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ARD

Agricultural Research Division News

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February 2000 Volume 34, Number 3

Comments from the Dean

Dear Colleagues:

I continue to be very pleased with the progress made in our overall research program. During fiscal year 1999, ARD faculty obtained more than $21 million in grant funds. This represented 46.6% of all research grant funding obtained by UNL. Total expenditures for research exceeded $57.8 million, an all-time high for ARD. We have also managed to lower the proportion of the "hard dollar" budget spent on salary, wages, fringe benefits and GRA stipends to less than 85% — a long-term ARD goal. When all sources of funding are considered, only about 64% is spent on salaries, wages, fringe benefits and GRA stipends. This indicates that increasing amounts of funds are available for supplies, equipment, travel, etc.

Outputs from our research program remain high with significant increases during the past year in publication of books and book chapters and in the number of M.S. and Ph.D. students graduating. In addition, the number of cultivar and germplasm releases nearly doubled from the previous year.

In reading the Annual Reports of Faculty Accomplishments, I have been struck by the quality of research that is being conducted and the recognition that many of our faculty are receiving. Most of our research projects are truly on the cutting edge of science and making tremendous contributions to the knowledge base as well as solving practical problems.

Although you are doing well collectively, we have room for improvement. UNL currently ranks 87th among U.S. universities in acquisition of federal research funds. This is an important criteria for maintenance of our membership in the Association of American Universities and continuing to be ranked as a Carnegie Research I University. Increasing grant funding not only enhances the individual's research program but adds to UNL's stature. I am asking ARD faculty to be very aggressive in preparing individual and team proposals for submission to federal agencies. Help with proposal preparation is available from the ARD and Vice Chancellor for Research offices. I also recommend that all ARD faculty be alert for opportunities to obtain industry funding. Industry funding is a growing proportion of our total grant funding and many opportunities exist for collaborations with companies.

Darrell W. Nelson
Dean and Director

CSREES Appropriation for FY 2000

The CSREES appropriation was passed by Congress and signed by the President in late October. Included in the appropriation language was a provision that required all agencies to reduce the appropriation by 0.38%. It has taken USDA until now to decide how the budget reduction was to be accomplished. In the end all reductions within the CSREES research budget were taken from large state-specific special grants. A quirk in the appropriation language allowed funding for the Fund for Rural America ($60 million) and the Initiative for Future Food and Agricultural Systems ($120 million). The Secretary of Agriculture has allocated the Fund for Rural America money. We can expect to receive a RFP for the Initiative for Future Food and Agricultural Systems in the near future. Most of the other parts of the CSREES budget were level funded from FY 1999. Listed on the next page are the CSREES budget allocations for FY 2000 (in thousands of dollars):

It is the policy of the University of Nebraska-Lincoln not to discriminate on the basis of gender, age, disability, race, color, religion, marital status, veteran's status, national or ethnic origin or sexual orientation.

Program	FY 1999	FY 2000
Base Funds:		
Hatch Act	180,545	180,545
McIntire-Stennis	21,932	21,932
Animal Health	5,109	5,109
Subtotal	**207,586**	**207,586**
National Research Initiative:		
Plant Systems	41,000	41,000
Animal Systems	29,000	29,000
Nutrition, Food Quality & Health	16,000	16,000
Natural Resources & Environment	20,500	20,500
Processes & New Products	8,200	8,200
Markets, Trade and Rural Development	4,600	4,600
Subtotal	**119,300**	**119,300**
National Special Grants:		
Critical Issues in Pest Control	200	200
Expert IPM Decision Support Systems	177	177
Pest Management Alternatives	1,623	1,623
IPM & Biocontrol	2,731	2,731
Minor Crop Pesticide Clearance	8,990	8,990
Pesticide Impact Assessment	1,327	Moved*
Minor Use Animal Drugs	550	550
Biological Impact Assessment	254	254
Food Safety	5,000	Moved*
Rural Development Centers	523	523
Water Quality	3,461	Moved*
Global Change, UV-B Monitoring	1,000	1,000
Subtotal	**25,836**	**16,048**
State-specific Special Grants	**51,928**	**60,911**
Other Research:		
Critical Agriculture Materials	600	650
Aquaculture Centers	4,000	4,000
Sustainable Ag Research & Education Program	8,000	8,000
Supplemental & Alternative Crops	750	750
1994 Research Grants	0	600
Federal Administration	10,688	14,825
Subtotal	**24,038**	**28,825**
Research Grand Total	**428,688**	**432,670**

Moved*, funding moved to Section 406 Integrated Account

In passing the Agricultural Research, Education and Extension Reform Act of 1998, Congress created a new account (Section 406) that mandates integrated activities in specific program areas. In the FY 2000 appropriation, Congress moved some research-specific and extension-specific programs into an Integrated Activities account that mandates joint research and educational programs to address the issues. CSREES will soon issue a RFP that will outline the expectations for grant proposals in these program areas. Listed below are the Section 406 program areas and the FY 2000 funding in thousands associated with each:

Program	FY 1999	FY 2000
Integrated Activities:		
Water Quality	—	13,000
Food Safety	—	15,000
Pesticide Impact Assessment	—	4,541
Crops at Risk from FQPA	—	1,000
FQPA Risk Mitigation	—	4,000
Methyl Bromide Transition	—	2,000
Total for Integrated Activities	—	**39,541**

We encourage faculty groups to take advantage of the funding opportunities afforded by the funding provided in the Initiative for Future Food and Agricultural Systems and the new Integrated Activities account. The Initiative will require proposals that are multi-functional, multi-disciplinary and multi-state. Thus, strong teams of faculty will be needed to effectively compete for these funds.

Initiative for Future Agricultural and Food Systems

In the FY2000 CSREES appropriation, Congress permitted mandatory funding for the new Initiative for Future Agricultural and Food Systems to go into effect. This may be the only year that the $120 million program will be funded. Thus, it is imperative that faculty take advantage of this opportunity to receive large, multi-year grants in specific areas of interest to USDA. CSREES is currently working on the RFP for the program. We anticipate that a short turnaround time will be allowed for submission of proposals after the RFP is published. It is our expectation that the RFP will call for proposals that are multi-functional, multi-disciplinary and multi-state addressing these subject matter areas:

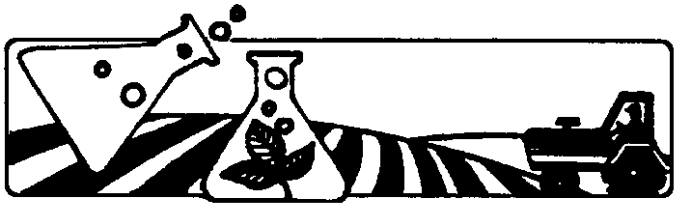
- Agricultural genomics and biotechnology risk assessment
- Food safety and role of nutrition in human health
- New uses for agricultural products including biomass fuel
- Natural resource management
- Pest management
- Precision agriculture
- Farm efficiency and profitability with emphasis on small and mid-size farms

As few as 12 or 14 grants may be provided, which indicates that the grants will be very large. Please consider brainstorming with your colleagues to arrive at innovative approaches to address these subject matter areas. IANR has terrific faculty expertise in each of these targeted areas. We need to take advantage of this expertise by preparing excellent proposals with our colleagues in other states.

ARD 113th Annual Report

The 113th Annual Report for ARD was recently published. Although this report is required by legislation establishing the Nebraska Agricultural Experiment Station on March 31, 1887, it is published primarily as a means to communicate faculty research accomplishments to key decision makers. The publication also serves as a historical record of faculty accomplishments, active projects, faculty and graduate student recognition and outputs from the research program.

The annual report is sent to a wide range of people including the Governor, members of the Nebraska Legislature, the Nebraska Congressional Delegation, University of Nebraska Board of Regents, NU and UNL administrators, state agency directors, USDA officials, ARS collaborators, experiment station directors in other states and selected IANR clientele. Copies of the annual report have been provided to each unit administrator for circulation to faculty. Anyone interested in having a personal copy of the report should contact the ARD office at 2-2045.



Grants and Contracts Received December 1999 and January 2000

Agronomy	
Graef, George — United Soybean Board	$33,544
Graef, George — University of Illinois	23,611
Mackenzie, Sally — NSF	50,000
Specht, James — USDA	40,000
Miscellaneous grants under $10,000 each	34,400
Animal Science	
Beck, Mary — Nebraska Game & Parks Commission	25,000
Miscellaneous grants under $10,000 each	36,427
Biochemistry	
Banerjee, Ruma — American Heart Association	75,000
Chollet, Ray — NSF	34,308
Center for Grassland Studies	
Massengale, Martin — Arthur W. Sampson Fellowship — via UN Foundation	17,000
Entomology	
Mayo, Z B — Nebraska Department of Agriculture	15,000
Meinke, Lance — USDA/ARS	14,000
Siegfried, Blair — Monsanto	24,930
Miscellaneous grants under $10,000 each	22,400
Food Science & Technology	
Benson, Andrew — UN Foundation	63,000
Bullerman, Lloyd — Ohio Agricultural Research & Development Center	15,000
Taylor, Stephen — American Dairy Association of Nebraska Research Fund — via UN Foundation	67,875
Miscellaneous grants under $10,000 each	60,906
Family & Consumer Sciences	
Miscellaneous grants under $10,000 each	7,472
Horticulture	
Coyne, Dermot — Michigan State University (AID)	80,510
Read, Paul E. — Richard P. and Laurine Kimmel Charitable Foundation	49,653
Read, Paul E. — Lee H. Sapp	24,000
Shearman, Robert — National Turfgrass Evaluation Program	32,933
Miscellaneous grants under $10,000 each	17,148
Northeast Research & Extension Center	
Shapiro, Charles — Applied Crop Production Research	13,000
Miscellaneous grants under $10,000 each	8,500
Nutritional Science & Dietetics	
Schnepf, Marilyn — ConAgra, Inc.	13,300
Panhandle Research & Extension Center	
Baltensperger, David and Nelson, Lenis — Pioneer Hi-Bred International	11,145
Blumenthal, Jurg — Anna Elliott Fund via UN Foundation	11,000
Reece, Patrick — Sampson Range & Management Fund	10,000
Wilson, Robert — AgrEvo USA Company	17,500
Miscellaneous grants under $10,000 each	68,900
Plant Pathology	
Dickman, Martin — USDA/BARD	36,000
Miscellaneous grants under $10,000 each	6,250
School of Natural Resource Sciences	
Blad, Blaine — USDA/ARS	20,000
Hygnstrom, Scott — National Pork Producers Council	27,100
Kamble, Shripat — Michigan State University	29,960
Shea, Patrick and Comfort, Steve — Kansas State University/EPA	20,421
Spalding, Roy — Nebraska Department of Agriculture	40,000
Verma, Shashi — NIGEC	28,500
Vitzthum, Ed — USGS	20,000
Wilhite, Donald — DOI	17,000
Miscellaneous grants under $10,000 each	18,091
Veterinary & Biomedical Sciences	
Cirillo, Jeffrey — Center for Indoor Air Research	131,185
Cirillo, Jeffrey — California Pacific Medical Center	79,613
Duhamel, Gerald — Novartis	22,279
Hungerford, Laura — Arizona State University	49,000
Jones, Clinton — Elsa U. Pardee Foundation	58,487
Miscellaneous grants under $10,000 each	57,601
West Central Research & Extension Center	
Wicks, Gail — Washington State University	25,000
Miscellaneous grants under $10,000 each	15,422
Grand Total	**1,719,371**

New or Revised Projects

The following station projects were approved recently by the USDA Current Research Information System:

NEB-11-119 (Biological Systems Engineering) Analysis of Sorghum Wax Quantity and Quality
Investigator: Curtis L. Weller
Status: New Hatch project effective October 1, 1999

NEB-12-002 (Agronomy) Improvement and Evaluation of Oats and Barley
Investigator: P. Stephen Baenziger
Status: Revised Hatch project effective October 1, 1999

NEB-14-107 (Veterinary & Biomedical Sciences) Theoretical and Applied Molecular Biology of Porcine Gonadotropins
Investigator: G.B. Sherman
Status: New Hatch project effective September 1, 1999

NEB-91-051 (Nutritional Science & Dietetics) Assessing Managerial and Work Force Development in Foodservice Management
Investigator: Fayrene L. Hamouz
Status: New Hatch project effective August 1, 1999

Undergraduate Honors Research Program

Funds for the FY 2000 Undergraduate Honors Student Research Program have been allocated to units for support of student research projects. This program is open to junior and senior University Honors Program students proposing to work with a faculty research mentor who has an ARD appointment. Twelve proposals were received; nine were funded; and two are being revised. The following students have received funding:

Alana Cent (Agricultural Leadership, Education and Communication)
Catherine Keown (Nursing) $5,000
Researchers: Drs. Norman Schneider and Rita Schmitz
"Exploring Parental Collaboration in a National Early Childhood Development Program"

Kristyn M. Harms (Agricultural Leadership, Education and Communication) $2,500
Researcher: Dr. Susan Fritz
"Pragmatic & Professional Impact of Character Education"

James P. Rhea (Animal Science) $2,500
Researcher: Dr. Chris Calkins
"Correlation of Beef Longissimus Muscle Tenderness at the 5th Rib and 12th Rib Locations"

Brenda M. Chrastil (Biochemistry) $2,500
Researcher: Dr. Donald Weeks
"The Role of Plasmids in the Degradation of the Herbicide, Dicamba, by *Pseudomonas maltophilia*, Strain DI-6"

A. Mark James (Biochemistry) $2,500
Researcher: Dr. Ray Chollet
"Evaluation of the Reversible Phosphorylation of Phosphoenolpyruvate Carboxylase in Leaves of the C4 Plant Maize by Polyclonal Antibody Assays"

Russell A. Miller (Biochemistry) $2,500
Researcher: Dr. Lori Allison
"*In vivo* Functional Analysis of a Novel Chloroplast Gene Promoter"

Marissa Carstens (Biochemistry) $2,500
Researcher: Dr. Gautam Sarath
"Non-symbiotic Plant Hemoglobins"

Katherine Irwin (Veterinary & Biomedical Sciences) $2,500
Researcher: Dr. David R. Smith
"Understanding Cattle Behavior to Maximize Recovery of Food-borne Pathogens"

Research Support from Commodity Checkoff Programs

In recent years, funding from several agricultural commodity checkoff programs has been an important source of support for ARD faculty research. Checkoff programs get funding from the collection of a small tax or "checkoff" at the time of sale of the commodity, normally when sold by farmers to the first purchaser of the commodity. The checkoff fee is then deducted from the proceeds of the sale and collected in a central fund. Since it comes out of sale proceeds, the farmer or producer is the one who pays the tax or fee.

Checkoff programs are organized in many different ways. Some are established by legislation, both state and national. They may be operated on a local, state, regional or national scale. The legislation often stipulates how funds can be used. Overseas and domestic market development and promotion tends to be the major activity supported by many checkoff programs.

Using the checkoff funds to influence farm policy as it relates to commodities is often prohibited by the enabling legislation, although there are some exceptions to this. Most of the checkoff programs include research and education as appropriate activities for use of funds. Checkoff funds are usually administered through a checkoff board or commission consisting of elected or appointed members representing commodity producers or processors. These boards establish priorities, set budgets and allocate funds among many competing needs.

ARD faculty have successfully competed for checkoff funds, obtaining much needed support for a broad range of research. Boards change, problems change, and so do priorities. Most boards operate on an annual fiscal-year basis, so there are annual opportunities for proposals to be submitted. Depending on board priorities, funded research may include diverse activities such as production efficiency, environment, new uses, food safety, marketing and many others.

Examples of commodity programs that have provided research funding to ARD faculty in recent years include:

Nebraska Beef Council
Nebraska Corn Development, Utilization and Marketing Board
Nebraska Grain Sorghum Development, Utilization and Marketing Board
Nebraska Dry Bean Commission
Nebraska Pork Producers Association
National Pork Producers Council
Southeast Poultry and Egg Association
National Dairy Board
Nebraska Soybean Board
Nebraska Wheat Board
Nebraska Potato Development Committee
Western Sugar Beet Growers
Illinois Corn Marketing Board
National Livestock and Meat Board

This list is not inclusive but it gives an idea of the range of commodity organizations supporting research they want to see carried out by ARD faculty. In terms of magnitude, the research grant and contract support received by ARD researchers from organizations such as those above totaled over $1,598,000 in FY 1999. This is about 9% of the total grant and contract research funding received by ARD faculty in FY 1999.

Obviously, this is a significant source of research support. The funding isn't the only important aspect in working with these boards, however. The members of the boards are strong leaders in the agricultural industry and can be effective advocates for the university. Having a positive working relationship with the boards enhances this potential. ARD faculty are to be commended not only for doing productive research with checkoff funds but also for strengthening our university linkages with this important stakeholder group.

Innovative and High Risk Research Program

Two proposals were submitted for the Innovative and High Risk Research Program during the past six months. This program is designed to provide seed money for very innovative research projects. The objective is to obtain preliminary data that can be used to support requests for grants from federal agencies or companies. Funding will not be provided for projects that continue faculty members' current research programs. The proposals may be submitted at any time during the year. The proposals are evaluated quarterly or on an as-needed basis by a subcommittee of the ARD Advisory Council.

The following proposal was funded by the Innovative and High Risk Research Program effective January 13, 2000.

Milford Hanna, Industrial Agricultural Products Center
"Biodegradable Waterproof Cardboard Box Coating"
Amount Funded: $15,000

Endeavors

The sixth issue of **Endeavors** was recently produced by Communications and Information Technology. This inexpensive eight-page publication is designed to communicate selected research accomplishments to key decision makers and clientele. The publication is written in interesting lay language that encourages recipients to thoroughly read the report. We use this report in communicating with members of the Nebraska Legislature and the Nebraska Congressional Delegation. It is also used in presentations to checkoff boards, commodity organizations and advisory committees.

A supply of **Endeavors** has been provided to unit administrators for their use. Please contact the ARD office if you would like to have a personal copy of the 1999 issue of **Endeavors**.

NABC Bioethics Institute

North Carolina State University is hosting the 2000 NABC Bioethics Institute on June 3-8 in Raleigh, NC. The Bioethics Institute is designed to teach faculty how to help students deal with ethical issues in the life sciences, such as the social implications of genetically engineered food, the use of animals for biomedical research, and indigenous peoples' rights to novel genes in unique germplasm. The course aims to provide the knowledge base that will enable faculty to integrate ethics into the life science curriculum by emphasizing active learning skills.

Applicants must be tenured or tenure-track life scientists committed to serious study of moral philosophy. Each participant receives a stipend of $250 for lunches, books and other materials. In addition, participants

receive a $650 travel and living allowance. Applications are due March 1, 2000. Please contact the ARD Office for more information. Application materials are also available at:

http://www.cals.cornell.edu/extension/nabc/bioethicsinstintro.html

NABC 12 Annual Meeting

The NABC 12 Annual Meeting will be held May 11-13, 2000, in Orlando, Florida. The meeting will be hosted by the University of Florida and is entitled *"The Bio-Based Economy of the Twenty-First Century: Agriculture Expanding into Health, Energy, Chemicals and Materials"*. The meeting will examine the validity of the NABC Vision Statement that suggests an expanded role for agriculture in the 21st century. Through genetic modification of plants and animals and innovative industrial conversion technologies, agricultural products could be produced that would satisfy much of the energy, materials and industrial chemicals needs of the United States. Plants and animals could also produce vaccines, pharmaceuticals and nutriceuticals that could play important roles in health maintenance. This expanded role for production agriculture would not detract from the primary mission of providing food and traditional fiber products.

We encourage everyone interested in these topics to attend NABC 12. Further information about the conference will be forthcoming from NABC. Faculty who have attended previous NABC meetings have been very pleased with the presentations and workshop sessions that address key issues.

Federal R & D Funding for FY 2000

Other than USDA, science agencies fared reasonably well in the FY 2000 appropriation bills. Overall, federal research and development (R & D) spending in FY 2000 will increase an average of 5% to $83.3 billion. The largest gain was obtained by the National Institutes of Health with an increase of $2.3 billion (14.7%). Total Department of Defense basic and applied research accounts were increased by 6% to $4.6 billion. Department of Defense R & D totaled $42.6 billion or 51% of total federal R & D spending. DOD-sponsored research at universities is in the following fields: engineering, 47%; math and computer science, 21%; environmental sciences, 8%; physical sciences, 11%; psychology, 2%; life sciences, 8%; and other, 2%.

The National Science Foundation appropriation was increased by $240 million (6.6%). Other science agencies received variable percentage increases. The USDA-CSREES appropriation is discussed in another article in this newsletter. Listed in the table below are the FY 2000 appropriations and the percentage increase provided to federal science agencies.

Agency	FY 2000 Budget (millions)	% increase vs. FY 1999
NIH	17,914	14.7
NSF	3,912	6.6
NASA	6,261	3.2
DOE (Science)	2,800	4.4
DOD (Basic research)	1,177	5.8
DOC — NOAA	619	3.2
DOC — NIST	475	1.5
DOI — USGS	824	3.2
EPA (S & T)	645	3.6

NABC Statement 2000 on Agricultural Biotechnology

The National Agricultural Biotechnology Council has issued a document entitled "NABC Statement 2000 on Agricultural Biotechnology: Promise, Process, Regulation and Dialogue". This document presents a balanced view of the role of biotechnology in agricultural research and world food production. It attempts to present an accurate portrayal of the benefits and risks of agricultural biotechnology and provides a good overview of the regulatory process used to approve use of biotechnology-enhanced plants. The document concludes by offering to sponsor an open dialogue between proponents and opponents of agricultural biotechnology so that significant issues can be discussed and areas of agreement identified. The statement was approved by the NABC representatives from 28 member universities in the United States and Canada.

Copies of the NABC statement are available in the ARD office. Please contact Dora Dill at 2-2045 if you would like to have a copy.

Diane says

Raise your hat to the past and take off your coat to the future.