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ARD

Agricultural Research Division News

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December 2001 Volume 34, Number 7

Comments from the Dean

Dear Colleagues:

The ARD Office staff extend our best wishes to you and your family for a happy holiday season and a terrific 2002. We hope that you take advantage of the holiday break for rest and renewal.

The current year has been filled with many significant accomplishments by our faculty. Many of these accomplishments have been highlighted in news releases and in **Research Nebraska**. We are also proud to include other research accomplishments in the **ARD Annual Report** and in **Endeavors**. We thank all of the faculty who have provided information about their research to Vicki Miller and other CIT science writers.

We are delighted with the excellent faculty members who have joined us during the past year. These faculty members bring a wealth of talent and experience to our units. We look forward to all of the contributions these faculty members will make in the upcoming years.

Thanks for all of the cooperation and support that you have provided to the ARD Office during the past year. We look forward to serving you in 2002.

The ARD Office Staff

Darrell

David Diane

Karen Nelvie Dale

Dora

ARD Budget Reduction

As most faculty are aware, the Nebraska Legislature has imposed a budget reduction on most state agencies including the University of Nebraska. The current year budget was reduced by 2 percent of the base and the budget for the upcoming fiscal year (FY 2003) was reduced by 2.5 percent of the base. The FY 2003 budget will be permanently reduced whereas the current year reduction uses temporary funds. The ARD budget situation contains some good news and some bad news. The good news is that Central Administration and UNL administration will cover some of the temporary budget reduction for the current fiscal year. The IANR divisions will be able to handle the remaining budget reduction for the current fiscal year by using salary savings from open faculty positions and a portion of the IANR equipment funds.

Chancellor Perlman has requested that each of the colleges/divisions prepare a proposal that reflects a 5 percent reduction in their state-appropriated base budget. Likewise, IANR has asked each of our units to prepare a proposal for a 5 percent base budget reduction. We also are planning to implement some IANR-wide reductions that will reduce the amounts taken from unit budgets. We are hopeful that the reduction assigned to IANR will not exceed 2.5 percent of our base. If this is the case, IANR will likely assign differential reductions to our units based on unit productivity.

Although it is unfortunate that ARD units will experience a budget reduction for FY 2003, we should be thankful for the strong support that the Legislature has provided during this biennium, particularly faculty and staff salary increases. There is a need for all faculty to work closely with unit administrators to develop budget reduction plans that have the least impact upon our high priority research programs.

Understanding Indirect Costs

The recovery of indirect costs by universities on externally funded grants and contracts is a continually controversial subject. Research institutions and the federal government clearly recognize that indirect costs are legitimate research costs to help cover the expenses of administrative support and facilities. Both of these costs are important to the success of research programs.

Costs related to the use of facilities represent about half of the total of the indirect cost of university research, and administrative support represents approximately the other half. These costs have to be well documented when the university negotiates its standard indirect cost rate with the designated federal agency charged with negotiating this for UNL.

Facilities expenses include depreciation and financing costs for buildings and equipment, utilities, maintenance and repairs, and janitorial services. These costs have nothing to do with administrative bureaucracy and are clearly necessary to provide the buildings and equipment used to conduct research.

Administrative costs include an equally wide range of services: accounting, purchasing, personnel management, legal services and many others. They also include staff support to help institutions comply with federal laws, regulations, and specific conditions of research grants and contracts, including safeguards for the protection of human subjects and the care and use of laboratory animals.

While one might call these functions "administrative bureaucracy," they are hardly frivolous or unnecessary to the function of research. In addition, a portion of recovered indirect cost funds are returned directly to units or used for programs that directly benefit units.

Changes in UNL administration are resulting in changes in policy on both the collection and distribution of indirect costs. These changes have not impacted the collection of indirect cost on federal grants, which are normally collected at the current full UNL indirect cost rate or at a rate that may be capped by the federal sponsor. A more challenging issue is the collection of indirect costs on grants and contracts from private sponsors. UNL has had a flexible policy on allowing waivers for reduced rates on grants and contracts from private sponsors. This has resulted in an extremely low indirect cost recovery rate from private grants and contracts. Information from the Research Management office in 2001 indicated that the actual recovery rate of indirect cost on all industry grants and contracts for the previous year was about 8 percent, which is significantly lower than the standard rate. This is an indication that private sponsors are probably not paying a fair share of the actual cost of conducting the research. A strong effort will be made in the future to ensure that private sponsors will pay an appropriate indirect cost. This will impact a number of privately sponsored research activities conducted by ARD faculty.

Waivers for reduction of indirect cost are to be discouraged. A request for a waiver from full indirect cost rate is only appropriate when an "unusual situation" exists. Principal investigators who believe that an "unusual situation" exists may request waiver on indirect cost policies from the office of the Vice Chancellor for Research. It is inappropriate for faculty members to negotiate a reduced rate of indirect cost with a sponsor and then approach departmental, ARD, and UNL research administration for approval. If waivers for

reduced rates are to be sought, these should be negotiated in advance and should have the approval of the unit administrator and the ARD office prior to going to the office of the Vice Chancellor for Research.

Private sponsors such as industry will sometimes have an established allowable indirect cost rate for that company, which is used for all cooperating institutions and may be less than the UNL standard rate. The UNL policy normally has been to accept those rates after approval by the office of the Vice Chancellor for Research, if this is a clearly communicated company policy. If such a company policy does not exist, it is advisable to involve the Research Office in direct negotiation with the sponsor to establish a mutually acceptable rate. Since many private sponsors already have existing contracts with the University, a standard rate for the sponsor may have already been established in recent contracts or grants. While this has been rare, there may be more instances in the future where the University is unable to accept a private grant or contract if an appropriate indirect cost cannot be agreed upon.

It is important for faculty members to be aware of these changes in policy and philosophy in their early communication with potential sponsors. Faculty should be candid about the necessity for including indirect cost as part of the grant or contract budget. This will result in fewer problems when the contract budgets and documents are being finalized.

At the time this article is being written, a new policy on the distribution of recovered indirect cost funds is being developed. Details will be provided after this is finalized. We expect that units and PIs ultimately will still be receiving an indirect cost distribution proportional to the indirect cost funds they generate, but the levels have yet to be finalized. We also expect that a portion of that distribution will continue to support new faculty start-ups by ARD, as has been done in the past.

While changes are taking place, it is important for all faculty to realize that indirect costs are still an important component of external grant and contract budgets and are necessary to maintain support for certain University functions. Clear understanding and communication of these will help minimize problems with sponsors and with administration of these sponsored programs.

Diane says

Opportunity does not batter a door off its hinges when it knocks.

Economic Value of Land Grant University

Land grant universities provide major stimulus to their state and regional economies — generating jobs, attracting and helping create new high-tech businesses, providing a well-educated workforce, and increasing state tax revenues. In fact, the average return on every $1 of state money invested in a land grant institution is $5, according to *Shaping the Future: The Economic Impact of Public Universities*. This new NASULGC report lays out overall trends and provides highlights of economic data illustrating ways in which universities are powerful engines for economic growth.

Land grant universities are a major source of jobs — the average university campus employs more than 6,500 full-time workers, and for every job on campus, another 1.6 jobs are generated beyond the campus. An average of $284 million in yearly spending makes universities major economic players in the cities in which they are located. University employees, visitors and students spend, on average, another $393 million a year. Universities attract significant outside revenue and create a welcoming environment for new businesses. On average, universities attract $105 million a year in research grants and contracts. On average, two out of three graduates remain in the state where they received their degree for a significant period of time after graduation, paying taxes and becoming part of the state's educated work force.

Undergraduate Honors Research Program

Funds for the FY 2001-2002 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. Four additional proposals were received and funded. The following students have received funding:

Tricia Echtenkamp (Biochemistry Department) $2,500
Researchers: Drs. John Markwell and S. Madhavan
"Occurrence and Functional Significance of Acetylcholine Receptors in Plants"

Joel Hansen (Biochemistry Department) $2,500
Researchers: Drs. Gautam Sarath and Robert Klucas
"Nitrate's Effects on Nonsymbiotic Hemoglobins in Soybean Cotyledons"

Todd Brockett (Biochemistry Department) $2,500
Researchers: Drs. Gautam Sarath and Ron Cerny
"Standardization and Modeling of Differential Protein Expression by Computer Analysis"

Christopher Gustafson (Agricultural Economics Department) $2,500
Researcher: Dr. Gary Lynne
"Multifunctionality and the Agrarian Landscape"

New or Revised Projects

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

NEB-11-122 (Biological Systems Engineering) Control of Agrichemical Loading to Streams Using Grassed Buffers in Great Plains Watersheds
Investigators: D.E. Eisenhauer, R.F. Spalding, T. Franti, and D. Snow
Status: New USDA/Water Quality project effective September 15, 2001

NEB-12-286 (Agronomy) Application of Geospatial and Precision Technologies
Investigators: A. Doberman, R.M. Caldwell, V.I. Adamchuck, and R.B. Ferguson
Status: New USDA/NRI competitive grant effective September 15, 2001

NEB-14-118 (Veterinary and Biomedical Sciences) Pathobiology of Porcine Colonic Spirochetosis Caused by *Brachyspira*
Investigator: G.E. Duhamel
Status: New Animal Health project effective September 1, 2001

NEB-16-089 (Food Science and Technology) Improving Egg Functionality and Food Safety of Eggs to Increase Egg Use and Consumption
Investigator: S. McKee
Status: New Hatch project effective April 1, 2001

NEB-21-080 (Plant Pathology) Novel Methods for Developing Broad Spectrum Stress Tolerant Plants
Investigators: M.B. Dickman, D.D. Dunigan, P.S. Baenziger, T.E. Clemente and T. Awada
Status: New Hatch project effective July 1, 2001

NEB-27-007 (School of Natural Resource Sciences) Drought: Response and Policy Implications
Investigator: D.A. Wilhite
Status: Revised Hatch project effective April 1, 2001

NEB-40-013 (School of Natural Resource Sciences) Rapid Estimation of Soil Hydraulic Properties
Investigator: J. Skopp
Status: New Hatch project effective April 1, 2001

NEB-40-015 (School of Natural Resource Sciences) Long-Term Forest Establishment of Prairie Soils: Effects on Soil Microbiological, Mineralogical, Physical, and Chemical Properties
Investigators: C.W. Zanner and R.A. Drijber
Status: New State project effective July 1, 2001

NEB-44-060 (Panhandle Research and Extension Center) The Ecology, Etiology, and Management of Crop Diseases Important to Western Nebraska
Investigator: R.M. Harveson
Status: New Hatch project effective January 1, 2001

Proposals Submitted for Federal Grants

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

Timothy J. Arkebauer and **Achim R. Doberman** — through NIGEC to USDOE — Continuous Measurements of Soil Surface CO_2, N_2O and CH_4 Fluxes to Estimate Ecosystem Respiration and Global Warming Potentials in Great Plains Agricultural Ecosystems — $242,924

James E. Specht — USDA/ARS — Field Drought Tolerance in Soybean Plant Introductions and Breeding Lines in Nebraska — $29,750

Robert M. Caldwell — USDA/ARS — Manure and Nutrient Management Practices to Protect Human Health and the Environment — $36,000

Martha Mamo — USDA/NRI — Relationship of Organic Phosphorus Bioavailability and pH to Plant Phosphorus Uptake, Mycorrhizal Establishment, and Soil Solution Chemistry — $126,612

Rhae A. Drijber and **Cinthia K. Johnson** — USDA/NRI — Soil Microbial Community Response as an Indicator of Sustainable Management in Semiarid Diversified Cropping Systems — $189,193

John L. Lindquist — USDA/NRI — Partitioning of New Biomass to Roots Versus Shoots Determines the Outcome of Crop-Weed Competition for Nitrogen and Light — $153,670

Dean E. Eisenhauer and **Thomas G. Franti** — USDA through Kansas State University — Managed Riparian Ecosystems for Non-Point Source Pollution — $99,757

Terry L. Mader and **Qi Steven Hu** — through NIGEC to USDOE — Evaluating Models Predicting Livestock Output Due to Climate Change — $189,059

Thomas E. Hunt and **Stevan Z. Knezevic** — USDA-NCIPM — Interactions Between Early Season Soybean Defoliation and Weed Management — $88,265

Stevan Z. Knezevic and **Thomas E. Hunt** — USDA/NRF — Influence of Early Season Soybean Defoliation on the Critical Period of Weed Control and Crop-Weed Competition — $192,293

Gary Y. Yuen, P. Stephen Baenziger and **John E. Watkins** — USDA-NCIPM — Integration of Biological Control with Host Resistance for Wheat Disease Management — $87,000

James Steadman — USAID through Michigan State — Bean/Cowpea CRSP — $448,270

Drew Lyon — USDA/CSREES through Washington State University — Managing Imazamox - Resistant Wheat in Crop Rotations for Control of Jointed Goatgrass — $7,500

Larkin A. Powell — USDA/NRI — Breeding Bird and Mammalian Predator Populations in Rainwater Basin Wetlands: Can Landscape Factors Predict Abundance, Productivity, and Movement Dynamics — $256,134

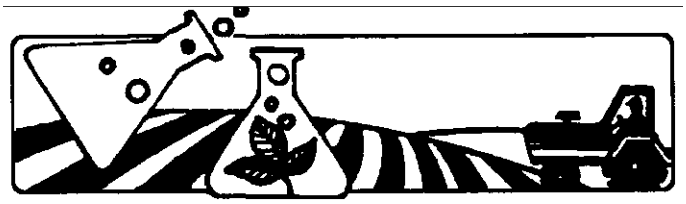
Jeffrey D. Cirillo — NIH/NIAID — Role of Invasion Genes in Virulence of *Legionella* — $1,450,000

Gail Wicks — USDA/CSREES through Washington State University — The Effect of Post-Harvest Tillage Timing on Jointed Goatgrass Density in Winter Wheat in Nebraska — $5,000

Gail Wicks — USDA/CSREES through Washington State University — Effect of Controlling Jointed Goatgrass in Wheat Rotations in Nebraska — $20,000

Rhonda Brand — NIH — Ethanol Consumption and Dermal Penetration of Pesticides — $906,250

Loren J. Giesler — USDA/NCIPM through Ohio State University — Maximizing Management of *Phytophthora sojae* in Soybean With Resistance — $54,347



Grants and Contracts Received October and November 2001

Agricultural Economics	
Perrin, Richard and Jim Roberts — USDA/ARS	$45,000
Peterson, E. Wesley F. — Texas Tech University	11,297
Miscellaneous grants under $10,000 each	9,360
Agricultural Research and Development Center	
Duncan, Daniel — Barta Brothers Fund via UN Foundation	10,000
Agronomy and Horticulture	
Specht, James — USDA/ARS	31,500
Miscellaneous grants under $10,000 each	70,100
Animal Science	
Beermann, Donald — Colorado State University	25,000
Calkins, Chris — Hormel Foods, LLC	11,080
Calkins, Chris — Nebraska Beef Council	32,486
Mandigo, Roger — Nebraska Beef Council	92,748
Miscellaneous grants under $10,000 each	15,591
Biological Systems Engineering	
Miscellaneous grants under $10,000 each	8,540
Director's Office	
Vanderholm, Dale H. — Ella M. Miller Endowment via UN Foundation	75,000
Entomology	
Higley, Leon — U.S. Department of the Interior, Fish and Wildlife Service	26,000
Meinke, Lance — USDA/ARS	68,000
Miscellaneous grants under $10,000 each	30,240
Family and Consumer Sciences	
Miscellaneous grants under $10,000 each	500
Food Science and Technology	
Miscellaneous grants under $10,000 each	34,263
Industrial Agricultural Products Center	
Miscellaneous grants under $10,000 each	9,000
Northeast Research and Extension Center	
Miscellaneous grants under $10,000 each	31,100
Panhandle Research and Extension Center	
Miscellaneous grants under $10,000 each	58,657
Plant Pathology	
Giesler, Loren and Thomas Hunt — Iowa State University	18,180
VanEtten, James — NIH	288,834
Miscellaneous grants under $10,000 each	21,755
South Central Research and Extension Center	
Stack, James — USDA/ARS	35,000
Miscellaneous grants under $10,000 each	26,800
School of Natural Resource Sciences	
Verma, Shashi B. — USDOE	300,000
Veterinary and Biomedical Sciences	
Moxley, Rodney — Elanco Animal Health	15,000
Miscellaneous grants under $10,000 each	13,452
West Central Research and Extension Center	
Miscellaneous grants under $10,000 each	17,000
Grand Total	**$1,431,483**