



# NERA News & Notes

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From the Office of the Executive Director

## NSF Center for IPM Request for Preproposals 2004

**Center Mission.** CIPM fosters the development and implementation of pest management programs based on a high level of knowledge of pest biology coupled with choices of monitoring tools and control technology, resulting in economically sound, environmentally compatible, and sociologically responsible integrated crop production.

**Center Vision.** CIPM is a National Science Foundation-sponsored, Industry/University Cooperative Research Center, which works to support and further Integrated Pest Management through the evaluation of emerging technologies, information management and dissemination, environmental stewardship, estimation of economic consequences, resistance management tools and systems, and integration of disciplinary expertise. CIPM seeks to plan a vital, national role in IPM research, education, and training.

More information on Center history, members, and recently funded projects can be found on the Web at:

<http://cipm.ncsu.edu>

or by calling (919) 513-1432.

The major approach of the Center in fostering IPM is to provide "seed" grants for novel IPM research and extension.

**PLEASE NOTE THAT THIS RFA IS NOT ASSOCIATED WITH THE USDA REGIONAL IPM CENTERS. IT IS A SEPARATE GRANT PROGRAM BEING OFFERED BY THE NSF INDUSTRY/UNIVERSITY COOPERATIVE CENTER FOR IPM (CIPM).**

### Research Areas Supported

The Center will consider preproposals on work involving pest management with a focus on food, fiber and turf. Although we recognize the importance of other IPM targets, CIPM does not fund research on social issues or product-specific programs. The areas of most interest include:

- \* Genomics, Biotechnology and Diagnostics
- \* FQPA-Related Pesticides and Alternatives
- \* Risk Assessment and Modeling
- \* Cooperative Internet-based Information Dissemination

- \* Commodity-based Research
- \* Invasive Species

High priority will be given to innovative approaches, projects with multi-state results, projects which move from research to implementation, and projects involving integration with new technologies.

### Funding

Funding is not to exceed \$20,000/year (average \$10,000) for not more than three years (with renewal based on results and funds availability). New projects are always funded for one year, with multiple year funding considered after the first year. All external projects are funded from Center membership fees. The Advisory Board will not consider any external proposal which requests indirect costs (overhead).

### Preproposal Format

Preproposals must be 1-3 pages only. Preproposals must be filed electronically at:

<http://cipm.ncsu.edu/proposals/preproposals.cfm>

Please note that the Center will maintain confidentiality of preproposals as far as possible, but that all preproposals are reviewed by the Industry Advisory Board, and some preproposals may be shared with potential members to seek their support.

### Preproposal Submission Deadline

The preproposal submission deadline is November 15, 2004. Preproposals will be evaluated by December 15 and successful preproposal PI(s) will be expected to provide a 6 page "full" proposal, with references, budget, and university signatures by March 15, 2005. Final decisions will be made by April, 2005 and funding will start July 1, 2005.

Note: All preproposals will be reviewed by Center member representatives, who may provide supplementary funding to projects not funded by the Industry Advisory Board directly.



# *The Case for Formula Funds*

## **Strengthening Federal Program Funding for State Agricultural Experiment Stations**

### **An Executive Summary**

The distribution of state agricultural experiment station (SAES) resources has undergone a dramatic shift in recent decades. The share of SAES funding from federal formula funds administered by the USDA—dollars that are allocated to individual states for agricultural research based in part on rural population and farm numbers—has decreased from 16 percent in 1980 to 9 percent in 2000. During that same period, USDA-administered competitive grant funding grew only 2 percent.

Although state appropriations have remained a dominant source of SAES funding, those resources also have declined, from 55 percent of total experiment station funding in 1980 to 50 percent in 2000. As we examine the most recent data, it is expected that funding from state appropriations will fall below the 50 percent mark.

This shift in funding takes place at a time when public officials are increasingly challenged to make the most of every dollar they invest, whether it's in education, infrastructure, welfare programs, or research. A study by Iowa State University and Yale University indicates that further shifting may not be in the best interest of farmers, consumers, or the U.S. economy.

The study noted that between 1970 and 2000, investment of public funds for agricultural research in state agricultural experiment stations at land grant universities contributed significantly to the increase in agricultural productivity, resulting in an annualized return to society of approximately 56 percent.

These benefits of publicly funded agricultural research date back more than a century. One of the landmark success stories occurred in the 1920s and '30s. Public investments in agricultural research and development paid for by state and federal governments led to the hybridization of field corn, a one-time switch from open-pollinated varieties to hybrids and a method for continuing a sequence of new hybrids, which increased yields from 40 bushels per acre then to more than 150 bushels per acre today.

More recently, Iowa State researchers, using the tools of modern molecular genetics, have identified the gene loci for litter size in swine, one of the most economically important traits. They also have developed a DNA test for litter size

that farmers can use in breeding. These efforts are revolutionizing the production of swine, with significant impacts on increased farm productivity and economic returns, along with lower food (input) costs.

The returns on publicly funded agricultural research not only benefit farmers and consumers, but the environment as well. In the mid-1990s white flies, a common pest in cotton, had developed a resistance to nearly all commonly used insecticides. In some areas, growers made eight to 12 insecticide applications per acre per year. Insect-growth regulators developed at the University of Arizona have proven to be safer, cheaper, and more effective, keeping production costs down and dramatically reducing the number of commercial chemical applications during the growing season, thus having a positive impact on the environment.

### **Distribution of Funds**

In 2000, 30 percent of agricultural research was performed in the public sector. Of that amount, 75 percent was conducted by the state agricultural experiment stations, with total funding for state experiment stations of \$2.23 billion. Federal formula funds comprised only 9 percent of this investment in agricultural research and development. At the same time, state agricultural experiment stations have been successful in obtaining non-USDA administered federal competitive grants and commodity check-off funds, along with industry and foundation grants and contracts. However, each of these fund sources comes with expectations that drive the research agenda in areas of interest to the donor, and leave the SAES research director with little say in directing research that might meet local needs.

Using a formal model of demand for research resources, the Iowa State-Yale study finds that as state agricultural experiment station budgets grow (or decline), there likely will be a corresponding large growth (or decline) in federal grant, private grant, and contract funding, and a small growth (or decline) in federal formula funding. The share of state appropriations is not expected to change.

Population and local farm production patterns affect funding. States with a larger share of the U.S. farm population receive more federal grants and formula funds and state appropriations. Those that specialize in livestock, horticulture, and greenhouse agriculture also are more favorably positioned to receive federal support because they produce high-value agricultural products.

Land grant universities cannot always look to private companies to make up the shortfall in research dollars. Private companies are primarily interested in investments in research and development that result in a competitive advantage for products or services, and thus corporate profit. As a result, many areas of investigation that are important to society

would be neglected without publicly supported agricultural research. For example, private companies have been reluctant to invest in the development of new varieties of wheat, calling the investment unprofitable because the varieties are not hybrids and the rate of improvement has been slow. However, land grant universities in the Great Plains states, in cooperation with USDA-ARS, have developed a steady stream of new wheat varieties with significant benefits to both producers and consumers.

### Impact of Research on Agricultural Productivity

Thanks in large part to public-sector research, total U.S. agricultural output, consisting of all crop and livestock products, grew at an annual rate of 2.1 percent per year from 1970 to 1999 (Fig 1).

Also between 1970 and 1999, total U.S. agricultural input (including equipment, land, labor, fertilizer, etc.) declined 0.1 percent per year. This has been possible due to rapid technical or productivity change that resulted from public and private research and development.

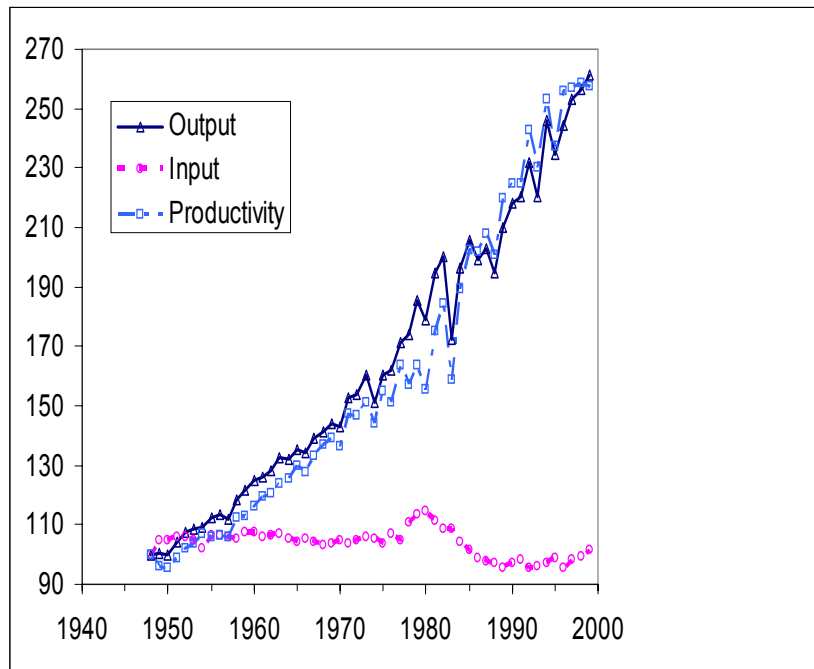


Figure 1. U.S. total farm output, farm input, and total factor productivity, 1948-1999 (1948=100).

### Maintain the Funding Blend

The current blend of federal formula and state appropriations, as opposed to federal competitive grants, contracts, and cooperative agreements, provides SAES directors with considerable flexibility in using the resources and providing direction for research programs that meet local and regional needs. Directors have the advantage of building reputations with state clientele and their scientists, which tends to increase the efficiency of the public agricultural research organization. Generally, state legislatures expect their land grant universities to spend state appropriations on finding solutions to local problems. Failure of state agricultural experiment station directors to deliver on discoveries needed locally will likely result in a future weakening of state legislative support.

Some officials have suggested reducing federal formula funds for experiment station research. One option is to offset the reduction of federal formula funds with increases in competitive grant programs, although Congress has been reluctant to pursue this scenario. Furthermore, the Iowa State-Yale study shows such a shift would lower agricultural productivity in general and benefit only five states while reducing funds for the remaining 45. In six states (Kentucky, Massachusetts, New Hampshire, South Carolina, Vermont, and West Virginia) the decline in funding would exceed 10 percent.

When research is funded by federal competitive grants and contracts, the research agenda is set by the funding agency and decisions are based on proposals rather than completed projects. In addition, the federal competitive grants programs do not pay for research proposal writing, so the risk of federal research grant programs is borne by the competing scientists or their institutions and the somewhat distorted incentive structure increases transactional costs, while lowering the scientists' productivity. Furthermore, federal funding agencies tend to fund less than 100 percent of funded research project costs, so other funds, most notably state-appropriated or federal formula funds, are used to subsidize research

sponsored from outside the state.

Social scientists have periodically noted that public agricultural research, cooperative extension, farmers' education, private agricultural research, infrastructure, and government all contribute to productivity change. Over the past two decades a number of studies have examined the effect of public investments in agricultural research and development and all have demonstrated a positive and significant impact on agricultural productivity. This is thought to be, in part, because the state agricultural experiment stations have a long-term focus on addressing local problems. As a result, the positive reputation earned through these

long-term relationships creates strong incentives for discovery.

## Conclusions

Until 1980, 70 percent of state agricultural experiment station funding came from federal formula funds and state government appropriations, both of which are relatively unrestricted. Today that percentage has fallen to about 59 percent. Due to the nature of research, a long lag exists from the initial investment in a project to the time when useful discoveries result. To be more precise, the impacts of investment in public research on agricultural productivity have been shown to have a lag pattern of 9 years of rising impacts, 5 years of high and constant impacts before fading over the next 19 years. It is easy to overlook the important role of timing in public agricultural research. If for some reason, current investments would drop to zero, research benefits would continue for some time, at a reduced rate, but it would be very difficult for future research to ever catch up on past foregone discoveries. Hence, it is critical to maintain or even increase funding for public research, given the large dividends paid on addressing local problems and issues. In research, lost time is difficult to recover.

Furthermore, between World War II and 2000, the prices of food in the U.S. fell by 1 percent per year, relative to other inputs into household production. In the recent past, U.S. agricultural productivity has exceeded productivity in other sectors, so real agricultural output prices have declined. Farmer's benefit when their crop and livestock prices fall less than costs, and consumers benefit from lower food prices. The end result is that continuous and strong public funding of agricultural research and development have paid large rewards to the American economy in improved consumer welfare and the standard of living for all Americans, while placing U.S. agriculture in a more competitive positions worldwide. The case for increased federal formula funding is strong.

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*Ed. Note: The Counterfactual Studies were commissioned by ESCOP in 2002 to gain a better understanding of the impacts from formula funds and provide more empirical data to support the case for increased investments. Full text copies in pdf format of the papers commissioned can be found at the following website:*

<http://www.agnr.umd.edu/users/NERA>



## The Northeast Sun Grant Initiative: An Update

The Sun Grant Research Initiative Act of 2003 was created by U. S. Senators Tom Daschle and William Frist to tap the intellectual resources of our nation's great land grant institutions for addressing issues of national energy security, economic diversification in rural areas, environmental sustainability of agricultural production and bioenergy and bioproducts research competitiveness.

### Northeast Region Update

The Northeast Regional Sun Grant Initiative Planning Workshop was held April 25-27, 2004 in Buffalo, New York. The more than seventy participants represented each of the region's 14 states and the District of Columbia. Participants were charged with identifying the specific research, education, and outreach priorities for the region's competitive grants program. The Northeast region working group participants have formed a collective vision and have described the research, education and outreach priorities in The Northeast Region Sun Grant Roadmap which is available online at the Northeast Region Sun Grant Center website:

<http://www.nesungrant.cornell.edu>

Dr. Tom Fretz, who will serve as Chair of the Northeast Region's Competitive Grants Program Steering Committee, met with Cornell Sun Grant leadership to identify potential members of the Steering Committee. Dr. Fretz is in the process of contacting potential members to arrange a meeting later this year when more is known regarding the legislative status of the Sun Grant Initiative.

### Legislative Update

On January 22, 2004, The US Senate passed an Omnibus Bill, which included language authorizing "The Sun Grant Initiative Act of 2003". With this authorization, Sec. 9011 amends Title IX of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8101 et seq.) and The Sun Grant Initiative Act became law. A complete copy of the authorization language can be found at the northeast sun grant center website. However, being authorized is just the first step. Congress must still vote on appropriations before funding can be made available for the Sun Grant programs. The national Sun Grant Initiative is working with key congressional leadership to secure the appropriation to move this initiative forward. Several avenues are being pursued to secure funding. The Sun Grant appropriations are currently built into two congressional bills. The outcome of the appropriations depends upon how much business congress completes after return from recess.

*Ed. Note: As of this time and when we know more regarding the status of appropriations for this year and the impact on*

*the future of the Sun Grant Initiative, we will forward. In addition, at the time that I contact those who we would like to participate on the NE Region Competitive Grants Program Steering Committee, I will summarize the activities of the April 2004 NE Regional Sun Grant Initiative Planning Workshop.*



## News for Across the Region

■ Jacob Shur Research Facility - The University of Maine has recently dedicated a new research facility in northern Maine. The Jacob Shur Research Facility will provide space for UM scientists to apply advanced tissue culture techniques to the needs of the potato, horticultural, and forest industries of the state. Dedicated on June 24, 2004, this facility was donated to the University of Maine foundation by Island Falls potato grower Arthur Shur. This new UMaine facility included a building and three greenhouses with enough space to accommodate up to a million plants.

■ Dean Robert D. Steele, Pennsylvania State University has accepted the position as Vice Chair of the Board on Agriculture Assemble (BAA) Budget and Advocacy Committee (BAC).

■ Congratulations are in order to Dr. Robert Seem (Cornell – Geneva), who was elected a Fellow of the American Phytopathological Association at the recent 96<sup>th</sup> annual meeting of the society. The APS bestows the honor of Fellowship in recognition of distinguished contributions to the field of plant pathology or to the society. Criteria for the award is based on significant contributions to one of ore of the areas of original research, teaching, extension and outreach, administration and professional and pubic service. Bob was recognized for his contributions to his institution, his society and to his science.

■ New URL for NIMSS – To ease finding the new NIMSS, a new URL has been obtained that we hope is more intuitive. The new URL for NIMSS is: [www.nimss.umd.edu](http://www.nimss.umd.edu) and will replace the former [www.lgu.umd.edu](http://www.lgu.umd.edu), however should you continue to use the older URL, you will be automatically re-directed.



## Important Dates

■ The Land Grant Partnership Working Group has developed a *New Deans, Directors, Administrators, and National Program Leader Orientation Workshop*, to be held in Washington, DC, December 8-10, 2004. A preliminary agenda, registration materials have been forwaaded from NASULGC, however ths material has not been posted to the web as of this date. As soon as it is, I will forward to all. If you have not seen this materail, please contact the NERA office and we will forward.

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■ Northeastern Region Integrated Pest Management (NE-IPM) Competitive Grants Program has posted on the Northeastern IPM Center's website at the following URL:

[http://www.northeastipm.org/abou\\_fund.cfm](http://www.northeastipm.org/abou_fund.cfm)

Letter in intent is due October 18, 2004, and completed applications November 22, 2004. The appropriate USDA/CSREES forms that must be included can be found at the following website:

<http://www.csrees.usda.gov/funding/forms.html>

## In Memory:

*The following appeared in the Washington Post, October 3, 2004.*

Deborah Cannon Partridge Wolfe, 87, an educator, minister and congressional staff member, died of cancer Sept. 3 at University Medical Center in Princeton, NJ.

Dr. Wolfe helped build the first junior high school for African Americans in Alabama in 1938 while she was an instructor at Tuskegee Institute. She became the school's first principle, and in 1961, the school was renamed in her honor. She was the director of graduate work at Tuskegee in the late 1940s and in 1950 became a professor at Queens College in New York, where she started an early study-abroad program in Africa. She served on the staff of the House Committee on Education and labor during the Kennedy Administration and later served on the New Jersey Board of Education and the state's higher education board. She retired from teaching in 1988, with more than 20 honorary degrees. Dr. Wolfe was elected the first female president of the National Alliance of Black School Educators in 1975 and was named to its Hall of Fame. In 1983, she was elected president of the Non-Governmental Organization Representatives to the United Nations and, as an ordained minister, became the first woman to be named president of the New Jersey Convention of Progressive Baptists.