Agricultural Network Fights Unwelcome Gift

President's competitive grants program, providing $30 million for basic research, is attacked in Congress

For 2 years President Jimmy Carter's staff has been trying to install a small program using modern principles of research management at the Department of Agriculture (USDA), and for 2 years the agricultural community has resisted it. The reform effort will be challenged again this fall by its opponents in Congress when the 1980 agriculture appropriation bill is hammered into a final draft by House and Senate conferees.

The reform centers on a project known as the competitive grants program, launched with a $15 million budget in fiscal year 1978. Unlike traditional federal grants for agricultural research, divided up among the states according to an elaborate formula, this money is provided for basic research and given only to investigators who win top ranking for their projects in a national competition judged by their peers. Shortly after the program appeared, it was rejected as an alien creation by many directors of agricultural research at state institutions and by their representatives in Congress.

Because of the way the competitive program was presented in the first budget actually drawn up by Carter's staff (in fiscal year 1979), it was seen as an attempt to undercut the traditional system run by the state land-grant colleges and their experimental stations. This system receives about one-quarter of its support from the federal government.

Last year, the agriculture committees in the House tried to kill the competitive grants program, but it managed to scrape by with its $15 million intact. Once again this year, the House Appropriations Committee's subcommittee on agriculture, chaired by Jamie Whitten (D–Miss.), voted to cut the entire $30 million that Carter proposed to give competitive grants.

It is unusual for congressmen to pinch pennies when the President offers to spend, but that is what Whitten's subcommittee did, and the House agreed. The corresponding Senate subcommittee, chaired by Thomas Eagleton (D–Mo.), is less devoted to the agricultural lobby and voted to give the President $25 million for his experiment in competition. The Senate went along. Now the disparity between the Senate and House bills must be resolved, and one of Congress's first tasks after Labor Day is to write an agriculture bill and decide what to do with the new grants program. A vote to split the difference, providing funds of $15 to $20 million, might be counted a tentative victory for the Administration. Anything less would be a defeat, possibly discouraging interest in setting up such a project at USDA for some time.

Although there have been earlier attempts to integrate agricultural science with the mainstream of basic research in the United States, none has gone as far as this one. The effort derives its inspiration from a series of critical reviews of agricultural research made over the last decade, all of which recommended fundamental changes in USDA management. The grandfather of them all was the "Pound Report," written by a National Academy of Sciences panel in 1972 under the chairmanship of Glenn Pound, dean of the University of Wisconsin College of Agriculture. The group made 20 specific recommendations for improvement and offered the general observation that "in the allocation of resources for agricultural research, grossly inadequate support was given to the basic sciences" and that "the agricultural research establishment seems to have an excessive number of field laboratories with an undesirably low level of coordination and integration of [state and federal] efforts." The panel also found duplication of work, unimaginative use of funds, a reluctance to allow scientists to select their own topics of research, and little emphasis on peer review as a method of improving the quality of work (*Science*, 5 January 1973).

Other studies since then have endorsed many of these findings, including, most recently, a review published in 1977 by the Office of Technology Assessment and directed by W. Keith Kennedy, then dean of the College of Agricultural and Life Sciences at Cornell University. This report concluded that more basic research in agriculture is needed, but that "as research funds are now administered in both the USDA and in the state agricultural experiment stations, there is no assurance that additional funds will be utilized for these specific purposes." It suggested that Congress find some way to earmark money for basic research through a program of competitive grants (with peer review) either at USDA or the National Science Foundation.

Taking the bit between their teeth, USDA research directors in the last days of the Ford Administration recommended that $15 million be set aside in the 1978 budget (out of a total research budget of $622 million) for a competitive grants program. With more political savvy than Carter's appointees were to exhibit later on, they also recommended comfortable increases in the two traditional establishments, the extramural Cooperative Research Service run by the state agriculture schools and the in-house federal system known as the Agricultural Research Service. Carter adopted this budget, but in his second year he decided to cut back funding in the traditional areas by an amount exactly equal to the amount he increased it for competitive grants. That infamous decision is now known as "the trade-off," a phrase that burns with a sulfurous glow when uttered by directors of state agricultural experiment stations. Congress, largely through the efforts of Jamie Whitten, killed the trade-off and restored funding to the traditional research systems.

Apparently the Administration took the lesson to heart, learning that you may launch a flashy new program if you wish, but not if you plan to finance it by sacrificing established programs. This year, Carter's budget offered to finance traditional research at a steady level while increasing the funds for competitive grants. An old hand, now retired from USDA, says that he and others could have saved the Administration a lot of grief if only the new appointees had been willing to listen. But the voice of experience never reached the upper levels, he says, because the Carter officials were so caught up in the reform rhetoric of the campaign that none dared associate with the distrusted bureaucrats.

0036-8075/79/0914-1108$00.50/0

Leaders among the state experimental station directors say the storm is over now. Feelings are still raw, but state officials have begun to believe they can live with the competitive grants program because they are convinced the senior Administration officials pushing reform will be more considerate of the states' interests. Perhaps this indicates that they feel they have the situation under control again. They speak well, for example, of the President's science adviser, Frank Press, and his staffers—Gilbert Omenn and Denis Prager—who have been pressing USDA to move faster on funding basic research. They also approve of the chief research official at USDA, Anson Bertrand, director of the Science and Education Administration. In an organizational change made in July, Bertrand was given the status, but not the title, of an assistant secretary, enabling him to defend the research budget personally before the secretary and in negotiations with the Office of Management and Budget. He took this responsibility over from Rupert Cutler, who is now assistant secretary for natural resources and environment.

The experimental station directors, who in most cases are deans of the relevant state agricultural school, wield considerable clout in the department. Their association—the Experimental Stations Committee on Organization and Policy (ESCOP)—is a division of the National Association of State Universities and Land-Grant Colleges. John Patrick Jordan of Colorado is ESCOP's chairman and William Flatt of Georgia is the chairman of the legislative group. They told *Science* that ESCOP now supports the competitive grants program, *provided* that adequate annual increases are also given the state research programs, preferably in amounts that more than compensate for the loss of purchasing power resulting from inflation. Land-grant colleges last year won 70 percent of the funds given out through the rigorous peer review system adopted for competitive grants several years ago. This success has not allayed their suspicions about the new program, however, and they demand a guaranteed minimum income.

Jordan and Flatt are concerned that they not be identified with the views of Representative Whitten, their chief benefactor in Congress, who has denounced the competitive program in words too strong for their taste. As Flatt said, "We don't want to dig up that old ox and regore it."

Although he does not speak for ESCOP, Whitten undoubtedly gives voice to some of the unspoken feelings of the traditional research community, and his remarks reveal a fear that a way of life way be coming to an end. At the appropriation subcommittee hearings on the budget last March, Whitten complained that "three or four" layers of administration had been wedged in "between the research people and the Congress," making it difficult for him to find out what was really going on. He was unhappy about "you folks from the academic community"—Cutler and Bertrand—taking over the program. "These folks that have been in agricultural research see where you have made a grant to this college or that college, and they don't know whether your brother-in-law heads it or whether it is somebody that you went to school with. They cannot understand and I cannot understand why you think big city universities can do a better job where farming and agriculture is concerned than those who have been doing it before."

Whitten says he regards basic research funds, like those in the competitive grants program, as "play-around money," and he isn't at all convinced that USDA should devote more than 10 percent of its support to this kind of work. (The department estimates that the ratio of basic to applied research is now 40 to 60 percent, and Bertrand says he will aim to achieve an even 50 to 50 percent split sometime in the 1980's.) Whitten's approach is straightforward: "We have a whole lot of scientific work going on in the government that is for scientists. I think your [USDA's] work should be directed towards helping those engaged in agriculture first."

Whitten says he regards basic research funds as "play-around money."

ESCOP officially supports basic research and the competitive grants program, but with less than total enthusiasm. In a wish-list for the 1980 budget, a document read with interest at the White House as well as at USDA, ESCOP set out four priorities, with competitive grants dead last. Funding for this experiment, ESCOP said, should grow, but not any faster than funding for the old system. Priorities one and two were "maintenance of research capacity"—meaning more funds for the state schools—and "restoration of programs" sacrificed in Carter's budget of the year before. The 1981 budget request is still being drafted, but it follows much the same pattern. Competitive grants have moved up from last to next to last, just before a request for $20 million for new and improved facilities in the state system. However, priority number two is telling; it seeks a large increase ($15 million) in basic research funding. ESCOP would like this money to be channeled through the state cooperative system, and not the competitive grants program.

Jordan argues that the competitive grants program was conceived as a supplement to the cooperative program run by the states. Its purpose, he maintains, is to attract the best talent in the country—from whatever background—and put it to work in some fundamental research areas of special concern to agriculture. At present four areas have been identified for crop production (photosynthesis, biological nitrogen fixation, genetic mechanisms, and protection from biological stresses), and two in human nutrition (establishing nutrient requirements for all age groups and determining the social and behavioral factors that affect choice of food). This program, Jordan says, was never meant to serve as a model for the whole research enterprise. Furthermore, he says, the land-grant colleges and experimental stations are taking steps right now to increase their investment in basic research, to raise it above the present share of about one-third of the total budget.

Joe Key, the retiring director of the competitive grants program, Bertrand, and Prager of the White House staff, all agree that this new program will have a limited role, and that the USDA will continue to give steady support to the kind of applied research that the experimental stations have done in the past. However, none of these officials was satisfied with the standards of management and peer review now regarded as acceptable in much of the agricultural research community. Bertrand, in particular, indicates he will put more emphasis on good management practices. He has already begun to assemble a 12-member team of experts under the direction of Michael Brazzel to be available on request to conduct reviews of the states' programs.

These and other shifts in the research office at USDA are difficult to assess because they are still taking shape. However, they suggest that this administration intends to make tangible improvements in the way it oversees research. Some of these changes will be discussed in a later article.—ELIOT MARSHALL