United States General Accounting Office

GAO

Testimony

Before the Committee on Agriculture,
Nutrition, and Forestry,
U.S. Senate

For Release on Delivery
Expected at
9:00 a.m. EST
Thursday
March 13, 1997

AGRICULTURAL RESEARCH

More Efficient and Accountable System Could Better Respond to New Challenges

Statement of
Robert A. Robinson, Director
Food and Agriculture Issues
Resources, Community, and Economic
Development Division

GAO/T-RCED-97-101

Mr. Chairman and Members of the Committee:

We are pleased to be here today to present our views on the U.S. agricultural research system. In particular, we will be discussing what could be done to help the system better respond to the challenges faced by the agricultural sector now and in the next century.

It is difficult to begin any discussion on how the research system could be changed without first acknowledging its many accomplishments. For over a century, publicly funded agricultural research has been an important catalyst in creating a vigorous agricultural economy and a bountiful supply of inexpensive food and fiber. Along with extension and education, agricultural research has helped transform U.S. agriculture into the productive, technology-based operation it is today.

While its numerous achievements have served the nation well, we believe that changes are needed to strengthen the system so that it can better respond to current and future food and agricultural needs. In particular, the system could be made more efficient through such measures as closing and consolidating federal laboratories and increasing collaboration among public and private researchers. In addition, greater accountability is needed to foster quality research and reduce unnecessary duplication.

Background

The nation's publicly funded agricultural research system is based on a federal-state partnership in which the U.S. Department of Agriculture (USDA) and the states, through their land grant institutions, play multiple roles in conducting and funding agricultural research, extension, and education activities. This system, whose roots go back to the nineteenth century, today comprises over 100 USDA laboratories, over 100 land grant institutions located throughout the United States,[1] and thousands of publicly funded agricultural research scientists. For fiscal year 1998, USDA has requested about $1.8 billion for its Research, Education, and Economics mission area. This amount includes about $800 million for in-house research conducted by the Agricultural Research Service (ARS) and $840 million for the Cooperative State Research, Education, and Extension Service (CSREES), which administers funding for research at land grant institutions.

[1]The land grant colleges include the colleges mandated under the Morrill Act of 1862, the second Morrill Act of 1890 (historically black land grant colleges), and the Elementary and Secondary Education Reauthorization Act of 1994 (Native American colleges).

Existing Structure Is Inefficient

While many agricultural research needs have changed, the structure created to meet these needs has remained essentially intact. In our 1996 review of agricultural research,[2] we reported that ARS alone occupies almost 3,000 buildings on about 400,000 acres at 107 laboratory locations and 35 worksites in the United States, Puerto Rico, and several foreign locations. Consolidation may offer the opportunity for reducing some of the overhead costs associated with these facilities. In fiscal year 1996, ARS allocated over $67 million (or 9.5 percent of its appropriated research funds) to overhead costs, and CSREES allocated $14.7 million (or 3.6 percent of its total research budget) to overhead.

In addition to the associated overhead costs, USDA's existing infrastructure has hindered its ability to move into new research areas that require different equipment and scientific expertise. In our 1996 review, we noted that some USDA infrastructure, such as quarantine facilities and special equipment for work on recombinant DNA, was acquired for specific research and cannot be easily modified for use in other areas. Further, the over 1,900 scientists conducting research at these facilities have developed specialized expertise. It takes many years to develop this expertise as well as the teamwork that develops within laboratories—both of which are needed for successful science. Thus, major shifts of scientists can cause reduced productivity.

The need to make changes in the research programs conducted by land grant institutions has been reported by the National Research Council. In its comprehensive 1996 report on land grant colleges of agriculture,[3] the Council concluded, among other things, that "the past accomplishments of agricultural research conducted at the . . . colleges of agriculture provide no rationale for maintaining the status quo in the face of new research needs and paradigms and a rapidly changing operating environment."

We believe that there is a need to make the public agricultural research system more efficient. This can be achieved in several ways. First, some ARS laboratories could be consolidated or closed. In our March 1996 report, we noted that over 60 percent of ARS' laboratories were over 30 years old and that almost half had fewer than 10 scientists each. Furthermore, ARS estimated that, as of fiscal year 1993, $700 million was

[2]Agricultural Research: Information on Research System and USDA's Priority Setting, (GAO/RCED-96-92, Mar. 28, 1996).

[3]Colleges of Agriculture at the Land Grant Universities: Public Service and Public Policy. National Academy Press: Washington, D.C., 1996.

required to repair its facilities, many of which did not meet modern building codes.

USDA recognizes the need to consolidate ARS laboratories. In its fiscal year 1996 budget request, it proposed closing 12 laboratories. However, directives from congressional committees have limited USDA's ability to act. For example, regarding the 12 laboratories that USDA sought to close, the House and Senate committees' reports for USDA's 1996 appropriations directed that 9 remain open and that research conducted at the remaining 3 continue to be funded, if not at the existing laboratory, then at some other facility.

USDA's Strategic Planning Task Force, established by the 1996 farm bill, has the potential to address the issue of laboratory closings in an objective manner. This independent, 15-member panel is charged with, among other things, reviewing the capacities of federally owned and funded agricultural research facilities and, within 2 years, providing a 10-year strategic plan for closing, consolidating, modernizing, and constructing federally funded facilities. We believe that the task force deserves the resources and support necessary to effectively carry out its mandate.

Another way to increase efficiency is through more collaboration among federal, state, and industry research scientists. For example, regional centers of excellence, linking scientists from various states and federal laboratories to work on research of regional importance, offer the potential for more efficient use of resources through the sharing of expertise and facilities across state lines.

Fundamental to the center-of-excellence concept is the notion that not all institutions need to have research programs and expertise in all specialties. Further, food and agricultural issues are not always best examined at the state level. Many issues—such as those involving natural resources, food safety, and nutrition—cross state boundaries. Our 1996 report on agricultural research identified several examples of collaborative efforts among land grant universities and between land grants and federal agencies, including ARS. USDA is a strong proponent of such partnerships, as are many members of the research community.

Finally, Cooperative Research and Development Agreements (CRADAs) represent an important mechanism through which federal laboratories and private industry can collaborate. In our June 1996 report on ARS research

activities,[4] we reported that as of January 1996, ARS had at least 236 active CRADAs covering 173 projects. The projects were valued at $114 million. Our report noted that the benefits of CRADAs to ARS included improved opportunities to develop and transfer technology and obtain better feedback from industry on the types of research needed. However, to our knowledge, there have been no comprehensive reviews on how effectively ARS has implemented its CRADA program. We believe this would be an opportune time to examine the program to determine the extent to which the public has benefited from these arrangements.

Existing Structure Lacks Accountability

Along with increased efficiency, there is a need for improved accountability for federal research expenditures. As noted in our 1996 report on agricultural research, USDA does not comprehensively evaluate the impacts of research programs. Furthermore, neither ARS nor CSREES systematically assesses the relative importance of its research priorities within the context of USDA's overall research portfolio. Without such assessments, there can be little assurance that research resources are being allocated to the areas of greatest need. The Government Performance and Results Act of 1993 (GPRA) has provided an impetus for USDA to move toward an outcome-oriented strategic planning process with performance goals and measures of performance. If this effort is successful, it will be an important step toward greater accountability.

However, for GPRA to be effectively implemented, USDA will need to improve its information system capabilities. USDA's Current Research Information System (CRIS), used by thousands of researchers to document and inventory publicly funded agricultural research, has significant limitations. For example, this system does not capture many current research areas, such as biotechnology and sustainable agriculture. As a result, USDA cannot accurately identify the extent of publicly funded research in those areas. Moreover, the system lacks information on planned research expenditures and comprehensive data on food and agricultural projects supported by other federal agencies. Finally, its information on research outcomes is often incomplete because land grant universities and others do not systematically collect data on the outcomes of their research projects.

USDA has several efforts under way to improve its research information systems. Since fiscal year 1996, USDA has allocated about $200,000 to fund a task force established to enhance CRIS' capabilities. In addition, USDA is in

[4]ARS' Research Activities, (GAO/RCED-96-153R, June 14, 1996).

the early stages of planning for the design and development of a Research, Education, and Economics Information System to integrate some of the systems currently used by USDA's research agencies, including CRIS.[5] This system is also intended to provide the expanded information capabilities needed for reporting information required under GPRA. It is critical that USDA take the steps necessary to ensure that this new system adequately meets the needs of USDA's management and the research community and be completed in time for use in meeting GPRA requirements.

Accountability has also been hindered by several of the mechanisms USDA uses to allocate its research funds. USDA distributes its research funds in four basic ways: (1) to ARS for in-house research; (2) to land grant colleges and their associated research experiment stations through a formula based on the percentage of the nation's rural and farm populations located in each state and territory; (3) through a competitive grant program—known as the National Research Initiative—open to scientists both inside and outside of the land grant system; and (4) through a special research grants program that includes congressionally designated (i.e., "earmarked") projects and projects USDA has determined to be of national or regional priority.

The impact of these funding mechanisms is that a large proportion of USDA-funded research—in particular, earmarked grants, formula funds, and to some degree, in-house research—is less subject to accountability than competitively funded research.

This is not to say that these funding mechanisms do not also have advantages. For example, in-house research allows laboratories to maintain long-term research efforts; and formula funds facilitate the pursuit of long-term research goals and multidisciplinary research and provide leverage for state and private support of agricultural research. Further, supporters of earmarked grants maintain that such grants address local problems that might otherwise not be addressed.

However, as noted by the National Research Council, noncompetitive funding, by earmarked grants or formula, is inherently lacking in accountability. With earmarked grants and formula funds, USDA has no effective means of determining how they are used by recipients or whether they have been devoted to activities that justify federal support. Nor is such research automatically subject to peer review—an important part of

[5]In addition to CRIS, other systems being integrated into this system include USDA's extension and higher education information systems.

quality control in science. Similarly, the National Academy of Sciences noted that merit review of in-house research is more difficult because federal research scientists are in the civil service and still receive salaries even if they are not productive or if their area of expertise has become obsolete.

In fiscal year 1994, CSREES funded about $53 million in earmarked special grants. Similarly, as we reported in 1996,[6] as of January 1996, ARS had 42 projects, valued at $32 million, that were designated by congressional committees to go to organizations outside the federal government. Nearly all the respondents to a 1995 agricultural research survey conducted by the House Committee on Agriculture agreed that all of USDA's special research grants should be awarded competitively—not through earmarking. While some congressionally designated grants may produce quality research, there is little accountability for such funds, and these grants use resources that could be directed to areas of greater priority.

As for the proper balance among the funding mechanisms for agricultural research, we believe this can best be determined in the context of clearly stated national research goals—jointly determined by USDA and the land grant institutions—and strategic plans for reaching these goals.

This concludes our statement. We would be glad to respond to your questions.

[6]GAO/RCED-96-153R.

Ordering Information

The first copy of each GAO report and testimony is free. Additional copies are $2 each. Orders should be sent to the following address, accompanied by a check or money order made out to the Superintendent of Documents, when necessary. VISA and MasterCard credit cards are accepted, also. Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.

Orders by mail:

U.S. General Accounting Office
P.O. Box 6015
Gaithersburg, MD 20884-6015

or visit:

Room 1100
700 4th St. NW (corner of 4th and G Sts. NW)
U.S. General Accounting Office
Washington, DC

Orders may also be placed by calling (202) 512-6000 or by using fax number (301) 258-4066, or TDD (301) 413-0006.

Each day, GAO issues a list of newly available reports and testimony. To receive facsimile copies of the daily list or any list from the past 30 days, please call (202) 512-6000 using a touchtone phone. A recorded menu will provide information on how to obtain these lists.

For information on how to access GAO reports on the INTERNET, send an e-mail message with "info" in the body to:

info@www.gao.gov

or visit GAO's World Wide Web Home Page at:

http://www.gao.gov

United States
General Accounting Office
Washington, D.C. 20548-0001

Bulk Rate
Postage & Fees Paid
GAO
Permit No. G100

Official Business
Penalty for Private Use $300

Address Correction Requested