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**UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548**

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RELEASED

**COMMUNITY AND ECONOMIC
DEVELOPMENT DIVISION**

OCTOBER 17, 1980

B-199623

The Honorable Donald W. Stewart
United States Senate



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Dear Senator Stewart:

Subject: Agricultural Research and Extension
Programs To Aid Small Farmers (CED-81-18)

This report is in response to your June 2, 1980, letter requesting certain information on agricultural research and extension programs to aid small farmers. Your letter referred to our 1975 report entitled "Some Problems Impeding Economic Improvement of Small-Farm Operations: What the Department of Agriculture Could Do" (RED-76-2, Aug. 15, 1975) and requested that we furnish you with updated information and respond to certain questions related to six specific issues.

We obtained updated information from the Science and Education Administration (SEA), Department of Agriculture (USDA), on both its in-house and related State, local, and private agricultural research and extension programs. Our work was performed at SEA headquarters in Washington, D.C. We discussed small-farm research and extension programs with SEA officials, including the SEA small-farm coordinating group. We also reviewed and analyzed secondary data, including various reports on small-farm programs. Our objective was to provide you with information on small-farm research and extension programs in response to your specific questions. We did not perform a detailed analysis of such programs or assess their quality.

In addition to responding to your questions, this report provides certain background information on small-farm research and extension programs.

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DESCRIPTION AND STATUS OF
SMALL-FARM ACTIVITIES

Various guidelines have been suggested for defining a small farm. Section 1442 of the Food and Agriculture Act of 1977 (Public Law 95-113, 91 Stat. 1006) defines a small farmer as one with gross sales from farming of \$20,000 or less per year. In 1979 USDA adopted a small-farm definition which includes all farm families

--whose family net income from all sources (farm and nonfarm) is below the median nonmetropolitan income of the State;

--who depend on farming for a significant portion, though not necessarily a majority, of their income; and

--whose family members provide most of the labor and management.

USDA's definition for identifying small-scale farms most in need of assistance is useful because it focuses on a relatively homogeneous subgroup of farm families with the common problem of low income and for whom farming is an important economic activity of the family members. USDA estimates that of the 2.5 million farms in the United States in 1977, about 1.3 million fell within the context of this definition. Of those farms, 1 million had sales of less than \$20,000 while 300,000 had sales exceeding \$20,000. USDA estimates that an additional 700,000 farms had sales of less than \$20,000 but net family incomes above the median nonmetropolitan income. While these farms do not fit within USDA's small-farm definition, they can be viewed as users of information and technology that is developed for small-scale farmers.

The basic responsibilities for agricultural research are set forth in the Organic Act of 1862 (7 U.S.C. 2201 et seq.), which established USDA, and the Hatch Act of 1887, as amended (7 U.S.C. 361a), which established State agricultural experiment stations at the land-grant colleges created in 1862 by the Morrill Act (7 U.S.C. 301 et seq.). In 1890 the Congress passed the so-called Second Morrill Act (7 U.S.C.

321 et seq.), which established the 1890 land-grant colleges 1/ primarily to serve blacks. 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.

Small-farm research and extension programs were also authorized, but never funded, under title V of the Rural Development Act of 1972, as amended (7 U.S.C. 2661 et seq., 86 Stat. 671). This title authorized \$10 million for fiscal year 1974, \$15 million for fiscal year 1975, and \$20 million for fiscal year 1976 for rural development research and education and small-farm research and extension. Authorization for title V was extended April 5, 1976, for an additional 3 years (90 Stat. 314). The Food and Agriculture Act of 1977 further amended title V and authorized annual appropriations of up to \$20 million exclusively for small-farm research and extension through September 30, 1979. On September 24, 1980, the President signed legislation (Public Law 96-355) which extends the authorization through fiscal year 1981.

Small-farm efforts

The Director, SEA, contends that much agricultural research and extension work is "size neutral," benefiting both large and small farmers. (See p. 8 for a discussion of this issue.) Although the actual level of research and extension effort directed at small farms by USDA and land-grant institutions is not known with any high degree of accuracy, USDA estimated the funding of this effort for fiscal year 1980 to be as follows.

1/Includes Tuskegee Institute, a private institution, which has been included in Federal legislation affecting the 1890 colleges.

<u>Performing organization</u>	<u>Funding level</u>
	(millions)
Science and Education Administration:	
Agricultural research (in-house)	\$ 3.7
Cooperative research (land-grant)	2.8
Extension services	52.0
Economics, Statistics, and	
Cooperatives Service	<u>0.3</u>
 Total	 \$ <u>58.8</u>

Of the \$52 million for extension services, \$25 million came from the general Smith-Lever appropriation, \$2 million from earmarked Smith-Lever appropriated funds, and \$25 million from State sources. Of the \$6.5 million total for agricultural and cooperative research, \$3.7 million represented Federal appropriations to USDA to support in-house work and \$2.8 million represented funds spent by the State Agricultural Experiment Stations--about \$1.8 million in Federal funds and \$1 million in State funds. USDA's Economics, Statistics, and Cooperatives Service was to devote about \$300,000 to develop improved small-farm data bases in fiscal year 1980.

Our 1975 report

In our 1975 report, we concluded that many small-farm operators could be helped to increase their incomes through more intensive and specifically directed extension and research programs sponsored or financed by USDA. We pointed out that although some publicly supported extension and research projects had been related to the needs of small-farm operators, USDA and land-grant colleges had not made a concerted effort to solve problems impeding the economic improvement of small-farm operations. We also pointed out that information on the characteristics of individual farms and farmers was scarce and that more complete data on small-farm operators was 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.

Need for continued small-farm focus

Although the focus on small farms has increased since our 1975 report, more remains to be done. In this regard, the Joint Council on Food and Agricultural Sciences ^{1/} in its 1978 Annual Report to the Secretary of Agriculture identified "small farms" as an area for special consideration and coordination efforts by the Council in 1979. The Council established an Ad Hoc Committee on Small Farms to focus on research and extension efforts and needs for small farms.

The ad hoc committee issued a report entitled "Research, Extension, and Higher Education for Small Farms" in December 1979. The committee's report articulated the continuing gap in research data on small farms, including a need for information on characteristics and goals of the small-farm population, management of farm resources and product marketing, community infrastructure, technology appropriate for small farms, quality of life for small-scale farm families, and effects of public policy on small farms.

The ad hoc committee recommended increased funding for small-farm research. It said that research to identify the characteristics of small farms and work in the areas of community infrastructure and quality of life are of the highest priority because the output of this work is essential to developing meaningful overall small-farm programs, particularly extension activities.

The report also pointed out the need for additional information about and an evaluation of both regular and intensive extension programs for small-scale farmers. It said that no definitive data exists on the extent of small-scale farmers' participation in regular extension activities, most of which probably are not specific to farm size. On intensive small-farm extension projects, the report said that more specifications of the small-scale farmer clientele are needed. It said not all such farmers either desire,

^{1/}The Joint Council, established by the Food and Agriculture Act of 1977, includes representatives from the Department of Agriculture; the Office of Science and Technology Policy; public and private universities and colleges, including the land-grant institutions; private organizations; and the public.

require, or will benefit from intensive extension assistance. The ad hoc committee pointed out, however, that the results of the extension paraprofessional approach have been impressive. It recommended increased funding for programs using this approach, but it also said that a formal evaluation of the program was needed to answer questions essential in determining resource requirements for a national program.

Our responses to your specific questions follow.

FUNDING OF SMALL-FARM PROGRAMS AUTHORIZED BY
AMENDMENTS TO THE RURAL DEVELOPMENT ACT

The small-farm programs authorized by amendments to section 502(c) of the Rural Development Act have not been funded. What explains this failure to fund the programs? What would be the costs and benefits of funding these programs?

The Director of SEA informed us that other SEA and USDA programs are aimed at the same objective. Accordingly, he said, USDA found it unnecessary to request funding under this authorization because of potential duplication and because it believed that land-grant universities could redirect funds from other areas into small-farm research and extension activities. In response to our questions on potential reprogramming (see p. 7), however, the Director expressed the view that there is little potential to reprogram funds.

We noted that SEA has included increased funding for small-farm research and extension activities in its budget requests. For example, in fiscal year 1978, SEA included a request for increased funding of \$7 million for small-farm extension activities. This request was eliminated from the budget USDA submitted to the Office of Management and Budget (OMB). Likewise in fiscal year 1979, SEA included requests for increased funding for small-farm programs of \$20 million for extension, \$1.8 million for cooperative research, and \$5.5 million for in-house research. The \$20 million for small-farm extension activities was eliminated from the budget USDA submitted to OMB. Subsequently, OMB eliminated from the executive budget all of the remaining requested increases, except \$3.5 million for in-house research.

We cannot say with any degree of certainty what the costs and benefits of small-farm programs like those authorized under title V of the Rural Development Act would be. However, the costs and benefits of small-farm programs can be estimated on the basis of similar completed and ongoing efforts. For example, USDA statistics show that in several intensive extension programs, the cost per participating farm family has been about \$500. Therefore, the total cost of "full-scale" funding of small-farm programs would depend on how many of the 1 million to 1.3 million small-farm families the program would be designed to serve. According to SEA, it also could be expected that the cost per farm family (in constant dollars) would decline with improved educational methodology.

According to the Director, SEA, a growing body of findings from evaluation studies shows the effectiveness of research-based small-farmer education programs. For example, a 1975 University of Missouri study showed a benefit-cost ratio for the Missouri Small Farm Program of 3.5 to 1. A 1976 study by Prairie View A & M University in Texas found that net farm income increased an average of 48 percent from 1970 to 1974 for the farmers enrolled in its program. The results of a USDA-funded survey, published in April 1980, of 4,543 small farmers participating in small-farm programs in 14 Southern States during 1977 showed that 72 percent had increased their sales, including 41 percent who had increased their sales by \$1,000 or more annually and 12 percent who had increased their sales by more than \$2,000 annually. Based on such evidence, the Director concluded that it appears that the benefits from such programs are positive, both in terms of returns to individual small-farm families and in social terms.

REPROGRAMING FUNDS TO EMPHASIZE
SMALL-FARM PROGRAMS

Could USDA use existing authority to reprogram funds in research and extension to provide greater emphasis on small-farm programs? What is the potential effect of such reprograming on other existing USDA programs?

USDA has direct authority to reprogram research funds within SEA's agricultural research (in-house) activities to provide greater emphasis on small-farm programs. However,

according to SEA's Director, much of the in-house research work is already nonspecific as to farm size. The Director said that because of increasing pressures for expanded agricultural research in such critical areas as plant and animal genetics, land and water resources, integrated pest management, energy, and human nutrition, little or no potential exists to reprogram funds from these areas into small-farm projects. USDA also has the flexibility to award grants for what it considers priority research projects under its Competitive Research Grants Program. Such projects could include small-farm projects.

Although small-farm research and extension work can be done with appropriations which support programs carried out by the 1862 and 1890 land-grant colleges and universities and Tuskegee Institute, it appears that USDA may only encourage, not direct, the research areas to be undertaken. The Director, SEA, told us that very little potential exists for reprogramming in this area. The 1890 colleges and Tuskegee Institute have placed major emphasis on small-farm programs since they began receiving Federal research funding in 1967. According to the Director, SEA, some redirection of effort has been accomplished within the 1862 land-grant institutions, but they also cannot afford to neglect the basic, high priority agricultural production and marketing research needs if U.S. agriculture is to meet the demands placed on it.

In its December 1979 report, the Ad Hoc Committee on Small Farms said that not all current activity is higher priority than some of the identified small-farm research gaps. The committee said that some redirection could take place and research directors and administrators should look for opportunities to make such adjustments. The committee concluded, however, that agricultural research has generally been underfunded in recent years and, therefore, it would seem appropriate that new initiatives, such as small-farm programs, should be funded primarily from increased resources.

SIZE NEUTRALITY OF USDA RESEARCH
AND EXTENSION ACTIVITIES

USDA contends that most of its research and extension is "scale neutral." Is this a valid contention?

SEA told us that no indepth study of this question has been made, so the answer is not known with certainty, although strongly held beliefs are evident on either side of the issue. In this regard, the Ad Hoc Committee on Small Farms in its December 1979 report said that a need exists for a greater analysis of the research work that is identified as "not specific to size" to determine whether the application of the results tends to be biased toward any particular size farms.

According to SEA, agricultural research and extension have provided the basis for a highly efficient, highly capitalized, and highly innovative agriculture. Society has benefited from these efficiencies through an assured food supply at reasonable prices. At the same time, large-scale enterprises have been the principal beneficiaries of agricultural research and extension in the farm sector.

SEA said that a scientist undertaking research might not consider size-of-scale implications at all, and quite often research results cannot be predicted. For example, a breakthrough in mechanization, plant breeding, or pest control may have different impacts on different sizes of farm operations, but the impacts may not be known before the research begins.

USDA recognizes that some applications of research, such as specialized equipment and marketing techniques, are particularly related to the needs of small farmers and, as indicated on page 4, has specifically directed funds to address small-farm needs.

In summary, the Director, SEA, said that he believes it is a valid contention that most USDA research is scale neutral. However, he said he also recognizes that some research can and must be directed specifically to small-farm operations and that he is increasingly directing more effort to identifying high priority small-farm research needs and to directing additional resources into those research areas.

STATE AND PRIVATE PROGRAMS TO
HELP SMALL FAMILY FARMERS

Several localities have had notable successes in providing assistance to small farmers. The most

well-known of these is the paraprofessional small-farm assistance program at the University of Missouri. What other State and private agencies have established specific programs of agricultural research and/or extension to help small family farmers? How have these programs performed?

According to SEA, 21 States use paraprofessionals to some degree in their extension programs to provide intensive one-on-one assistance to small-scale farmers. The Ad Hoc Committee on Small Farms estimated that in fiscal year 1980 about \$5 million would be directed to such efforts.

In addition to Missouri's program which has 2,000 families enrolled in 33 counties, other programs include Tennessee's which has 41 paraprofessionals working with farmers in 41 counties and Texas' which provides special services to small farmers in 15 counties. The recently published USDA-funded survey (see p. 7) showed that, during 1977, 4,543 farm families were participating in such programs in 14 Southern States.

Private and State agencies working on small-farm needs include the following.

- Winrock International, Morrilton, Arkansas, is conducting livestock research directed to small farmers, including forage production for goats as well as cattle.
- Frank Porter Graham Center, Wadesboro, North Carolina, is establishing a training program to train 20 small farmers at a time to farm or become paraprofessionals to teach other farmers.
- The New England Small Farm Project involves the six New England States and has received funding from USDA, ACTION, and the Community Services Administration and staff assistance from the Cooperative Extension Service. The program includes such projects as finding and identifying small farmers, holding workshops, and developing information directories.
- Several States have initiated small-farm projects under the supervision of State small-farm committees to focus the services of USDA agencies and other resources in an area on limited-resource farmers.

--Public interest groups and other groups such as the Center for Rural Affairs, the Agricultural Marketing Project, the Small Farms Institute, and the Control Data Corporation have programs to assist small farmers either planned or underway.

According to SEA, it is too early to evaluate some of the more recent programs, but Missouri's small-farm extension program, judged by what it has done for small farmers and for the State, is highly successful. Observers and study groups from State extension services, public interest groups, and private foundations have looked at the program and talked with farmers participating in it. On the whole, they have been highly impressed. However, while the Missouri program has had substantial influence on small-farm extension activities throughout the country, similar programs have not been widely adopted. According to SEA, the basic reason seems to be a lack of funds; such programs are expensive and the States have been unable to secure additional funds or to redirect existing funds to fully implement them.

EARMARKING FUNDS TO SUPPORT
STATE AND PRIVATE PROGRAMS

Could USDA earmark a specific amount of funds to support programs such as those mentioned above? Would such earmarking be a cost-effective way of assisting small family farmers?

As pointed out in response to the second question (see p. 7), it appears that USDA may only encourage, not direct, the research areas to be undertaken through cooperative research and extension programs, such as Missouri's. The Director, SEA, told us that the Secretary of Agriculture advises States concerning such lines of inquiry as the Secretary deems most important. The Director emphasized, however, that the needs in each State are different and given the diversity of problems and resources available for solutions, each State's research and extension staff possesses considerable expertise of a localized nature concerning the relative effectiveness of detailed program alternatives.

USDA'S EFFORTS TO ASSIST SMALL
FAMILY FARMERS SINCE OUR 1975 REPORT

What additional efforts has USDA made to assist the small family farmer since your report in 1975? How successful have these efforts been?

USDA has given some increased focus to small farms since our 1975 report. Over the past 3 years, USDA has been reviewing and reshaping its program and policies on small farms. Its objective has been to help small-farm families increase their incomes from all sources and thereby improve their level of well-being. Additional USDA efforts to assist small farmers include the following.

- In May 1978 USDA's Economics, Statistics, and Cooperatives Service sponsored a workshop for both USDA and other researchers. The participants discussed issues, research, and information needs concerning small-scale farmers and their families.
- USDA, the Community Services Administration, and ACTION jointly held five regional small-farm workshops with about 400 farmer-delegates in July, August, and September 1978 to identify and discuss farm problems as viewed by small-farm operators.
- On January 3, 1979, the Secretary of Agriculture clarified departmental policy on small farms in Secretary's Memorandum No. 1969, "Assistance to Small Farm Operators." The memorandum states the Department's policy is to encourage, preserve, and strengthen the small farm as a continuing component of American agriculture; provide assistance which will enable small farmers and their families to expand the necessary skills for both farm and nonfarm employment to improve their quality of life; and encourage small-farm operators to participate more fully in all USDA programs. The memorandum also established a Policy Committee on Small Farm Assistance which includes the Assistant Secretaries of Agriculture and the Director of Economics, Policy Analysis, and Budget.
- On February 26, 1979, the Policy Committee on Small Farm Assistance issued a memorandum to USDA agency administrators regarding USDA's commitment to

assist small family farmers. The Committee also sent a memorandum to State Rural Development Committee chairpersons.

--In April 1979 SEA established a small-farm coordinating group charged with developing a long-range SEA small-farm program.

--A small-farm family newsletter was initiated by USDA in April 1979 to facilitate communication among professionals and others working in the small-farm area.

--In April 1979 the Director, SEA, created the SEA Coordination Team for Organic Farming and charged it with conducting a study of organic farming in the United States. In July 1980 the team published a report entitled "Report and Recommendations on Organic Farming." The report contains a number of recommendations directly related to small farms. Included are recommendations to conduct research on the potential impact of organic farming on the economic viability of small farms and foster the development of direct marketing of organically produced foods.

--USDA, in cooperation with the Community Services Administration and ACTION, held five regional small-farm workshops in 1980. Each State was asked to present a report on its small-farm programs and activities, and the programs and activities were summarized for the first time into a record of programs from all 50 States, Puerto Rico, the Virgin Islands, and Guam. This publication is to be distributed to USDA staff working in small-farm programs and other agencies and organizations working with farmers.

--In 1980 SEA designated three regional small-farm research centers (Beltsville, Maryland; Charleston, South Carolina; and Booneville, Arkansas) to manage in-house small-farm research activities. SEA is developing and field testing (1) multicropping, low energy input systems for small farms, including maximum use of organic residues, (2) insect-resistant and disease-resistant varieties of crops, (3) recommended production practices, and (4) equipment suitable for small farms.

--State agricultural experiment stations are also conducting research specifically applicable to small farms. The States emphasize (1) technology and production systems for small farms, (2) enterprise combinations to increase farm income, (3) marketing alternatives, (4) the analysis of farm and family characteristics, and (5) resource constraints on small-farm operators.

--The extension service has assisted small and limited-resource farmers through regular and special extension programs funded with Federal, State, and county funds. Twenty-one States have extension programs which use paraprofessionals to provide intensive one-on-one assistance to small farmers. Such programs provide limited-resource farmers with technical and management information and help adapt this information to the specific needs of the farmer.

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At your request we did not take the additional time to obtain agency comments on matters discussed in this report. However, we discussed its contents with SEA officials, whose comments are included where appropriate.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 5 days from the date of the report. At that time, we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,



Henry Eschwege
Director