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ARD
Agricultural Research Division News

Office of the Dean, 207 Ag Hall, P.O. Box 830704, Lincoln, NE 68583-0704, Phone (402) 472-2045, FAX (402) 472-9071

October 2001 Volume 36, Number 1

Comments from the Dean

Dear Colleagues:

By the time you are reading this issue of **ARD News**, IANR administrators and faculty will have been informed of the need to plan for a budget recession in the current fiscal year. Revenues flowing to state government have been consistently below projected levels for the past few months. Although the revenue receipts are only about 2% less than projections, several months of accumulated deficits sum to a substantial amount of money that the Nebraska Legislature must resolve before June 30, 2002.

Adjusting to the recession will be difficult for IANR because previous reallocations have removed all of our financial flexibility. Furthermore, a mid-year recession is even more challenging because we have spent some of the funds that we will need to remit to the state treasurer. Successfully addressing this challenge will require the thinking and cooperation of all faculty members and administrators. Creative solutions will be a necessity.

We can spend a lot of time collectively lamenting this situation or we can be proactive in helping solve the problem. I suggest that every faculty member can play a role in addressing the funding issue while at the same time improving our research program. Listed below are some of the actions that faculty members can take that will help us in the short and long terms:

- Become more efficient in the use of State and Hatch funds. Avoid unnecessary travel and non-essential purchases.
- Become more aggressive in seeking and winning external grants from a variety of sources. Move GRA stipends and support staff salaries from state funds onto grants.
- Become better managers of revolving funds. Take an entrepreneurial approach to revolving fund operations. Move state-funded staff onto revolving funds.
- Interact with commodity organizations, general farm organizations, natural resource groups, environmental organizations or consumer groups. Personal contact with these groups will develop a stronger base of support for IANR programs.
- Cooperate in publicizing your accomplishments through news releases, radio and TV interviews and **Research Nebraska** articles.
- Become personally involved in recruiting undergraduate students for CASNR and CHRFS. Upper administration perceptions of IANR are closely linked to our undergraduate enrollment and student credit hour generation.
- Conduct high quality research, present the results at national and international meetings, and publish the findings in the best journals.
- Select and mentor the most talented graduate students possible. The quality of a faculty member and his/her department is judged in large measure on the success of Ph.D. graduates from the program.

ARD faculty have an excellent track record in research and tremendous opportunities ahead. The recession may slow down our progress a bit, but in the end the research program will be stronger if everyone pulls his/her weight. I am confident that ARD faculty will meet the challenge and provide the basis for a terrific future filled with many accomplishments that improve the life of Nebraskans.

Darrell W. Nelson
Dean and Director

IANR Facility Needs: The Capital Construction Budget Request Process

IANR has a broad range of facility needs ranging from minor to major renovation and deferred maintenance needs to major capital construction projects. Addressing these needs through periods of limited budgets is a continual challenge. Obtaining State of Nebraska funding for major projects is accomplished by means of a Capital Construction Budget Request (CCBR), which is submitted by the University to the Nebraska Legislature at the same time as the biennium University operating budget request.

The CCBR process, along with the normal University budget process, is relatively lengthy. The process is beginning this month for the 2003-2005 CCBR, which will go to the Legislature to be addressed in the legislative session beginning January 2003. This process starts with the listing of carry-over requests which were not able to be addressed in previous biennium budgets. New project needs are also identified and brought into a prioritization process. The prioritization process begins at the IANR level with IANR needs identified, prioritized, and forwarded to UNL. The identified needs from IANR, as well as all other components of UNL, are combined, prioritized again, and then forwarded to the University of Nebraska Central Administration (CA). These priorities are then integrated and prioritized along with the proposals from the other three NU campuses to prepare the final request list, which goes to the Board of Regents, then to the Nebraska Legislature. The requests at this point consist of brief project descriptions and justifications, estimated costs, and proposed funding, whether state, federal, private, or various combinations of these.

At this stage of the process, the CCBR includes two project listings. One is an "unprioritized" six-year capital plan, which includes the projects from all campuses which are hoped to be submitted to the Legislature for funding during the coming three bienniums. The other is the "on-deck list," which is informally defined as projects expected to be addressed in the next 12 years. In the current process, the only projects that will be listed in the six-year capital plan are ones that have previously been listed in the "on-deck list" approved in the previous funding cycle. Accordingly, as IANR projects of high priority are identified and approved by IANR administration, the first step is to get these projects included in the "on-deck list" being prepared for the next funding cycle.

Another term used for this process is the "Capital Queue". As this term implies, this is a waiting list and projects must slowly move their way through the list to reach a high enough priority to be included in the actual request to the Legislature. That may take several biennium budget cycles to accomplish.

IANR has two capital proposals that have already moved through the Queue to the six-year capital plan and are considered high-priority requests. These include Phase II — Natural Resources Facility and a proposal that packages several Greater Nebraska projects including the WCREC Snyder Building addition, SCREC Headquarters renovation, NEREC Haskell building renovation, ARDC dairy facility replacement, and ARDC swine facility replacement.

IANR projects in the proposed "on-deck" category include a Veterinary Basic Sciences Pathobiology addition, Keim Hall renovation, and a Phase II package of Greater Nebraska projects. Project descriptions, justifications, and cost estimates for these are currently being reviewed and updated for the coming budget cycle.

Another recent funding mechanism that is independent of the CCBR process is the LB 1100 Major Renovation Bond fund process. Under this process, in 1998, the Legislature approved bond funding for several system-wide major renovation projects. IANR projects included in this package were the WCREC Snyder Facility renovation and the state portion of the funding of Phase I — Natural Resources Facility. This construction money was provided in lieu of renovation funds to renovate Biochemistry Hall. LB 1100 provided much needed renovation funds. It is hoped that some version of this in the future may provide an opportunity to address other significant needed renovations.

Questions regarding these processes and the progress of IANR capital projects may be addressed to IANR Facilities Director, Dale Vanderholm; or IANR Facilities Coordinator, Karen Van Horn.

Husker Genetics

Genetic modification of plants has drastically changed the seed industry, as you all know. The impacts and implications of these changes have, in turn, impacted plant breeding programs and the Foundation Seed Division at UNL. IANR plant breeders currently have research agreements with several companies that have patents on genes that control specific traits. We are now at the point where UNL must negotiate and sign marketing agreements with these companies so that UNL can sell new varieties containing these patented genes/traits.

Most companies that own patented technology will not license the technology to public institutions, due to partial or complete indemnity clauses in state constitutions. They will only license this technology to private companies; however, they do not care if the private

companies are partially or wholly owned by public institutions.

In the past, the University of Nebraska campuses have had 501 (C)3 status (not-for-profit corporations) to facilitate technology transfer from several departments and colleges. Recently, NU Central Administration led a reorganization of all not-for-profit companies at the campuses under the umbrella of the Nebraska Technology Development Corporation (NTDC). The NTDC Board of Directors has approved the creation of UNL Technology, which will serve as the only not-for-profit company at UNL. When a need arises for a private company to facilitate the transfer of technology developed by UNL, a business unit of UNL Technology, such as Husker Genetics, will be created. Officially the company(s) will be UNL Technology "doing business as" and then the entity name ... in this case Husker Genetics.

Husker Genetics will sign exclusive release agreements with UNL for plant varieties that require this type of outlet for commercialization. In turn, Husker Genetics will sign license agreements (usually on a non-exclusive basis) with companies to increase and sell the plant varieties.

The first plant varieties that will be marketed through Husker Genetics will be soybean varieties that contain the Roundup-resistant gene owned by Monsanto. The contract between Husker Genetics and Monsanto will only allow Husker Genetics to sell these varieties to companies that have a Roundup Ready license agreement with Monsanto. This will shelter Husker Genetics from collecting royalty fees due Monsanto and other liability issues associated with the license.

Foundation Seed Division currently has a good supply of seed for four soybean Roundup Ready varieties developed by Dr. George Graef. This seed will be available for sale in the spring of 2002. Plant breeders are evaluating other patented technology that may be released in UNL germplasm in the future.

Daniel J. Duncan
Director, UN-ARDC

CSREES Appropriations for FY 2002

The FY 2002 House Agricultural Appropriations Committee Budget for CSREES included discretionary funding totaling $993,936,000 for research, extension, and higher education. This represents an increase of $7,432,000 over the FY 2001 post-recession amount. The FY 2002 House appropriation will fund most programs, including formula programs, at the FY 2001 level. Language in the bill prohibits use of funds to carry out the Fund for Rural America and the Initiative for Future Agriculture and Food Systems. The House of Representatives passed the USDA appropriations bill on July 11, 2001.

The Senate Agricultural Appropriations Committee allocated $1,026,068,000 to CSREES for FY 2002. This represents an increase of $39,564,000 over the FY 2001 post-recession appropriation. The proposed budget will fund the formula programs and most other research, extension, and higher education programs at the FY 2001 levels. An increase to $137 million is proposed for the NRI. Increases are also proposed for IR-4, SARE, Rural Development Centers, and state-specific special grants. Language is included that prohibits the use of FY 2002 funds to carry out the Initiative for Future Agricultural and Food Systems but allows for use of the FY 2001 funds for this program in FY 2002. The Senate version also prohibits use of funds to carry out the Fund for Rural America. It is unknown when the full Senate will consider the FY 2002 USDA appropriations bill.

Following completion of Senate action on the Appropriations Bill, a Conference Committee of House and Senate members will be appointed to rationalize the differences in the two appropriations bills. After the Conference Committee has finished its work, the compromise bill must be passed by the both the full House and Senate and signed by the President to make funds available to support our programs. Since October 1st, USDA funding has been provided by a continuing resolution that maintains FY 2001 budget levels until Congress takes further action.

National Research Initiative Funding — FY 2000

The FY 2000 National Research Initiative (NRI) funded projects in 23 research programs within eight major research areas — Natural Resources and the Environment; Nutrition, Food Safety and Health; Animals; Biology and Management of Pest and Beneficial Organisms; Plants; Markets, Trade and Rural Development; Enhancing Value and Use of Agricultural and Forest Products; and Agricultural Systems Research.

A total of 2,756 proposals requesting more than $700 million were considered for funding in FY 2002 and awards totaling $110,126,103 were made to the highest ranked 683 proposals. Twenty-eight peer panels reviewed and ranked the proposals, evaluating them on scientific merit, the qualifications of proposed project personnel, the adequacy of proposed facilities, and the relevance of the proposed project to long-range improvements in U.S. agriculture.

NRI funding allocations for FY 2000 are presented below:

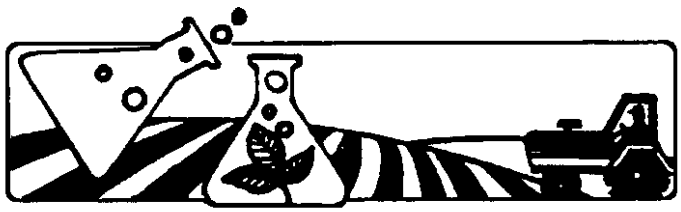
Research Area/Program	*Number of Grants*	*Total Dollars Awarded*
Natural Resources and Environment		
Plant Responses to the Environment	23	3,452,000
Ecosystem Science	22	4,482,000
Watershed Processes and Water Resources	19	4,118,500
Soils and Soil Biology	21	4,074,500
Totals	**85**	**$16,127,000**
Nutrition, Food Safety and Health		
Improving Human Nutrition for Optimal Health	30	5,110,746
Food Safety	24	4,715,611
Epidemiological Approaches to Food Safety	5	4,056,374
Totals	**59**	**$13,882,731**
Animals		
Animal Reproductive Efficiency	28	4,259,974
Animal Health and Well-Being	63	12,347,515
Animal Genome and Genetic Mechanisms	19	5,614,480
Animal Growth, Development, and Nutrient Utilization	23	3,707,974
Totals	**133**	**$25,929,943**
Pest Biology and Management		
Entomology and Nematology	39	6,430,000
Biology of Plant-Microbe Associations	28	3,830,990
Biologically-based Pest Management	16	2,502,000
Biology of Weedy and Invasive Plants	19	3,029,366
Totals	**102**	**$15,792,356**
Plants		
Plant Genome	24	4,692,075
Plant Genetic Mechanisms	28	4,479,704
Plant Growth and Development	37	4,562,220
Agricultural Plant Biochemistry	26	3,589,800
Totals	**115**	**$17,323,799**
Markets, Trade and Rural Development		
Markets and Trade	23	2,217,000
Rural Development	17	1,695,500
Totals	**40**	**$3,912,500**
Enhancing Value and Use of Agricultural and Forest Products		
Food Characterization/Process/ Product Research	26	3,820,680
Non-Food Characterization/Process/ Product Research	19	2,610,632
Improved Utilization of Wood and Wood Fiber	21	2,532,172
Totals	**66**	**$8,963,484**
Crosscutting and Inter-Agency Programs		
Agricultural Systems	8	2,417,144
Strengthening Programs	71	3,377,145
Metabolic Engineering Program-Interagency	2	400,001
U.S. Rice Genome Project-Interagency	2	2,000,000
Totals	**83**	**$8,194,290**
Awards to be Determined		**$1,354,679**
Grand Total	**683**	**$111,480,782**

Changes in Graduate Enrollment 1993 – 1999

Presented below are data on the changes in graduate student enrollment by scientific field and primary source of support during the period 1993 to 1999:

Field of Science	*Federal Support*	*Non-federal Support*
	% change	
Psychology	+ 23	- 1
Computer Science	+ 15	+ 34
Health Sciences	+ 15	+ 50
Electrical Engineering	+ 10	- 3
Biological Sciences	+ 2	+ 1
Agricultural Sciences	- 3	- 3
Chemical Engineering	- 6	- 11
Ocean Sciences	- 15	+ 4
Social Sciences	- 15	- 5
Chemistry	- 16	- 5
Physics	- 23	- 23
Geosciences	- 25	- 10
Mathematics	- 26	- 18
Atmospheric Sciences	- 26	- 12

The federal agency emphasis on computer sciences, health and related areas is clearly evident in the support for graduate research assistants. It is apparent that universities are also moving state-assisted funding into areas of interest to federal agencies, and these are the fields most attractive to potential graduate students.



Grants and Contracts Received August and September 2001

Agricultural Economics	
Azzam, Azzeddine, John R. Schroeter and **David Aiken** — USDA/CSREES	$ 33,000
Agronomy and Horticulture	
Gill, Kulvinder — USDA/CSREES	160,000
Schacht, Walter H. — Anna H. Elliott Fund	15,000
Miscellaneous grants under $10,000 each	70,520
Animal Science	
Calkins, Chris — National Cattlemen's Beef Association	126,208
Cupp, Andrea, John Weber and **Brett White** — University of Nebraska Foundation	69,985
Grant, Richard — USDA/ARS	30,000
Pomp, Daniel — Nebraska Technology Development Corporation	30,000
Miscellaneous grants under $10,000 each	102,015

Biochemistry	
Banerjee, Ruma — NIH	301,024
Center for Grassland Studies	
Massengale, Martin — Arthur William Sampson Fellowship	19,000
Entomology	
Kamble, Shripat — Michigan State University	35,000
Meinke, Lance — USDA/ARS	50,000
Miscellaneous grants under $10,000 each	44,840
Food Science and Technology	
Hefle, Susan — USDA/CSREES	140,002
Taylor, Stephen — USDA/CSREES	39,201
Taylor, Stephen — USDA/CSREES	431,209
Miscellaneous grants under $10,000 each	100,699
Industrial Agricultural Products Center	
Hanna, Milford — USDA/CSREES	59,734
Northeast Research and Extension Center	
Miscellaneous grants under $10,000 each	39,300
Panhandle Research and Extension Center	
Hibberd, Charles — Olive Ostenberg Fund via UN Foundation	25,000
Pavlista, Alex — Nebraska Department of Agriculture	15,000
Miscellaneous grants under $10,000 each	77,050
Plant Pathology	
Vidaver, Anne — USDA/CSREES	68,740
Miscellaneous grants under $10,000 each	17,200
School of Natural Resource Sciences	
Wilhite, Donald — USDA/CSREES	186,671
South Central Research and Extension Center	
Elmore, Roger — Heuermann Foundation Fund for Applied Agronomic Research — via UNL Foundation	15,000
Miscellaneous grants under $10,000 each	49,750
Veterinary and Biomedical Sciences	
Osorio, Fernando and **Prem Paul** — National Pork Board	25,000
Miscellaneous grants under $10,000 each	17,906
West Central Research and Extension Center	
Miscellaneous grants under $10,000 each	9,600
Grand Total	**$2,403,654**

New or Revised Projects

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

NEB-12-283 (Agronomy) Utilizing Biotechnology for Sorghum and Pearl Millet Improvement
Investigator: I.M. Dweikat
Status: New Hatch project effective July 1, 2001

NEB-15-095 (Biochemistry) Soil Microbial Taxonomic and Functional Diversity as Affected by Land Use and Management
Investigator: R.V. Klucas
Status: New Hatch project that contributes to multi-state regional research project S-297 effective October 1, 2000

NEB-29-011 (Industrial Agricultural Products Center) Industrial Agricultural Products Center
Investigator: M.A. Hanna
Status: New Special Grant effective September 1, 2001

NEB-32-008 (North Central Region Sustainable Agriculture Research and Education Program) North Central Region Sustainable Agriculture Research and Education Program
Investigator: D.D. Baltensperger
Status: New Cooperative Agreement effective April 15, 2001

NEB-91-052 (Nutritional Science and Dietetics) Using the Stages of Change Model to Increase Fruit and Vegetable Intake
Investigator: N.M. Betts
Status: New Competitive Grant effective September 1, 2001

Proposals Submitted for Federal Grants

The following is a listing of proposals that were submitted to federal grant programs by faculty after August 1, 2001. While not all grants will be funded, we are appreciative of the faculty members' outstanding efforts in submitting proposals to the various agencies.

Leon G. Higley and **Stephen M. Spomer** — U.S. Department of the Interior, Fish and Wildlife Service — Basic Biology and Conservation of the Salt Creek Tiger Beetle (*Cicindela nevadica lincoliana)* — $26,000

Kenneth G. Hubbard — NOAA — Soil Moisture Climatology and Land Memory Processes in the Northern Mississippi and Missouri Basins — $183,596

Qi Steven Hu — NOAA — Diagnostic and Modeling Studies of Land Memory and its Effect on Summer Rainfall in Southwestern United States — $236,106

Qi Steven Hu, Gary Lynne, William Waltman, Don Wilhite, Ken Hubbard and **Mike Hayes** — NOAA — Engaging Agricultural Communities in the Great Plains of the United States with the Applications and Developments of Climate Prediction and Information — $432,916

Jeffrey D. Cirillo — U.S. Department of Health and Human Services — Molecular Basis of Mycobacterial Invasion — $1,631,250

Steven Harris — NSF — Spatial Regulation of Hyphal Morphogenis — $418,748

Diane says

Patriotic men do not shrink from danger when conscience points the path.