

# White House Plows into Ag Research

*A critical report issued by OSTP urges reform of the agricultural research system*

On 10 September, the White House named Orville Bentley, dean of agricultural sciences at the University of Illinois, as the new assistant secretary for science and education at the Department of Agriculture (USDA). Among the items on Bentley's desk when he takes up his new assignment will be a blunt report from the White House Office of Science and Technology Policy (OSTP), telling him, in effect, that the research enterprise he has been chosen to head has some strong points, but has become senile, is wracked by pork-barrel politics, and is in urgent need of a shake-up.

These problems, the report says, have been aggravated by chronic underinvestment in agricultural research, particularly basic science.

It is not the first report to paint an unflattering picture of the nation's agricultural research system. A decade ago, a committee of the National Academy of Sciences faulted the system for inept management, poor quality research, and neglect of basic science. And similar criticisms have been echoed, though more politely, by the General Accounting Office and the Office of Technology Assessment.

The report, which will be published soon under the title *Science for Agriculture*,\* is the product of a meeting, jointly sponsored by OSTP and the Rockefeller Foundation, which was held last June at the Winrock Conference Center in Arkansas. Among the 15 invited participants were some leading lights in the agricultural research system, including Terry B. Kinney, Jr., director of USDA's sprawling Agricultural Research Service (ARS). Thus, not only does the document bear the imprimatur of the White House but it also cannot be dismissed as carping by outsiders.

"I look at this report as a constructive document," Kinney said in an interview with *Science*. He noted that the time is ripe to take a hard look at the system, and that resource constraints should prompt reforms. "If we can't do it in the current climate of tough resources, then we will never be able to do it," he said.

In effect, the report invites USDA to

prune dead wood from the system, where necessary by closing down facilities; pay more attention to basic research; stop suffocating programs with the dead hand of bureaucracy; and exercise scientific leadership. It also says that Congress, which bears its share of responsibility for the state of the system, should stop getting in the way of needed reforms.

The agricultural research system consists of an array of loosely interlocking programs and institutions funded by federal and state appropriations. USDA directly supports about half a billion dollars worth of in-house research, mostly through the ARS, and provides about \$140 million a year in block grants to the states to support research in state institutions—the university-based agriculture experiment stations and their satellite facilities. State governments also put close to \$700 million a year into these institutions.

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During the past decade, the system has come under pressure as federal funding has leveled off. Support in some states has also declined because of general belt-tightening during the recession. Federal personnel ceilings have resulted in an aging research population—the average age of USDA scientists in 1976 was 47, compared with 35 for scientists at the National Institutes of Health. And, according to some critics, the system has been slow to apply the powerful new genetic engineering techniques that have been developed during the past decade.

These challenges and problems have "greatly exacerbated natural institutional resistance to change, resulting in excessive parochialism and preoccupation with institutional protection and maintenance," says the report. "Institutional energies have been devoted to administrative matters and relative budget levels

rather than to the identification of critical research needs or the development of interinstitutional relationships to bring about the technological advances needed by agriculture."

In remarkably blunt language, the report ticks off the following shortcomings:

- "There has been a piecemeal approach to gaining crucial fundamental knowledge about the biology of the organisms on which the future of American agriculture depends. Some experiment stations and USDA laboratories have excellent basic research programs; however, many do not."

- "There is a reluctance at the federal level to increase funding for research perceived neither to be of the highest quality nor focused on the most critical scientific problems. Federal funding and top scientific talent are going to institutions outside the system, conducting 'cutting-edge' basic science."

- The "distribution of funds is largely on the basis of geopolitics rather than need or expected return."

- USDA is "so constrained by Executive Branch budget, personnel and management restrictions that it cannot exert real leadership in determining national scientific needs and priorities and in focusing the energies of its laboratory system on meeting those needs and priorities."

This indictment is, however, not matched by calls for fundamental changes. In general, the report recommends that the principal elements of the system be maintained and strengthened. But it does urge some reforms that will undoubtedly be considered radical in an enterprise that has shown such extraordinary resistance to change.

The general thrust of the recommendations is to strengthen USDA's role in setting policies and priorities, and to try to ensure that federal laboratories concentrate on basic research and national problems, leaving the state institutions to focus on local and regional programs. These moves simply seek to force the system to operate in the manner in which it was always supposed to operate.

To these ends, the report proposes changes in the way block grants are administered, argues for more competi-

\*Available from OSTP, Executive Office of the President, Washington, D.C. 20500.

tive grants to support mostly basic research, and urges a thorough shake-up of the ARS. No fundamental change in the structure of the system is contemplated, however.

The use of block grants to fund state-level agricultural research goes back to the Hatch Act of 1887. The funds are distributed among the states according to a formula based in part on the size of each state's rural population. They are supposed to provide a stable core of support, which is at least matched by state funds. Since these grants come without many strings, they are cherished by the experiment stations and state governments and enjoy strong support in Congress. In the omnibus farm bill approved last year, for example, Congress decreed that at least 25 percent of USDA's research funds should be in the form of block grants. (The proportion is now about 23 percent.)

The Winrock participants chose not to take this system on. "The political reality is that the formula funds won't be reduced, and that you start from there," says panel member Perry Adkisson, deputy chancellor for agriculture at Texas A & M. Indeed, the report notes that the block grants can constitute a valuable source of funds and should provide a basis for federal-state dialogues on research priorities and directions. The problem, however, is that the dialogue at present revolves around the bureaucratic details of administering the grants, and scientific discussion gets lost, the report claims. It therefore recommends that the block grants be passed on with the minimum of bureaucracy at the federal level.

As for the ARS, the report notes that "political interests have been responsible for the establishment and retention of a large number of field sites and major facilities, many not justifiable in terms of research need or efficient allocation of resources." It therefore recommends that USDA should thoroughly evaluate each facility and choose one of four options: retain as an ARS facility, turn over to the host state and phase out federal support, sell to private industry or to a university, or close. A central problem with any attempt to prune facilities, however, is that members of Congress tend to balk when institutions in their states are threatened, and pork-barrel politics takes over. (Indeed, about half of USDA's research facilities were established by congressional initiative.) The report thus politely asks Congress to let ARS determine the fate of facilities according to their merits.

In addition, the report recommends that ARS should concentrate on basic

research and that its programs should be subjected to rigorous peer review.

Like every other group that has examined the agricultural research system, the Winrock participants have urged that a growing proportion of USDA's research funds be in the form of competitive, peer-reviewed grants. All real growth, above inflation, should come in this area, the report says. What happens, however, if there is no real growth? Should funds be shifted from other programs to expand competitive grants? "We ducked that one," says one participant.

USDA does have a competitive grants program, but it receives only about \$16 million a year, a miniscule fraction of the department's research total. In part, the paucity of funds is the fault of Congress, which has failed to appropriate requested money. Congressional resistance reflects concern that the competitive grants program will eat into support of other USDA research, particularly block grants. The Winrock group's reluctance to tackle the problem of redistribution is therefore understandable.

Other groups have made similar criticisms and recommendations before, but this time, a combination of factors may ensure that changes are made. First, the report meshes with the Reagan Administration's proclaimed policy of freeing funds for innovative research by pruning dead wood from existing programs. "We are going to use the report as the basis for policy decisions we will be promoting," says OSTP assistant director Denis J. Prager, who convened the Winrock panel. Second, there is new leadership in USDA research programs. Bentley has just been appointed, and Kinney, who has been head of ARS for only 2 years, is regarded as receptive to proposals for reform. And third, the agricultural power block on Capitol Hill, which has resisted change in the past, is not as powerful as it once was. Representative George Brown (D-Calif.), a member of the Winrock panel, plans to hold hearings on the system next year with his agricultural research subcommittee, and is said to be willing to devote a lot of time to the issues.

But rapid and fundamental change should not be expected. "Do I think the USDA is going to close down all its field stations and become a National Institute of Agricultural Research? It's not going to happen soon," says panel member James B. Kendrick, Jr., vice president for agriculture and university services at the University of California. But, he adds, "I happen to think that's the way things should go."—COLIN NORMAN

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## Science Board Nominations

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President Reagan has nominated three academic scientists and one industrial scientist to serve on the National Science Board. They are: Charles Hess, dean of the college of agricultural and environmental sciences at the University of California, Davis; John Moore, an associate director of the Hoover Institution; Norman Rasmussen, chairman of the department of nuclear engineering at the Massachusetts Institute of Technology; and Roland Schmitt, a vice president for research and development at the General Electric Co.

Four vacancies remain on the 24-member board. The nominees are subject to Senate approval and serve for 6 years.—**R. Jeffrey Smith**

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## A New Pot of Money for Plant Sciences

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The McKnight Foundation, a wealthy philanthropic organization based in Minneapolis, is about to launch a major program to support basic research and graduate education in plant biology. The program, which will channel about \$2 million a year into university research, has been developed at least in part because of concerns that the Department of Agriculture (USDA) is paying insufficient attention to basic science (see p. 1227).

Richard S. Caldecott, dean of biological sciences at the University of Minnesota, who has been helping the McKnight Foundation put the program together, says that "NIH [the National Institutes of Health] has brought about advances in animal science by paying attention to basic biology. USDA hasn't done that in the plant sciences, and they are seriously lagging behind." The McKnight Foundation is committed to supporting the program for 10 years, says the foundation's executive director, Russell Ewald.

The McKnight Foundation, which has assets of \$350 million from the family estate of William McKnight, the longtime head of the 3M Corporation, is planning to support about half a dozen interdisciplinary research groups with grants of up to \$300,000 a