000 to $9,999	660,000	262,000	-60.3
$2,500 to $4,999	617,000	488,000	-20.9
Less than $2,500	1,849,000	753,000	-59.3
Total	3,623,000	1,835,000	-49.4
Total	3,963,000	2,844,000	-28.2

Although the number of smaller farms has declined and many of those remaining are operated by part-time or semi-retired farmers, many small farms are operated by farm families in their productive years who depend primarily on farm income for their livelihood. (See p. 5.) Available information indicates that many of these families may be subsisting on incomes near or below the poverty level.





[1] Preliminary

Source: USDA's Statistical Reporting Service

While farm families may receive income from nonfarm jobs and businesses, professional practices, retirement plans, or investments, a special Bureau of the Census survey showed that in 1970 about 19 percent of the farm households with gross annual farm sales under $20,000, excluding those in which the head-of-household was classified as part-time or semiretired, did not have any off-farm income and an additional 33 percent did not earn any salaries and wages from off-farm sources. Salaries and wages accounted for about 61 percent of the total off-farm income received in 1970 by all farm households with gross annual farm sales under $20,000.

A 1966 study by North Carolina State University concluded that the established farmer has little tendency to withdraw from farming even when under considerable economic pressure. Our analysis of the reasons for farm sales, made during our review of major problems related to rural development in a 12-county area in South Dakota, supported this conclusion (RED-75-288, Jan. 8, 1975).

DEFINITION OF A SMALL-FARM OPERATOR

Because of the diversity in agricultural production, the physical constraints of agricultural land in different sections of the country, and the intermix of farm and off-farm employment of rural residents, there is no universally accepted definition of a small-farm operator.

USDA and the Bureau of the Census define a farm as any place of 10 acres or more with sales of agricultural products of at least $50 annually, or any place of less than 10 acres with sales of agricultural products of at least $250 annually. Included in this definition are farms operated by full-time farmers, part-time farmers, hobby farmers, and retirees.

USDA's Economic Research Service told us that gross farm income and total family income would be the most important factors to use in defining a small-farm operator and that most USDA officials would consider gross annual sales of $20,000 to be the upper limit of a small-farm operator. Therefore, for this review, we considered a small-farm operator as a person who (1) is under 65 years of age, (2) works off the farm for wages less than 100 days a year, and (3) sells less than $20,000 of agricultural products annually.

We recognize the limitations of using such general criteria for this definition. However, the criteria permit a general distinction to be made between (1) farmers in their productive years who may depend on profit from the sale of farm commodities as their main source of income and (2) other people with farm sales living in rural areas.

Using information from the 1969 Census of Agriculture on the profile of farmers, we estimated that 466,000, or about 37 percent of the operators of the 1.8 million farms with agricultural sales of less than $20,000 in 1973, met the above definition of a small-farm operator.

AGRICULTURAL RESEARCH

The basic responsibilities for agricultural research are set forth in (1) the Organic Act of 1862 (7 U.S.C. 2201) which established USDA and (2) the Hatch Act of 1887, as amended (7 U.S.C. 361a), which established State agricultural experiment stations at land-grant colleges.

USDA and the land-grant colleges have defined agricultural research as a systematic method of gaining and applying knowledge efficiently to (1) biological, physical, and economic phases of producing, processing, and distributing farm and forest products, (2) consumer health and nutrition, and (3) social and economic aspects of rural living. The research is divided generally into four categories:

1. Production efficiency--to insure an adequate supply of farm and forest products for immediate and future needs at decreasing real production costs.

2. Marketing--to insure the consumer better products and to minimize the costs of processing and distributing agricultural products.

3. Foreign oriented--to expand export markets for agricultural products and to assist developing nations to raise agricultural productivity.

4. People oriented--to protect consumer health and to improve the economic and social well being of Americans who live on farms and in rural communities.

USDA's inventory of agricultural research showed that, in fiscal year 1973, publicly supported agricultural research was conducted by 5 USDA agencies, 55 State agricultural experiment stations (51 are located at land-grant colleges of 1862), 16 land-grant colleges of 1890 (colleges originally established for black students) and Tuskegee Institute, and 13 schools of forestry. These organizations, during fiscal year 1973, spent about $410.6 million in Federal funds, $222.1 million in State funds, and $58.6 million in private and other

funds--a total of $691.3 million--on agricultural research. At June 30, 1973, there were 21,659 active agricultural research projects. The following table shows, by organizational unit, the research effort for fiscal year 1973 and the number of research projects at June 30, 1973.

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AGRICULTURAL EXTENSION

The primary link between agricultural research and the farmer is the cooperative agricultural extension work authorized by the Smith-Lever Act of 1914, as amended (7 U.S.C. 341). The act authorizes USDA to give, through land-grant colleges, instruction and practical demonstrations in agriculture, home economics, and related subjects. Extension work is also authorized under sections 204(b)-205 of the Agricultural Marketing Act of 1946 (7 U.S.C. 1623-1624) and title V of the Rural Development Act of 1972 (7 U.S.C. 2661 et seq. (supp. II)).

Extension programs are cooperatively financed by Federal, State, and local governments. For fiscal year 1975, USDA allotted about $179 million in Federal funds for agricultural extension work, and State and local governments allotted about $270 million for such work.

The basic mission of agricultural extension is to help people identify and solve their farm, home, and community problems through use of research findings and USDA programs. Land-grant colleges carry out extension work through State and county extension offices. The States employ county, home economics, and 4-H club agents; State and area specialists; nutritional aides; and others to conduct educational programs adapted to local problems and conditions.

USDA's Extension Service serves as liaison between USDA and the land-grant colleges, provides program leadership and assistance on extension work to the colleges, coordinates extension work among the colleges, administers Federal laws authorizing extension work, and provides leadership for the educational phases of all USDA programs.

The following table shows program staff-days expended by the cooperative extension service organizations in fiscal year 1974.

Program title	Staff-days expended
Improving farm income	953,762
Marketing, utilization, and distribution	123,472
Food and nutrition	549,805
4-H development	1,000,434
Improved family living	472,164
Safety and emergency preparedness	25,530
Community development	241,506
Natural resources and environment	137,978
International extension	5,192
Total	3,509,873

Source: Extension Service's management information system.

CHAPTER 2

SMALL-FARM OPERATORS COULD BE HELPED THROUGH MORE INTENSIVE AND SPECIFICALLY TARGETED EXTENSION AND RESEARCH EFFORTS

Over the years, USDA's intensive research efforts in collaboration with the land-grant colleges have greatly increased agricultural productivity. This increased productivity has, to a large extent, helped to hold down commodity prices which have come under increasing upward pressure in recent years from ever-rising domestic and world demand. Farm operators who have been able to increase their productivity have compensated for the fact that from 1953 through 1974 farm prices have not kept pace proportionately with price increases for farm supplies and materials and family living items. During this period, however, many small-farm operators have not effectively used the new and improved agricultural technology and the efficient management practices developed through research. In many cases they have experienced relatively lower volumes of farm sales and losses in real income.

Although some publicly supported extension and research projects have related to the needs of small-farm operators, USDA and the land-grant colleges have not made a concerted effort to solve problems impeding the economic improvement of small-farm operations. USDA and the land-grant colleges have not, to a great extent, (1) evaluated the economic and social impacts of production-efficiency research nor (2) determined the assistance that small-farm operators need to plan for and adjust to the changes brought about by such research.

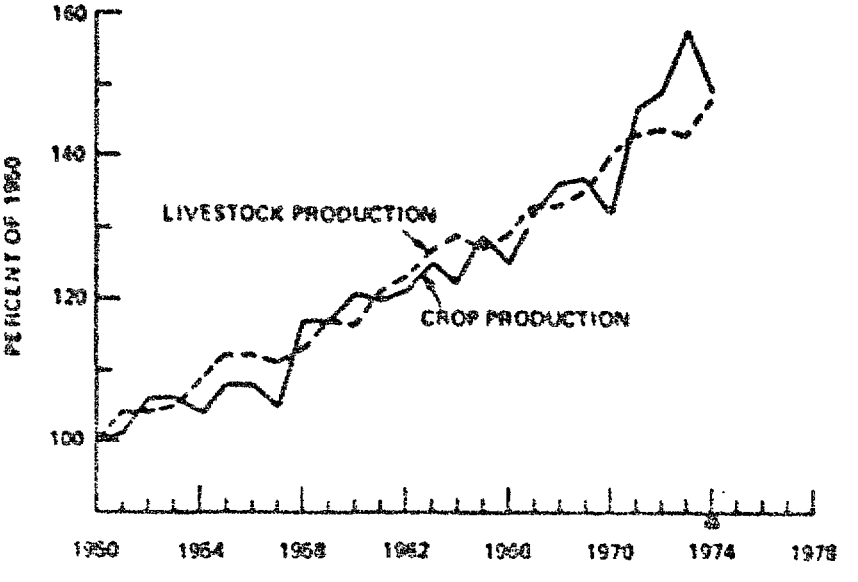
According to available information, a large amount of the Nation's agricultural land is under the management of small-farm operators. Much of this land is not being used to its full production potential. Demonstration projects conducted by the cooperative extension organizations have shown that some small-farm operators are capable of increasing the productivity of their land and increasing their incomes if they are helped to do so through more intensified extension and research efforts.

RESEARCH FINDINGS INCREASE PRODUCTION CAPABILITIES

One of the primary goals of agricultural research is to increase efficiencies in producing agricultural commodities. In recent years, the publicly supported agricultural research agencies have generally spent about 60 percent of their total research dollars on production-efficiency research. Only a small percentage of this research has been devoted to developing or improving machinery for planting, cultivating, and harvesting crops. Most has been devoted to improving animal and plant productivity and managing natural resources.

The accomplishments of such research have been described as one of the miracles of the century. Improved fertilizers, seeds, irrigation, and chemicals and methods to control weeds, plant diseases, and insects have helped to increase yield for each crop acre over 60 percent since 1950. Improved breeds, breeding techniques, feeding plans, and chemicals and methods to control animal diseases and pests have increased the quality and quantity of livestock and poultry. Most of these improvements can be effectively used by all farmers regardless of farm size.

The following chart, based on index numbers compiled by USDA's Economic Research Service, shows the increases in crop and livestock production from 1950 through 1974.



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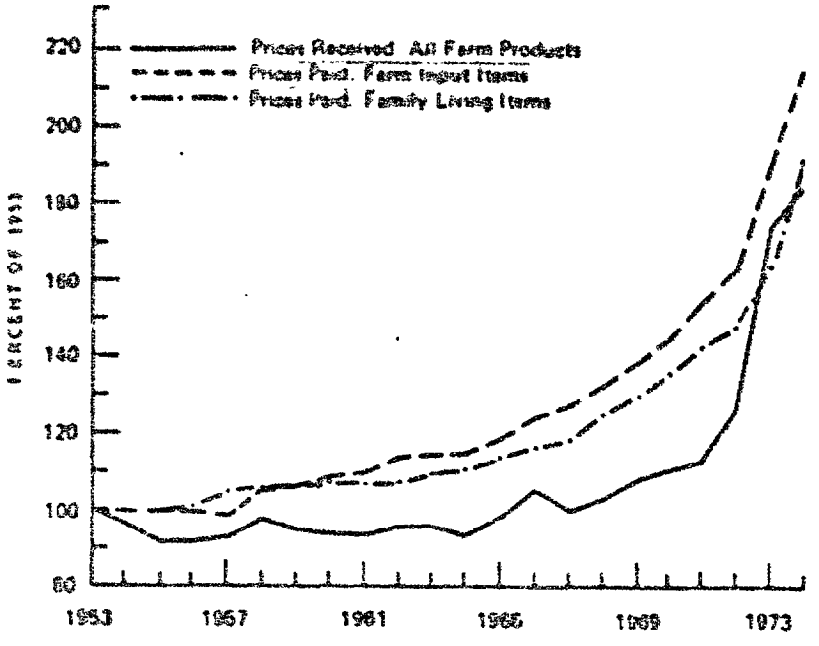
COMPARISON OF PRICES RECEIVED AND PAID BY FARMERS

Agricultural commodities are usually sold at prices determined by supply and demand; therefore, research findings which increase the supply of agricultural commodities as demand rises help keep the prices received for the commodities from rising more rapidly than they otherwise might.

Agricultural statistics show that the rate of increases in prices farmers received for agricultural commodities has generally been smaller than the rate of increases in the prices farmers paid for (1) farm input items, such as labor, seeds, fertilizers, machinery, feed, livestock, building and fencing material, interest, and taxes, and (2) family living items, such as food, housing, and clothing.

The following chart, based on index numbers compiled by USDA's Statistical Reporting Service, shows that (1) prices received for farm products increased 83 percent from 1953 through 1974 while prices paid for farm input items increased 113 percent and prices paid for family living items increased 92 percent and (2) over 50 percent of the increase in prices farmers received occurred in 1973. Even with this large increase, the spreads in 1973 and 1974 between the prices received for farm products and the prices paid for farm input items were still sizable.



Because prices farmers received for sale of commodities have not kept pace with prices they paid for farm supplies and materials and family living items and because the real value of the dollar has continued to decline, farmers must use new or improved technology to increase their output just to maintain stable incomes. In other words, farmers who do not effectively use technology lose real income.

One agricultural economist has stated:

> "The cycle of introduction of new technology, adoption by farmers, increased output, depressed prices, and further search for new technology to maintain farm income * * * has placed farmers on a treadmill."

Another said:

> "Farmers must tread fast just to keep up, and those that do not keep up experience low returns, poverty, or bankruptcy."

SMALL-FARM OPERATORS DO NOT EFFECTIVELY USE AVAILABLE TECHNOLOGY AND EFFICIENT MANAGEMENT PRACTICES

We asked knowledgeable Government and nongovernment people in the States and counties we visited why some farmers have low volumes of farm sales. They said this may be because th farmers are (1) farming a small quantity of land, (2) farming poor, less productive land, (3) short of available capital or unable to obtain credit to purchase needed production input items or to expand farm size, (4) selling farm products at the wrong time or in the wrong market, (5) poorly motivated with no desire to improve farming operations, and (6) failing to effectively use available technology and efficient management practices.

The consensus was that the failure to effectively use available technology and efficient management practices was a primary reason many farmers have lower volumes of farm sales than they might have and a major factor limiting improvements in the farming operations of most small-farm operators who have not progressed. Many small-farm operators do not effectively use available research findings because they are poor managers, are reluctant to make changes, or are unwilling to seek out and accept help from others.

The value of using available resources efficiently was demonstrated in a University of Minnesota study comparing the earnings in 1971 and 1972 of dairy farmers with herds in given size categories: 25 to 34 cows, 35 to 44 cows, and 45 to 64 cows. The study showed that, in terms of labor earnings 1/, the top 25 percent of the farmers in these categories earned from 4.9 to 7.8 times more, on the average, than the bottom 25 percent, although both groups had similar kinds and amounts of resources.

The study's authors concluded that the efficient use of similar amounts and kinds of resources was the major reason for the large variations in the farmers' earnings.

SMALL-FARM OPERATORS CAN IMPROVE OPERATIONS BY USING AVAILABLE TECHNOLOGY AND EFFICIENT MANAGEMENT PRACTICES

Extension Service officials said that their experience showed that small-farm operators can improve their operations by effectively using available technology and efficient management practices. Cooperative extension organizations have, for a number of years, sponsored demonstration programs, some jointly with the Tennessee Valley Authority, to extend training and technical assistance to small-farm operators.

The type and intensity of assistance provided and resulting accomplishments widely differed between programs as did the abilities and resources of participating farmers. Nevertheless, the results of these programs showed that there are small-farm operators who (1) will respond to extension efforts specifically designed to meet their needs and (2) can be helped to increase production by using available technology and efficient management practices. Three of these programs are discussed below.

The Rapid Adjustment Farm Program

This program is designed to assist the farmer who has the potential to become a full-time commercial farmer and earn a satisfactory income. The Tennessee Valley Authority and various extension organizations in the Tennessee Valley cosponsor the program.

1/ Total farm receipts less total farm expenses.

After a farm is selected for participation, all phases of the farming operation are surveyed. Benchmark data is collected on land and land capabilities, labor supply, management ability, livestock, machinery, equipment, supplies, financial statements, and credit availability. The operator's management ability is evaluated mainly on past and present use of resources, crop yields, livestock production levels, credit uses, and community leadership. On the basis of this data, alternative farm plans are developed for the farmer and presented to him. He selects the plan to implement.

After a final plan is agreed upon, the local extension agent and land-grant college specialists work closely with the farmer to help him overcome problems impeding implementation of the plan.

A report by a Tennessee Valley Authority official and a University of Tennessee professor in February 1972 showed that, for the 62 farmers in 7 Tennessee Valley States who had completed 4 years in the program at the end of 1970:

--Average farm investment had risen from $48,707 to $70,080, an increase of 44 percent.

--Average gross sales had risen from $18,026 to $31,493, an increase of 75 percent.

--Average net farm income had risen from $4,548 to $7,935, an increase of 74 percent.

The Elk River Project

In 1959 the average size of the 12,260 farms in the Elk River area (a 7-county area in south central Tennessee) was 112 acres and the average farm sales was $2,862. The University of Tennessee, the Tennessee Valley Authority, and local groups studied the problems impeding the development of agriculture in that area and evaluated the improvement potential. They found that crop yields were low because of low levels of fertilizer and lime use, low plant population, and poor weed control practices. For livestock, they found that production was low, production practices were substandard, and markets were inadequate.

Programs were established during the 1960s to (1) accelerate the use of recommended crop production practices, (2) improve livestock production practices, and (3) improve farm management practices. The primary goal was to increase gross farm sales to $50 million by 1970--an average annual growth

of $1.6 million or over twice the 13-year growth trend of $700,000. Bankers, businessmen, civic leaders, and young people assisted in implementing these programs.

Examples of reported accomplishments follow.

--Between 1963 and 1965, 10,000 farmers took over 40,000 soil samples for testing--4 times the number of soil samples tested in previous periods. As a result of this and other efforts, fertilizer use greatly increased as did crop yields.

--Fertilizer used in corn production in the county tested increased from 242 pounds an acre in 1961 to 366 pounds an acre in 1966 and yields per acre increased from 51 bushels to 62 bushels.

--Cotton yields per acre in the county tested increased from 316 pounds to 592 pounds from 1961 to 1966. During that period, the quantity of lime used increased over fourfold, the quantity of chemicals to control weeds increased almost tenfold, the quantity of chemicals to control insects increased more than twofold, and the quantity of fertilizer used increased from 44 pounds an acre to 166 pounds an acre.

--Tobacco yields in the county tested increased from 1,509 pounds an acre to 1,957 pounds an acre between 1961 and 1966. Use of mixed fertilizers during that period increased 66 percent and use of straight nitrogen fertilizer increased 33 percent.

--Ecucational and promotional activities initiated between 1965 and 1968 encouraged over 1,800 participating farmers to purchase 330 performance-tested purebred bulls, 830 performance-tested purebred boars, 3,700 purebred or high-grade heifers, and 975 purebred or high-grade sows.

--Sales from livestock and livestock products increased about 75 percent.

--As livestock production increased, better marketing facilities were established and farmers received better prices. For example, in 1969 feeder pigs sold for about $21 a head. Before organized

marketing facilities existed in the area, feeder pigs sold for $10 a head.

--Net annual income per farm increased from a 1959-61 average of $1,773 to a 1967-69 average of $2,860--a 61-percent increase.

--Gross farm sales in 1969 were $51.8 million, exceeding the objective set for 1970 by $1.8 million.

--A cost-benefit study showed that the program cost the participating agencies and groups $1.75 million and increased returns to farmers by $7.44 million--a cost-benefit ratio of 1 to 4.25.

The Texas Intensified Farm Planning Program

This program, which used local farmers as program aides, was designed by the Texas Agricultural Extension Service to

--show the effectiveness of the program aides in working with small-farm operators in 10 Texas counties on an intensive basis to change production and management practices, and

--provide county extension staffs an opportunity to field test program procedures, teaching methods, and techniques which could be drawn upon to strengthen an educational program designed to assist small-farm operators.

The 224 participants were selected on the basis of the following criteria.

1. Small-farm operators who generally were not active participants in the Service's ongoing educational programs.

2. Operators who received a major portion of their income from farming.

Priority was given to operators who grossed less than $5,000 a year from farming.

On the average, the 224 participants (1) were 54 years of age, (2) operated 121-acre farms of which 100 acres were used for pasture and 19 acres for cultivation, and (3) earned

$1,828 from the sale of farm products in 1968, the year preceding the start of the program. They produced and sold beef cattle, swine, corn, cotton, grain sorghum, peanuts, watermelons, peas, cucumbers, potatoes, tomatoes, and cantaloupes.

A report on an evaluation of the program by Texas A&M University showed that, on the average, the gross income from livestock sales increased from $1,111 in 1968 to $1,389 in 1970--an increase of about 25 percent-and the gross income from crop sales increased from $1,082 to $1,089--an increase of less than 1 percent. Although it did not estimate the value of each factor, the report indicated that improved pastures, livestock production practices, herd expansion, and calf-crop percentages and higher prices could account for the increases in livestock income. The evaluation team concluded that program aides greatly helped participants increase their livestock income. The report also indicated that a reduction in the number of acres in crop production and inconsistent vegetable markets may have contributed to the small increase in crop income.

The evaluation team's other measures of program success included changes in the number of participants who (1) followed recommended farming practices, (2) participated in other service educational programs and used the services of selected USDA agencies, and (3) had certain living conveniences, such as electricity, running water, and various appliances. The following table shows the changes in these measures from 1968 through 1970.

	1968	1970	Percent of change 1968-70
Participants engaged in corn production:			
Number of participants	76	76	-
Average number of acres per farm in corn production	10.8	8.8	-18.5
Average yield, bushels per acre	23.0	35.0	52.2
Number following recommended practices:			
Land preparation	37	56	51.4
Variety planted	35	51	45.7
Seed planting rate	36	55	52.8
Fertilizer application	21	35	66.7
Weed control	32	32	-

	1968	1970	Percent of change 1968-70
Participants engaged in truck crop production:			
Number of participants	89	89	-
Number following recommended practices:			
Land preparation	49	70	42.9
Variety planted	70	76	8.6
Seed planting rate	57	70	22.8
Fertilizer application	38	54	42.1
Weed control	44	58	31.8
Participants engaged in beef cattle production:			
Number of participants	203	203	-
Number of cattle	2,548	2,787	9.4
Acres of pastureland:			
Unimproved	19,726	18,284	-7.3
Improved	2,405	4,340	80.5
Number following recommended practices:			
Utilized recommended bull for breeding purposes	55	90	63.6
Vaccination practices	48	79	64.6
External parasite control	48	81	68.8
Internal parasite control	17	52	205.9
Participants using Government services:			
Extension Service (attended at least one meeting)	3	59	1,866.7
Soil Conservation Service	29	79	172.4
Agricultural Stabilization and Conservation Service	43	129	200.0
Farmers Home Administration	11	58	427.3
Level of living index items:			
Electricity in home	222	223	0.4
Hot running water in home	92	114	23.9
Cold running water in home	113	134	18.6
Refrigerator	216	219	1.4
Telephone	116	124	6.9
Radio	211	218	3.3
Television	170	188	10.6

EXTENSION AND RESEARCH EFFORTS TO MEET SPECIAL NEEDS OF SMALL-FARM OPERATORS HAVE BEEN INADEQUATE

USDA and the land-grant colleges have taken special steps to extend training and technical assistance to the small-farm operators and have done research uniquely applicable to their problems. However, these efforts apparently fall short of what is needed.

Extension efforts

As noted on page 6, the basic mission of agricultural extension is to help people identify and solve farm, home, and community problems through use of research findings and USDA programs. USDA's Extension Service reported that about 37 percent of the cooperative extension organizations' fiscal year 1974 workload was related to agriculture and natural resources. Included were programs to (1) strengthen production and marketing capabilities of private, independent farmers and (2) help farmers adjust to Federal, State, and local regulations on environmental quality, farm and food safety, and plant and animal health. Small-farm operators can and some do participate in these programs.

Included also were programs specifically designed to assist in improving farming operations of small-farm operators--programs similar to those discussed in the preceding section. In fiscal year 1974, 91,372 staff-days, about 2.6 percent of the program staff-days, were used for such programs.

Extension Service officials said that, although a large part of the extension effort is made available to small-farm operators and many benefit from extension services, the extension organizations were not effectively reaching many small-farm operators in need of their assistance. However, because of the many needs of the people served--food and nutrition, family resource management, family health and safety, youth development, and community development--they said that they could not do more within existing funding levels.

Two extension groups, which looked at Extension's role in serving the limited-resource farmers, reported that such farmers' needs were not being fully met by the cooperative

extension organizations. The reports 1/ recommended that additional resources be solicited to more fully implement programs designed to serve these farmers.

Extension Service officials said that in previous years the Service had prepared several preliminary budget requests which included additional Federal funds to more fully implement programs which had proven successful in assisting small-farm operators. Because of higher priority programs and departmental budgetary constraints--reflecting the general national budget policies--these requests were not included in the budgets presented to the Congress.

Although $3 million was appropriated each year for fiscal years 1974 and 1975 under title V of the Rural Development Act of 1972 for rural development and small-farm research and extension programs, it has been and will be used for authorized nonfarm rural development research and extension activities.

An Extension Service official said that the personalized effort needed to extend training and technical assistance to small-farm operators was very costly. He said that USDA believed that, in view of such cost and of the relatively small amount of money appropriated under title V, the money could be better used by concentrating on nonfarm rural development.

Research efforts

Although precise information was not available, USDA and the land-grant colleges have in the past years done some research applicable to the problems of small-farm operators. USDA officials stated that the primary purpose of the research grants made to the 1890 land-grant institutions was to assist disadvantaged rural people, including small-farm operators.

1/ "Extension's Responsibility to Farmers and Ranchers with Gross Farm Income Less than $10,000," Agricultural Subcommittee, Extension Committee on Organization and Policy, May 1967, and "A People and a Spirit," USDA-National Association of State Universities and Land-Grant Colleges Extension Study Committee, Nov. 1968.

In a September 1969 speech before the Division of Agricultural and Food Chemistry of the American Chemical Society, the former Director of USDA's Office of Science and Education (now the Office of the Assistant Secretary for Conservation, Research, and Education)--USDA's focal point for coordinating research policy development, planning, and evaluation--said:

> "When we ask what agricultural research has done for this group of farmers (small-farm operators), the answer comes back: 'Very little.' In fact, the overall impact of agricultural research has threatened their survival."

The former Director also said that outstanding social and natural scientists, who were sensitive to the problems of small-farm operators, should be brought together to thoroughly delineate researchable areas where answers could be found to their problems. He outlined the following questions.

--Is it necessary for technology to force these people into a blind corner of the farm economy?

--Can technology be developed which directly benefits these people?

--Can technology be controlled, either in its development or adoption, to increase the benefits to these people?

--Can business operations for these farmers be improved in ways that are commensurate with their capabilities?

--Are there new types of interfarm organizations that can be studied that will bring about new efficiencies in their operations, help them manage their output, or better influence the activities of the market place to their advantage?

--Can opportunities for employment--either on or off the farm--that will attract the talents and interests of these people be increased?

The former Director told us that the study group he had suggested had never been brought together and that the points he had made in the 1969 speech were still valid.

Officials of USDA's Cooperative State Research Service said that very little had been done to evaluate the probable economic and social impacts of production-efficiency research or to determine the assistance that small-farm operators would need to plan for and adjust to changes brought about by the research.

The exception has been in the tobacco industry. In September 1969 USDA's Economic Research Service issued a report on potential mechanization in the flue-cured tobacco industry with emphasis on human resource adjustment.

This report stated that

--in the southeastern United States, a large number of people were still employed in the production, marketing, and processing of flue-cured tobacco;

--uncertainty about future demand for tobacco products and Government tobacco programs which limit acreage and production and restrict leasing and rental arrangements had inhibited full mechanization of the tobacco industry; and

--removing these restrictions and allowing mechanization and new technology to be freely used in the tobacco industry could constitute a problem of considerable social and economic proportion unless new employment opportunities were developed.

The report pointed out that the effects of alternative Government policies on production, mechanization, and possible displacement of family and hired workers could be generally defined. However, before a complete evaluation of the potential social and economic consequences of changes in the tobacco industry could be made, specific data was needed on (1) age, sex, and mobility of the family and hired workers and the extent of their dependence on income from tobacco farming and (2) alternative employment opportunities and skill and educational requirements of the available jobs. An Economic Research Service official said that research was being done to gather the needed information and would be completed by December 1975.

The results of this research will give decisionmakers better information for administering Government tobacco programs, for evaluating the economic and social impacts of future changes in the tobacco industry, and for determining what assistance tobacco farmers need to plan for and adjust to changes.

NEED FOR MORE INFORMATION

A lack of more intensified extension and research efforts specifically devoted to helping a greater number of small-farm operators overcome problems impeding their economic improvement may be related to the lack of adequate information on the farm population and the potential benefits of such efforts.

Information on the characteristics of individual farms and farmers is scarce. In a June 1970 report on the concepts involved in defining and identifying farms, a professor of agricultural economics and statistics at Texas Tech University stated that a way must be found to statistically separate people who live in rural areas chiefly because they enjoy it from those who live there because they make a living from farming. Also, he stated that nonproductive farms must be separated statistically from productive farms.

In developing the proposed budget requests for additional money to assist small-farm operators, the Extension Service had not obtained definitive information on the small-farm population and had not prepared a well-documented estimate of potential benefits of programs primarily designed to extend training and technical assistance to small-farm operators.

Because of the lack of such information, the potential program benefits cannot be reasonably assessed. However, indications are that the cost effectiveness could be favorable, particularly of programs to assist the farmers who have the potential to become full-time commercial farmers. In its 1972 annual report, the Tennessee Valley Authority stated that, if all farmers in the Valley would effectively use available technology, the value of the Valley's agricultural production could be tripled in the years ahead. The Authority's programs, such as the "Rapid Adjustment Farm Program," are aimed at helping the region's farmers make the changes necessary to reach this goal.

Further, available information indicates that small-farm operators manage millions of acres of agricultural land. Much of this land is not being effectively used. More intensified extension and research efforts encouraging and helping small-farm operators who have the potential to better use their land would increase their incomes and aid in meeting the world's food and fiber needs.

VIEWS OF FARM ORGANIZATIONS

We discussed our observations with representatives of several national farm organizations. They concurred that:

--Many small-farm operators have experienced relatively lower volumes of farm sales and losses in real income because they have not effectively used available technology and efficient management practices that have been developed through research.

--Publicly supported extension and research efforts to meet special needs of small-farm operators have been inadequate.

--Many small-farm operators could be helped to improve their incomes and standards of living through more intensive and specifically targeted extension and research programs.

CONCLUSIONS

New and improved agricultural technology and farm management techniques developed through publicly supported research projects have greatly increased the production capabilities of farmers over the years and have helped keep prices for farm commodities from increasing more rapidly than they might have because of rising demand. Such research has also contributed to some loss of income and relatively lower standards of living for many small-farm operators who did not or could not effectively use the research findings.

Although USDA and the land-grant colleges have made some limited efforts to extend training and technical assistance to small-farm operators and have done some research applicable to the problems of small-farm operators, such efforts could be greatly intensified with the objective of creating a better life for many small-farm operators and increasing productivity of the land under their management. More complete data is needed, however, to determine the type and extent of assistance which would be useful.

USDA and the land-grant colleges appear to be the logical developers of data on small-farm operators who are in their productive years, who depend on the farm for their primary source of income, and who indicate a willingness to improve their farming operations by using available technology and

efficient management practices proven to be successful for small-farm operations. The development and analysis of such data would provide the basis for planning a carefully targeted extension program, estimating overall costs and benefits, and planning new research projects oriented to the specific, known needs of small-farm operators.

AGENCY COMMENTS AND OUR EVALUATION

In commenting on this report (see app. I), USDA disagreed that it should take actions to intensify its efforts to extend training and technical assistance to small-farm operators. USDA said that it had directed its resources to nonfarm rural development activities as well as to problems of the farm operator because technological changes, which require an increasingly capital intensive structure in the industry, and other aspects of the production and marketing system for agricultural products had combined to reduce the number of opportunities for both agricultural employment and efficient small-scale farms and because off-farm income in the household often greatly supplements the farming operation and is a primary factor in encouraging small-farm operators to remain on their farms. USDA also said that its allocation of resources was cost effective and that no further actions would be suggested at this time.

Further, USDA said that it did not have a national estimate of the proportion of small-farm operators who are able bodied and capable of assimilating training and assistance which could be offered them but that one of its studies of a 125-county Ozarks area showed that (1) about 20 percent of the household heads on small farms were partially or totally disabled and that only a small proportion of these had potential for rehabilitation, (2) two-thirds of the farm operators had completed 8 years of schooling or less and that many of these were unwilling to accept or avail themselves of free technical assistance and training, and (3) almost half of the farm households had two or more income earners. It said that the 1969 Census of Agriculture showed that the average off-farm income of households with less than $20,000 in gross farm sales was more than $6,200 and with less than $5,000 in gross farms sales was more than $7,500.

We recognize that abilities, educational experiences, and attitudes of farmers would affect USDA's ability to extend training and technical assistance to the entire small-farm population and that the farm household's total

income should be considered in the planning for Government programs for assisting small-farm operators. We also recognize that nonfarm rural development activities are needed in rural America for those who cannot, or no longer want to, continue farming.

We believe, however, that there is sufficient evidence to warrant an evaluation of the potential national and individual benefits of extension and research programs aimed at encouraging and helping the small-farm operators who have the potential for improving their farming operations.

The opinion of many knowledgeable Government and nongovernment authorities is that the failure to effectively use available technology and efficient management practices is a primary reason many farmers have lower volumes of farm sales than they might have and a major factor limiting improvement in the farming operations of most small-farm operators who have not progressed. Although the number cannot be estimated, the results of demonstration programs sponsored by cooperative extension organizations and the Tennessee Valley Authority show that there are small-farm operators who (1) will respond to extension efforts specifically designed to meet their needs and (2) can be helped to increase production and income by using available technology and efficient management practices.

For many small-farm operators, farming may be the best alternative for improving their incomes and standards of living because of such factors as age, ability, remoteness of location, or desire to continue to farm. As noted on page 4, 19 percent of the farm households in 1970 which had gross annual farm sales under $20,000 did not have any off-farm income and an additional 33 percent did not earn any salaries or wages from off-farm sources.

USDA said that the report correctly pointed out that applied research had kept down the prices of farm products but that incomes of small-farm operators would not necessarily rise as a result of a concerted effort in a small-farmer program. It said that, if small farms were assisted so that total production was increased, price declines could further reduce incomes of small-farm operators.

The existence of research to increase production and the effects of applied research on prices are, in our opinion, more reasons for intensifying extension and research programs to help small-farm operators increase

their production, and not justification for not doing so, as USDA indicated. Agricultural economists have said that farmers must use technology as it is developed to increase their output and that those that do not use technology experience low returns, poverty, or bankruptcy.

RECOMMENDATIONS

To more fully achieve the potential national and individual benefits of extension and research programs aimed at encouraging and helping small-farm operators to improve their farming operations, we recommend to the Secretary of Agriculture that USDA:

--Identify small-farm operators in their productive years who depend on the farm as their primary source of income and categorize them according to their resources, abilities, educational experiences, and willingness to improve their operations by using available technology and efficient management practices.

--Estimate the costs and benefits of programs needed to extend training and technical assistance to small-farm operators having the potential for improvement and present the information to the Congress for its consideration.

--Examine the potential for research uniquely designed to improve the economic position of small-farm operators and, if such potential exists, consider the priority of such research in relation to other federally funded agricultural research.

--Establish procedures for (1) evaluating the economic and social impacts of future research that could greatly change the productivity, structure, and/or size of existing farms, and (2) determining the assistance small-farm operators would need to plan for and adjust to the resulting changes.

CHAPTER 3

SCOPE OF REVIEW

Our review included:

--Reviewing pertinent Federal laws and related legislative histories.

--Examining records related to agricultural research and extension work, and pertinent reports and publications prepared by USDA, land-grant colleges, and the Tennessee Valley Authority.

--Interviewing officials at USDA headquarters and at land-grant colleges in the States of Alabama, Iowa, Minnesota, and Pennsylvania.

--Discussing problems impeding the economic improvement of small-farm operations with research and extension officials at the land-grant colleges, with officials at the Tennessee Valley Authority, and with various Government and nongovernment people in selected counties in Alabama and Minnesota.

DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D C 20250

Mr. Henry Eschwege
Director, Resources and Economic
Development Division
United States General Accounting Office
Washington, D.C. 20548

April 24, 1975

Dear Mr. Eschwege:

We appreciate the opportunity to review and comment on the draft of the proposed GAO report to Congress entitled, "Some Problems Impeding Economic Improvement of Small Farm Operations: What the Department of Agriculture Needs To Do."

The GAO report concludes that USDA and the land-grant colleges have made an effort to extend training and technical assistance to and have conducted some research uniquely applicable to the problems of small farmers, and that such efforts need to be intensified if a better life is to be created for the small farm operators and the productivity of the land under their management is to be increased. The report also concludes that better information is needed to determine the extent to which such efforts should be intensified and offers four recommendations for obtaining such information.

Although the Department does not have a national estimate of the proportion of small farmers who are able-bodied and capable of assimilating training and assistance which could be offered them, we have conducted selected studies in areas typified by small farm operators. For example, ERS conducted such a study in a 125-county Ozarks area of Arkansas, Missouri, and Oklahoma, an area in which one-half to two-thirds of the farms qualify under the GAO criteria as small farms. This study found that about 20 percent of the household heads on small farms are partially or totally disabled, and that only a small proportion of these disabled heads have potential for rehabilitation. Two-thirds of the Ozark farm operators in the ERS study had completed 8 years of schooling or less. Many of these were unwilling to accept or avail themselves of free technical assistance and training.

From the available information on the trends in income distribution among farm operators it should be clear that "available technology and efficient management practices" have not been the primary limiting factors in the improvement of the economic position of small farm operators. Many small farm operators have been able to raise their

farm incomes above the $20,000 level. Other limiting factors include availability and access to credit supplies and the supply of farmland that is available in the quantities, locations and prices that are attractive to small farm operators. Many small farm operators have recognized that their best opportunities for increasing family incomes are from off-farm employment for themselves and other family members rather than intensification of farming enterprises.

The GAO study concentrates on farm operators who worked off-the-farm for wages less than 100 days a year, but ignores incomes of other family members from off-farm sources emphasizing "incomes near or below the poverty level." The ERS Ozark study found that almost half the farm households had two or more income earners in the household. Off-farm employment of spouses and other family members is relatively common in situations where the head remains underemployed in farming, by choice or necessity. The 1969 Census shows that farms with less than $20,000 gross incomes averaged more than $6,200 off-farm income, and the smaller farms, those with less than $5,000 gross farm sales, averaged more than $7,500 from off-farm sources.

The report focuses on research and extension efforts of the USDA and land-grant colleges and does not study the related efforts of other USDA agencies such as the Farmers Home Administration, Farmer Cooperative Service, and Soil Conservation Service, "because their major lines of effort do not directly impact on the use of research findings by small farm operators and the impacts of such research." The complementarity of programs in these agencies with the research and extension efforts is widely known in rural America. The Farmers Home Administration loan programs provide sources of financing and technical supervision for limited resource farmers who cannot get credit elsewhere to improve their economic conditions. The Farmer Cooperative Service program is directed to improving farm income and rural living through advisory services and counseling. Recently, FCS has placed special emphasis on small farms. The Soil Conservation Service's Resource Conservation and Development Program assists local people in initiating and carrying out long-range programs of resource conservation and development for purposes of achieving a pleasing environment and creating a favorable investment climate attractive to private capital. These agencies, along with others in the Department, use and supplement the resources of Extension Service and land-grant colleges and should be considered if an accurate picture is to be developed of public assistance to small farms.

Some research and extension efforts benefiting small operators is not mentioned in the GAO report. The CSRS special grant program for 1890 land-grant institutions provides over $10 million to these institutions for the primary purpose of conducting research to assist disadvantaged rural people--people of low income, small farmers, and part-time

farmers. These research grants were backed up by an additional $6 million in extension grants to the same institutions, so that special educational work might be carried out with these "hard-to-reach" clients.

The GAO report generally fails to reflect explicitly the fact that technological changes requiring increasingly capital intensive structure in the industry and other aspects of the production and marketing system for agricultural products, have combined to reduce the number of opportunities for both agricultural employment and efficient small-scale farms.

The report correctly points out that applied research has kept down the prices of farm products. If small farms were assisted so that total production were increased, price declines could further reduce incomes of small farmers. Incomes of small farmers would not necessarily rise as a result of a concerted effort in a small farmer program

Recognizing these limited opportunities, and the fact that off-farm income in the household often significantly supplements the farming operation, and is a primary factor in encouraging small farm operators to remain on their farms, the Department of Agriculture has directed its resources to nonfarm rural development activities as well as to the problems of the farm operator. It is believed that this allocation is cost effective. No further action on the GAO recommendation would be suggested at this time.

Attachment A provides some additional comments of an editorial and technical nature. [See GAO note.]

Sincerely,

ROBERT W. LONG
Assistant Secretary

Attachment

GAO note: The comments referred to were considered in the preparation of this report but are not reproduced herein.

PRINCIPAL DEPARTMENT OF AGRICULTURE OFFICIALS RESPONSIBLE FOR THE EXTENSION AND RESEARCH ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
Secretary of Agriculture:		
Earl L. Butz	Dec. 1971	Present
Clifford M. Hardin	Jan. 1969	Nov. 1971
Orville L. Freeman	Jan. 1961	Jan. 1969
Assistant Secretary, Conservation, Research, and Education (note a):		
Robert W. Long	March 1973	Present
Ned D. Bayley	June 1968	Feb. 1973
George L. Mehren	Sept. 1965	June 1968
Administrator, Agricultural Research Service:		
Talcott W. Edminster	Aug. 1971	Present
George W. Irving, Jr.	March 1965	Aug. 1971
Administrator, Cooperative State Research Service:		
Roy L. Lovvorn	June 1969	Present
Ned D. Bayley (acting)	Feb. 1969	May 1969
T. C. Byerly	April 1962	Feb. 1969
Administrator, Economic Research Service:		
Quentin M. West	March 1974	Present
Quentin M. West (acting)	Jan. 1972	Feb. 1974
Melvin Upchurch	Sept. 1965	Jan. 1972
Administrator, Extension Service:		
Edwin L. Kirby	Feb. 1970	Present
Lloyd H. Davis	Oct. 1963	Feb. 1970

[a] Until February 1973, the title of this position was Director, Science and Education.