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Agricultural Research, Education, and Extension: Issues and Background

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Summary

Agricultural research, education, and extension developed as a mission area within the U.S. Department of Agriculture (USDA) during the first 50 years of the department's existence. As currently organized, USDA's Agricultural Research Service (ARS) is the in-house scientific research agency. The Economic Research Service (ERS) analyzes statistical indicators in all agricultural issue areas in order to support public and private decision-making. The National Agricultural Statistics Service (NASS), which has field offices in most states and U.S. territories, collects and analyzes a broad range of data and administers the U.S. Census of Agriculture. The Cooperative State Research, Education, and Extension Service (CSREES) is the agency that channels a portion of annual USDA appropriations to states and U.S. territories to support higher education programs in agriculture, state and regional research, and continuing agricultural education and outreach to the public. When adjusted for inflation, appropriations for agricultural research, education, and extension have mostly remained level since the 1970s.

Agricultural research, education, and extension at the federal and state levels are supported through a combination of direct appropriations (to ARS, ERS, and NASS) and block grants to states, competitive grants, and congressionally designated grants (all administered by CSREES). Although these funding mechanisms are widely acknowledged to have served agriculture well, the larger scientific community has consistently argued that a greater proportion of USDA research funding should be distributed through the competitive, peer-reviewed grant process. The National Academy of Sciences (NAS) maintains that competitive grants reach a large pool of talented scientists and stimulate new research in high priority areas. Recent Administration proposals to redirect funds to competitive grants from the block-grant funded programs (in the absence of new money) have drawn vigorous criticism from the colleges of agriculture in the states, and Congress has not adopted them. The House and Senate Agriculture Committees passed legislation in 1998 intended to capture new funds for competitive grants from the mandatory side of the USDA budget. The appropriations committees, however, have consistently prohibited those funds from being used to support the competitive grants program for which they were intended.

Under potential consideration in the expected farm bill debate in 2007 is a USDA task force recommendation (from 2004) to establish an independent, competitive grant-awarding National Institute for Food and Agriculture within the department, supported with new money. In the current pre-farm bill period, international trade issues and pressure for change in domestic farm support policies are causing many observers and policymakers to suggest that USDA should explore ways to support a broader range of U.S. producers than it currently does. Some have argued that USDA should invest more in research, rural development, and conservation programs, for example, and less in the traditional commodity programs.

This report will be updated as necessary.

Contents

List of Figures

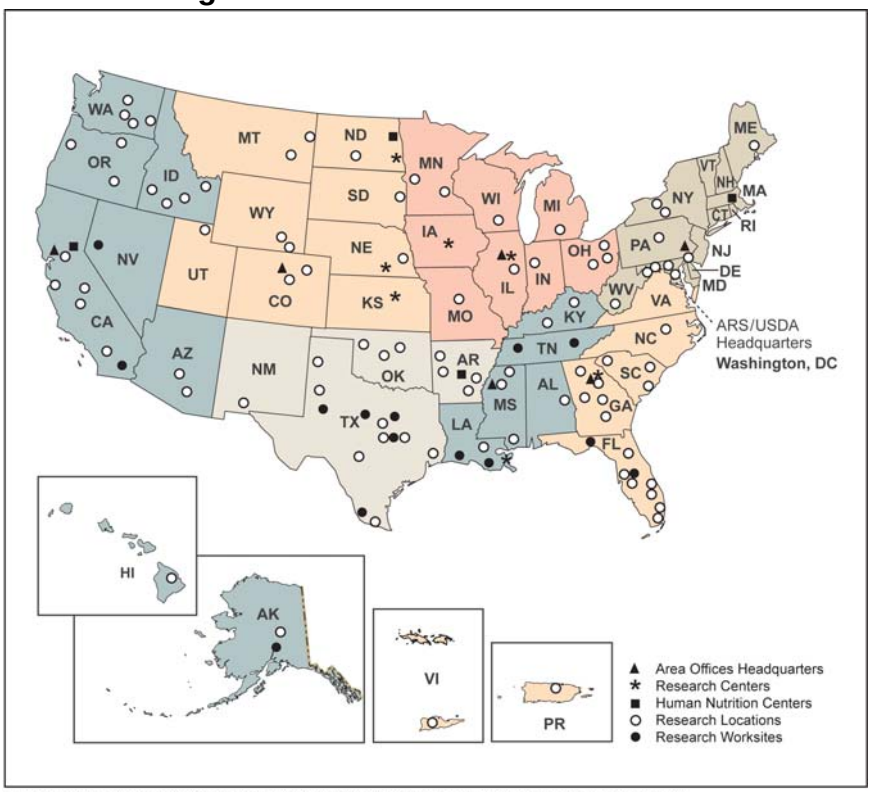
Agricultural Research, Education, and Extension: Issues and Background

Introduction

The U.S. Department of Agriculture (USDA) is responsible for conducting agricultural research at the federal level, and for providing partial support for cooperative research, extension, and post-secondary agricultural education programs in the states. This mission area of USDA is called Research, Extension, and Economics (REE). In addition to research in the hard sciences, it also includes agricultural economics research, and data collection and statistical analysis.

The USDA agencies responsible for these functions are (1) the Agricultural Research Service (ARS), the department's in-house science agency, which also has research centers and other locations across the United States; (2) the Economic Research Service (ERS), an entirely Washington, D.C.-based social science agency; (3) the National Agricultural Statistics Service (NASS), a data-gathering agency headquartered at USDA, with offices in most states and U.S. territories; and (4) the Cooperative State Research, Education, and Extension Service (CSREES), which is headquartered at USDA and administers a variety of grant programs, as well as the federal funds that pass through to the state partners.

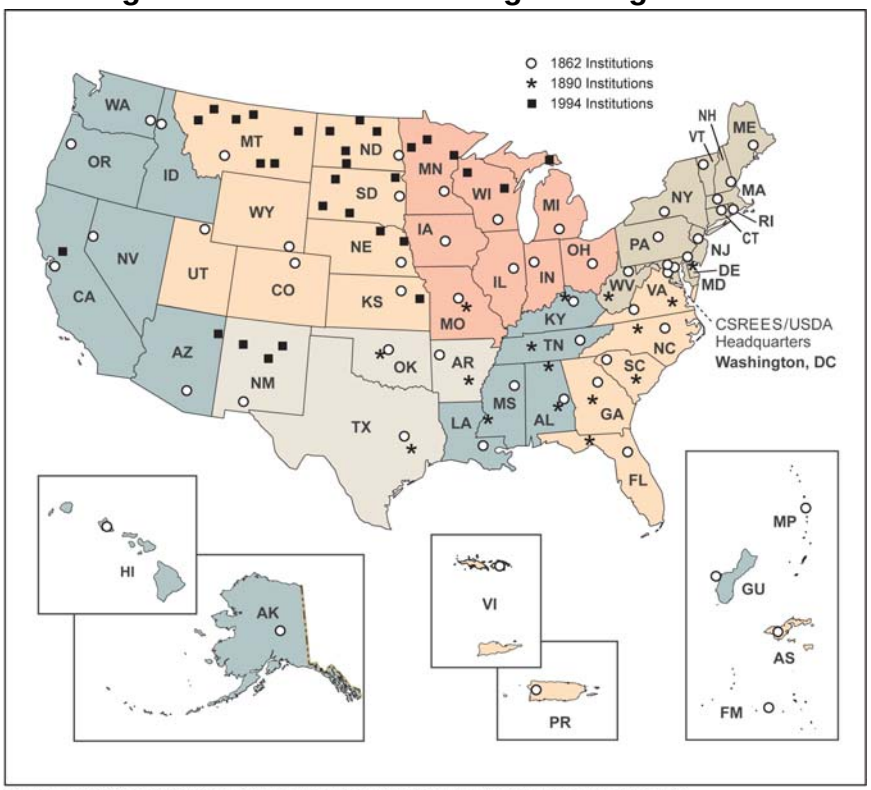
Figure 1. ARS Research Locations



Source: Information provided by the U.S. Department of Agriculture, Agriculture Research Service. Map Resources. Adapted by CRS. (K.Yancey 2/2/06).

The state partners are the colleges of agriculture at land grant universities in 50 states and eight U.S. territories, with their affiliated state agricultural experiment stations, schools of forestry and veterinary medicine, and cooperative extension.[1] There also are 18 historically black land grant colleges of agriculture (the 1890 institutions) and 31 Native American colleges that gained land grant status in 1994 (referred to as the tribal colleges).

Figure 2. Land Grant Colleges of Agriculture



Source: Information provided by the U.S. Department of Agriculture, Agriculture Research Service. Map Resources. Adapted by CRS. (K.Yancey 2/2/06).

Note: Map shows the location of the 1862 institutions' main agricultural experiment stations. Each state has several additional research locations. The Economic Research Service is located in Washington, DC. The National Agricultural Statistics Service is headquartered at USDA and has offices in 45 states and Puerto Rico.

Agricultural research, education, and extension have played a critical roles in the huge increase in U.S. agricultural productivity since World War II. No scientific basis for crop, livestock, and food production practices existed at the beginning of the 20th century. Advances in the basic and applied agricultural sciences now are considered fundamental to increases in farm sector profitability, to competitiveness in international agricultural trade, and to improvements in human nutrition and food-related health. Recently revised calculations on the rate of return on federal

[1] The term "land grant" refers to the law first establishing an institution of public higher education in each state to teach the "agricultural and mechanical arts." The Morrill Act of 1862 gave a grant of federal land to each state and directed the state to sell the land and use the proceeds to establish a college of agriculture. In many states, the original 1862 school became the foundation for the state university, growing to include a wide range of academic disciplines, including agriculture. These large institutions sometimes are referred to as land grant universities, but USDA funding and programs pertain only to the colleges of agriculture within them.

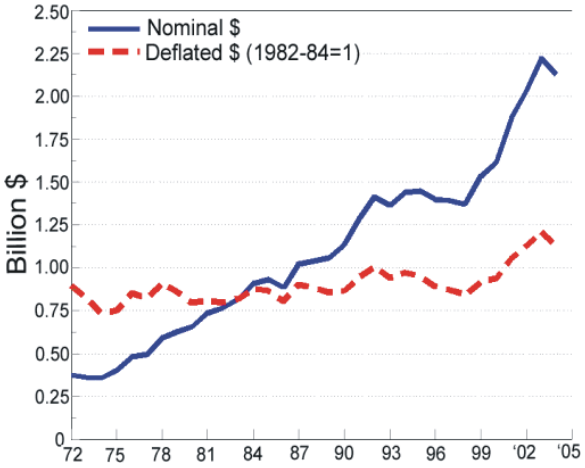
investment in agricultural research estimate it to be 6.8% per year.[2] The federal-state research system also supports USDA's regulatory programs in the areas of meat, poultry, and egg inspection, foreign pest and disease exclusion, and control and eradication of crop and livestock threats, among other things.

Since 1977, Congress periodically has made changes to the several permanent statutes authorizing research, education, and extension programs in one title of an omnibus, multi-year farm bill. (A recent exception is the Agricultural Research, Extension, and Education Reform Act of 1998, P.L. 105-185; however, reauthorization of and amendments to that act are contained in the 2002 farm bill [Title 7 of P.L. 107-171] along with the other related statutes.) The House and Senate Agriculture Committees are primarily responsible for oversight of agricultural research, education, and extension programs.

Appropriations History Shapes Policy Issues

When adjusted for inflation, funding for agricultural research has been relatively flat, with a slight increase since the late 1990s. The slow growth in real funding is further constrained by the need to devote a substantial portion of appropriations to "maintenance" research — necessary to maintain crop and livestock productivity levels in the face of newly resistant pests, emerging crop and livestock diseases, and changing environmental factors — and by generally higher than average inflation in the cost of new, high-tech equipment for research advances.[3]

Figure 3. USDA Research Spending, FY1972-FY2005



Source: Compiled and calculated by CRS from the Budget of the U.S.Government, FY1974-2006. Data used for generating graph include annual appropriations for (1) ARS salaries, expenses, buildings

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[2] "Reassessing Research Returns: Attribution and Related Problems," paper presented at the conference of the International Association of Agricultural Economists, Berlin, August 2000, by Julian M. Alston and Philip G. Pardey.

[3] *Agricultural Research and Development: Public and Private Investments Under Alternative Markets and Institutions*, Economic Research Service, USDA, Report AER-735, 1996. Available at [http://www.ers.usda.gov].

and facilities, (2) CSREES research and education programs (excluding extension), and (3) Forest Service research (not part of USDA's Research, Extension, and Economics mission area).

The marked rise in nominal dollars in **Figure 3**, particularly from 1998 through 2001, came at a time when the federal budget was in surplus. All non-defense research and development spending grew during that period.[4] One-time, supplemental funds appropriated specifically for anti-terrorism activities, not ongoing programs, are a significant factor for the increases in the FY2001-FY2003 period, in spite of a return to federal budget deficits.

Funding from federal agencies other than USDA has accounted for an increasing portion of total federal support for research at the state agricultural experiment stations (SAES). SAES scientists have competed successfully for more grants from the National Institutes of Health and the National Science Foundation, in particular. Funds from private industry for SAES research also have been steadily increasing. Public-private collaborations facilitate technology transfer and at the same time help to supplement federal and state support. However, some observers are concerned that both the increase in private funding and the increase in non-USDA agency funding could cause the focus of public research to shift away from truly agricultural priorities. Such a shift could hamper the nation's ability to be pre-eminent in innovation and to cope with challenges over the long term, observers say.[5]

The House and Senate Agriculture Committees have focused recent research policy reforms on (1) increasing the financial contributions of existing federal and state sources, (2) finding new sources of funding, (3) assuring that research supports national and stakeholders' priorities, and (4) improving access to information about projects and outcomes. The most active debates, however, generally occur around congressional action on the annual appropriations acts, when authorized reforms, administration initiatives, and constituent considerations combine to shape the actual operation of the agricultural research, extension, and teaching network for the next year.

Most Recent Legislative Activity

Congress traditionally considers research, education, and extension policy reforms and extends program funding authorities in periodic omnibus farm bills that cover virtually all USDA programs and policies. In the 1996 farm bill (P.L. 104-127) and subsequently in free-standing legislation enacted in 1998 (the Agricultural Research, Teaching, and Extension Reform Act of 1998; P.L. 105-185), the House

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[4] American Association for the Advancement of Science (AAAS) R&D Budget and Policy Program. Historical tables are available at [http://www.aaas.spp/rd/].

[5] Private industry expenditures for in-house agricultural research have exceeded federal and state funding combined since about 1980. Advances in biotechnology, stronger intellectual property rights, consolidation in the plant breeding and seed industry, and market globalization are some of the primary causes for this development. See Cassandra Klotz-Ingram and Kelly Day-Rubenstein, "The Changing Agricultural Research Environment: What Does it Mean for Public/Private Innovation?" *AgBioForum*, vol. 2, no. 7, 1999. Available online at [http://www.agbioforum.org/v2n1/v2n1a05-klotz.htm].

and Senate Agriculture Committees focused in particular on federal agricultural research, education, and extension policies. The 2002 farm bill (P.L. 107-171) reauthorized the research, education, and extension provisions of the 1996 and 1998 laws through FY2007 and contained some further revisions.

2002 Farm Bill

Accountability. The 2002 farm bill continued policies set in the 1996 and 1998 laws that are intended to increase the input of stakeholders into decisions concerning how federal and state research, education, and extension dollars are spent. These included provisions requiring ARS to (1) establish a priority-setting process for its research agenda that includes input from a wide range of stakeholders, and (2) establish a procedure to have ARS scientists' research projects regularly peer-reviewed by panels of mostly non-ARS scientific experts. With regard to state-level cooperators, the 2002 farm bill required (1) a similar effort on stakeholder input, (2) peer or merit review of research, extension, or education grants supported by federal money, and (3) an annual plan of work on which each state's entitlement to receive federal funds is based. The law also required the 1890 (historically black) land grant schools to fulfill these responsibilities.

Funding. The 2002 farm bill extended a provision from the 1998 law requiring states to match 100% of federal funds under the two statutes that authorize federal funds for state-level research and extension (the Hatch Act of 1887 and the Smith-Lever Act of 1914). Previously, a 90% match of only a portion of the federal grants was required.[6]

The 2002 farm bill reauthorized a state matching requirement for 1890 schools, which was established by the 1998 law. The requirement was revised to increase by 10% each year, reaching 100% in FY2007. In addition, the farm bill authorized minimum appropriations levels for the formula funds supporting research and extension programs at the historically black land grant schools, expressing them as percentages of formula funds appropriated for research and extension at the 1862 schools. The minimum appropriation for 1890s extension in any year is set at 15% of appropriated Smith-Lever Act formula funds for that year, and the minimum appropriation for 1890s research is set at 25% of appropriated Hatch Act formula funds. Appropriations to date have not met those minimum levels, remaining at about 11% and 20% for 1890s extension and research programs, respectively.[7]

The 2002 farm bill also contained a "Sense of Congress" provision calling for agricultural research funding to be "at least doubled" over the FY2003-FY2007 period "to restore the balance between public and private sector funding ... and to

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[6] Traditionally, annual state appropriations have exceeded the 100% matching point for both research and extension. The change in statutory language was made to simplify and equalize matching requirements for the 1862 land grant institutions, in part because the act also initiated a matching fund requirement in the states having 1890 (historically black) land grant schools. USDA grants to the tribally controlled institutions are exempt from matching requirements.

[7] Communication from CSREES, November 2005.

maintain the scientific base on which food and agricultural advances are made."[8] This provision expresses the importance that Congress places on increasing funding for agricultural research, but does not provide any authority for appropriations for that purpose. Research appropriations in the 2002-2006 period have not doubled.

The Search for New Money. The most significant provision in the 1998 act was the establishment of a five-year, $600 million Initiative for Future Food and Agriculture Systems (IFAFS), a competitive grants program supported by mandatory funds made available from the Commodity Credit Corporation, instead of by appropriated funds.[9] The provision was significant in that it represented only the second time that Congress authorized mandatory funds for programs traditionally supported with discretionary (annually appropriated) money.[10]

Congress reauthorized the initiative in the 2002 farm bill, raising its authorized funding level from the original $120 million annually to $140 million in FY2004, $160 million in FY2005, and $200 million annually thereafter. IFAFS is intended to promote cutting-edge, basic research in the areas of genomics, biotechnology, resource conservation, and food safety, among others.[11] USDA awarded grants under the initiative in FY2000 and FY2001. In FY1999 and every year since FY2002, appropriators have prohibited CCC funds from being spent on the initiative except to service existing grants until they end.

USDA Research Administration: Different from the Standard

A Variety of Funding Mechanisms

Direct Appropriations and Formula Funds. USDA differs from other federal research agencies in allocating the majority of its annual research appropriation directly to in-house research (ARS, ERS, and NASS). Most federal science agencies primarily fund research extramurally, through a competitive, peer-reviewed grant process.

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[8] H.Rept. 107-124 (P.L. 107-171), Section 7406, p. 333.

[9] The Commodity Credit Corporation (CCC) is a wholly owned government corporation that finances USDA's farm price and income support programs.

[10] The first research program to use mandatory funds was authorized in the1996 farm bill (P.L. 104-127). Congress authorized the use of $100 million annually in U.S. Treasury funds to support rural development and related research under a Fund for Rural America. In most years until the program authority expired in 2002, appropriators prohibited some or all of the annual transfers from the U.S. Treasury to be used to carry out the activities of the Fund for Rural America.

[11] Scientific research generally is broken down into two categories: basic (or fundamental) and applied. Basic research in agriculture is that which explores the biological, chemical, and genetic factors underlying plants and animals with the aim of obtaining knowledge without any direct application in mind. The scientific community and policymakers generally consider this type of research crucial for the nation to remain in the technological forefront and be prepared for future needs and emergencies. Applied research, as the name implies, explores the real-world applications of science for potential commercial use.

Nonetheless, it is widely acknowledged in the agricultural community that intramural research has an important role to play. Federal-level research is best able to take on higher-risk and long-term projects of national importance, like deciphering plant and animal genomes, conducting longitudinal studies on human nutrition, and measuring and analyzing current and historical socioeconomic factors in the U.S. food and fiber sector. ARS incorporates advice from a wide range of stakeholder groups in developing its five-year research strategy and uses a peer review process to ensure the quality of its science. In addition, ARS is responsible for performing the research that underlies USDA's regulatory programs in pest and disease exclusion and control, soil and water conservation, and meat, poultry, and egg inspection. ERS analyzes the economic effects of USDA programs in all mission areas, and NASS administers and analyzes the results of the nationwide U.S. Census of Agriculture, which is conducted every five years. Census data are critical to USDA program planners, governmental and nongovernmental policymakers, and lawmakers.

The primary and longest-standing mechanisms for distributing the annual appropriation for cooperative research and extension to the college of agriculture at each state's land grant university are the Hatch Act and Smith-Lever Act formulas (see box below). Additional funding for cooperative state research comes from state appropriations, competitive grants from USDA and other federal agencies, and private industry.

Formula Funds

Federal funding for research at the state agricultural experiment stations is authorized under the Hatch Act of 1887, which Congress amended in 1955 to include a formula that distributes the federal appropriation among states based on each state's farm and rural population as determined by the decennial U.S. Census. The Hatch Act, as amended, also requires dollar-for-dollar matching funds from state appropriations; most states, however, appropriate three to four times the federal allotment. Another provision in the act, as amended by the Agricultural Research, Extension, and Education Reform Act of 1998 (P.L. 105-185), requires each state to use 25% of its Hatch Act funds to support multi-state or regional research (increased from 20%, the level set in 1955). Congress reauthorized the higher percentage through 2007 in the 2002 farm bill.

Using a census-based formula to calculate the annual distribution of research funds to each state has meant that the state allocations have been quite constant from year to year, since annual appropriations have remained level or increased slightly. Although all federal sources account for 30% or less of total funding for the experiment stations (including grants from non-research agencies within USDA and from other federal departments), the reliability of the formula funds have resulted in their traditionally being used to support the core ongoing research programs of the state agricultural experiment stations. The latter, in turn, underpin the universities' academic programs. Formula funds are similar to block grants, and the scope and content of the programs they support are under the control of the research deans at the colleges of agriculture.

Federal funding for cooperative extension in the states is distributed under a formula (similar to the Hatch Act formula, and census-based) in the Smith-Lever Act of 1914, as amended. State appropriations generally exceed the 100% matching funds requirement. Federal funding supporting forestry and veterinary programs at the land grant institutions also is distributed among the institutions according to formulas, but these have different criteria than the Hatch Act and Smith-Lever Act formulas.

One of the most controversial additional sources of funding for ARS and the land grant agriculture schools is earmarked grants in annual appropriations acts. For FY2006, Congress appropriated $10.9 million for 67 specific ARS research projects at various labs across the nation, and $181 million for 294 designated research and extension projects at various land grant institutions.

Congressionally designated grants typically do not receive any type of formal review before they are awarded. However, in response to repeated criticism that such funds could be supporting weak or unnecessary research, CSREES many years ago developed an internal merit review process that research projects must undergo before the funds will be released. Merit reviews may result in improvements being made to the project (in research methodology, for example) before the funding is transferred to the designated institution.

Controversy over earmarked appropriations arises every year. Each annual budget request proposes eliminating the designated grants under both ARS and CSREES, stating that they deflect money away from higher-priority research in the national interest. Supporters of such grants counter that Members are most qualified to know what research is most important to their districts and to make sure those local needs are not ignored in the larger research picture. Continued static funding for agricultural research overall is likely only to perpetuate this controversy.

Competitive Grants

In contrast to USDA's research and extension funding mechanisms, the government's two largest science agencies, the National Science Foundation (NSF) and the National Institutes of Health (NIH), allocate the majority of their appropriations through competitively awarded grants to scientists in a variety of research venues nationwide.[12]

The National Academy of Sciences (NAS) has recommended for more than a decade that at least 35% of total USDA research money be distributed competitively.[13] When the NAS first made its recommendation in 1989, it determined that less than 6% of USDA's research funding was competitively awarded. In FY2006, it is approximately 14%, according to CRS calculations.[14]

National Research Initiative. Following publication of the 1989 NAS report, the 101st Congress significantly expanded USDA's existing competitive research grant program in the 1990 farm bill (P.L. 101-624). Authority for competitive grants originally had been established in the 1977 farm bill (P.L. 95-

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[12] It should be noted that although the majority of NIH funding is competitively awarded, the NIH also has a large in-house research component.

[13] National Academy of Sciences, *Investing in Research: A Proposal to Strengthen the Agricultural, Food, and Environmental System* (Washington, D.C.: National Academy Press, 1989).

[14] Computed to include funding for the NRI competitive grants program, competitively awarded extension grants, Integrated Programs, and competitively awarded Special Research Grants for FY2006, divided by total funding for ARS and CSREES for FY2006.

113), but the program remained small in comparison to the direct and formula-funded research programs.

Congress authorized annual appropriations for the expanded program, the National Research Initiative (NRI), of $150 million in FY1991, $275 million in FY1992, $350 million in FY1993, $400 million in FY1994, and $500 million in FY1995. Congress subsequently reauthorized the NRI in the 1996 farm bill, the 1998 agricultural research law, and the 2002 farm bill, each time renewing a $500 million authority for annual appropriations. The greatest amount appropriated for the NRI to date is $183 million in FY2006.

The NAS reviewed the NRI program twice, in 1994 and 2000. The more recent report concluded that, due to insufficient funding, the NRI has not lived up to its mission to support high-priority, fundamental research of importance to the sciences relevant to agriculture, food, and the environment. The NAS argued that, in order to operate the program with insufficient funding, USDA awards grants that are too small and too short to elicit the highest-quality research. In addition, the report cited the statutory limit on overhead reimbursement that Congress set — originally 14% and currently 19%, less than half of the average overhead rates for NSF grants for biology research (45%). The NAS expresses concern that "such a mandated cap may have a negative effect on the NRI program because it causes some institutions (especially those from outside the traditional applicant community) to discourage their researchers from submitting proposals...."[15]

Proposal for a National Institute for Food and Agriculture

Among the recommendations in the NAS 2000 report was one to create a new, separate grant-making agency within USDA and put it in charge of administering the NRI and other competitively awarded programs in research and extension. This agency would be headed by a non-USDA scientist, who would be advised by an extramural board. Subsequently, in the 2002 farm bill, Congress authorized USDA to create a task force to prepare a report examining the merits of establishing national institutes in one or more of the agricultural sciences. The FY2003 Emergency Supplemental Appropriation Act (P.L. 108-11) authorized $499,000 from ARS's budget to support the study.

The USDA task force report was published in July 2004.[16] It recommended the formation of a National Institute for Food and Agriculture (NIFA), within USDA but totally independent of the department, to be headed by a director who would report directly to the Secretary. In addition, the task force recommended that such an institute should:

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[15] National Academy of Sciences, National Research Council, *National Research Initiative: A Vital Competitive Grants Program in Food, Fiber, and Natural-Resources Research* (Washington, D.C.: National Academy Press, 2000). Available online at [http://www.nap.edu/catalog/9844.html].

[16] *National Institute for Food and Agriculture: A Proposal*, report of the Research, Education, and Economics Task Force of USDA, July 2004. Available online at [http://www.ars.usda.gov].

- support fundamental research addressing the frontiers of knowledge, while leading to practical results or further scientific discovery;
- distribute research grants through a competitive, peer-reviewed process;
- be solely a grant-awarding entity, not one that conducts its own in-house research;
- enhance, not replace existing USDA research;
- receive oversight from committees of scientists and a council of advisors;
- achieve increasing annual appropriations over a five-year period until it receives $1 billion per year;
- be located in Washington, D.C., to be close to the other major federal science agencies.

In the 108th Congress, Senator Kit Bond introduced S. 3009 as a "discussion draft" for legislation to establish an independent grant-making entity for agricultural research.[17] S. 3009, the National Food and Agricultural Science Act of 2004, proposed establishing a Division of Food and Agricultural Science that reflected the task force recommendation, except that it would have been located within the NSF rather than within USDA. No action was taken on the bill before the end of the 108th Congress.

Redirecting Funds to Competitive Grants

The 1989 NAS report that recommended an expanded USDA competitive grants program called for supporting it with new money. The report stated: "Support of the competitive grants program with new money will reverse the consequences of no R&D growth in agriculture and sustain the federal-state partnership."[18] The report argued specifically against redirecting funds from ARS or the Hatch and Smith-Lever Acts: "Redirection of funding would undermine not only the system's capacity for innovation but also continuing efforts to strengthen its research capabilities.... Redirection runs the risk of destroying some of the 'muscle' of quality research in intramural and formula-funded research while attempting to cut out any 'fat.'"[19]

Recent Budget Proposals. The Bush Administration has shown support for increasing the proportion of competitive grants in agricultural research. Given current budget constraints, it has sought to do so by redirecting funds from elsewhere in the research budget. In the President's budget request for FY2006, the Administration announced a "coordinated plan" to shift funds from the long-standing, formula-funded agricultural research, forestry, and veterinary programs to competitive grant programs, rather than to establish a separate grant-making body

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[17] A link to Senator Bond's floor statement in the *Congressional Record* of November 20, 2004, can be found at the Legislative Information System Bill Summary & Status for the 108th Congress (S. 3009).

[18] NAS 1989.

[19] NAS 1989.

with new money.[20] For FY2006, the Administration proposed cutting Hatch Act and cooperative forestry funds by 50%, and eliminating the veterinary research line item. To counterbalance the reduction, the Administration proposed record high funding in FY2006 for the NRI, $250 million (a $70.4 million increase), and funding for a new regional, state, and local competitive grant program.

Together, the NRI increase and the new grant program, if appropriated, would have constituted a 14% increase in federal funding for state research over the previous year. At the state level, however, the proposal, had it been adopted, would have represented a 50% cut in funding for core programs. Any additional funds the universities received from competitive grants would be awarded by external peer review panels rather than at the direction of state research directors, would be linked to specific research projects, and likely would vary considerably over time. This would constitute a significant change not only in the administration of core programs, but also in the ability of research deans to set the scope and content of their institutions' research.

Response to the FY2006 proposal from the National Association of State Universities and Land Grant Colleges (NASULGC), the umbrella policy-making organization for the land grant system, was unequivocal: "NASULGC opposes the President's proposal ... to eliminate ... programs that provide essential base funding for research at America's land grant universities...."[21] Congress did not adopt the Administration's proposal in the final FY2006 appropriations act (P.L. 109-97).

The Administration's budget request for FY2007 takes a somewhat different approach. It proposes to increase the percentage of formula funds supporting multi-state research projects from the current 25% to roughly 55%. Twenty percent of that pool would continue to support multi-state or regional research, and 35% would be redirected to competitively awarded national projects to be administered under the NRI. This proposal, if adopted, would result in about a one-third decrease in the level of federal support for the core research programs (compared to the 50% decrease proposed in the FY2006 budget). The Administration also proposes to reduce the funding for Integrated Programs (joint research and extension programs that Congress authorized in 1998) by transferring several of the existing programs and their funding into the NRI program. Since Integrated Programs and the percentage of Hatch Act funds going to regional research are authorized through 2007 by the 2002 farm bill, it seems unlikely that House and Senate appropriators will adopt the President's proposal, based on Congress's actions in previous years.

Looking Ahead: The 2007 Farm Bill

The Larger Context

Several factors have emerged since 2002 that could influence the consideration of research, teaching, and extension policies when agricultural policy is next considered in the context of an omnibus farm bill, most likely in 2007.

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[20] FY2006 USDA budget explanatory notes, vol. I, pp. 11-73.

[21] NASULGC FY2006 budget request available online at [http://www.nasulgc.org].

The current farm bill was debated in a time of budget surpluses; Congress will construct the next bill in an era of large federal deficits. Although the spending limits under which the authorizing committees will craft a new farm bill are still unknown, the Administration and some lawmakers already are proposing legislative changes to reduce federal outlays for the major farm commodity programs over the next several years.[22]

At the same time, U.S. farm subsidies are being challenged before the World Trade Organization (WTO) dispute resolution panel by certain foreign countries. The WTO ruled against the United States in one recent dispute, and permanent modifications to domestic farm programs may be needed to fully comply with a portion of the WTO ruling.[23] In addition, the most recent round of multilateral trade negotiations on agricultural products, industrial goods, and services — the so-called Doha Round — may conclude shortly before the expiration of the 2002 farm bill in 2007. Many policymakers are concerned about fashioning U.S. farm policy to be consistent with any new WTO trade agreement. Providing support for agriculture through expanded research, education, and extension programs, expanded crop insurance and other risk management approaches, conservation programs ("green payments"), and rural development programs may be attractive policy options because they are support mechanisms that are considered non-trade distorting under WTO rules.

Finally, the specialty crop industry (producers, processors, handlers, and retailers of fruits, vegetables, tree nuts, and nursery products) is making a coordinated effort to have its issues addressed in the 2007 farm bill. Industry leaders maintain that it is time for U.S. farm policy to acknowledge and support the other major sectors of U.S. agriculture besides the commodity crops. At three separate House Agriculture Committee field hearings in February and March 2006, the majority of specialty crop producers on the panels argued strongly in favor of providing greater support to the industry through expanded agricultural research, pest exclusion, and export promotion programs. This position was echoed by Agriculture Secretary Mike Johanns in a speech to commodity program producers on March 3, 2006.[24]

This convergence of budgetary, trade, and non-program crop issues may foster congressional consideration, during the farm bill process, of a variety of different ways to provide federal support to U.S. agriculture. Greater investment in agricultural research, education, and extension, as one of several alternative options, may receive renewed attention for its potential benefits.

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[22] For information on these proposals, see CRS Report RS21999, *Farm Commodity Policy: Programs and Issues for Congress*, by Jim Monke.

[23] For more information on the effects of the March 2005 WTO ruling, see CRS Report RS22187, *U.S. Agricultural Policy Response to WTO Cotton Decision*, by Randy Schnepf.

[24] Testimony from field hearings on federal farm policy held February 6, 2006 in Auburn, Alabama; February 7, 2006 in Fayetteville, North Carolina; and March 3, 2006 in Stockton, California, is available on the House Agriculture Committee website at [http://agriculture.house.gov/hearings]. Remarks by Agriculture Secretary Mike Johanns to the Commodity Classic, Anaheim, California, March 3, 2006, are available online at the USDA website, [http://www.usda.gov], under "Transcripts and Speeches."

If Congress decides to give agricultural research, education, and extension a more prominent role in U.S. agricultural policy, the issues surrounding the distribution of federal funding also are likely to come up for debate. Among the questions that Congress might address are: Can new money be found to support a National Institute for Food and Agriculture? If funding for such an institute can be obtained only by redirecting money from current research, what would be the impact on the federal-state partnership? Which universities, public or private, might benefit from more competitive grants in agriculture and the related basic sciences? Might some land grant schools be at a disadvantage in grant competition? Could USDA's program to help academic institutions improve their competitiveness be expanded to address this potential problem?[25] What would be the potential impact on the Cooperative Extension System and its traditional customers (i.e., producers) if research results come increasingly from scientists outside the land grant universities

[25] Experimental Program to Stimulate Competitive Research (EPSCoR).