ARD News August 2004

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Comments from the Dean

Dear Colleagues:

During the past week, two groups of faculty have expressed concern that UNL is only interested in recognizing project leaders receiving grants that exceed $1 million. These faculty feel that scientists who do not receive large grants are not considered as "worthy" as those who are being recognized at special news conferences and celebrations. In addition, some IANR faculty feel that UNL is moving away from the Land-Grant philosophy of serving the people of Nebraska to a focus on acquisition of large grants from federal agencies.

In responding to these faculty concerns, I have attempted to reaffirm that the Agricultural Research Division and IANR value the research programs of all faculty members regardless of their level of federal agency support. In our view, the purpose of ARD research programs is to generate outcomes and impacts that improve the lives of Nebraskans. Of course, external grant funds are important to provide the resources necessary to carry out many of our research projects, but grants are not the object of the research effort. Furthermore, the source of the funds supporting a research project is not relevant to the project's success or the rewards accruing to the faculty member. As I have repeatedly stated, "All money is green," and a dollar from a commodity board or industry will buy exactly the same amount of supplies as a federal dollar.

We all should celebrate the success of our colleagues who obtain large federal grants. However, this recognition does not detract in any way from the success of others who support their research programs from smaller federal or state agency grants, industry grants or commodity board grants. ARD tries to recognize all grants larger than $10,000 by listing them in ARD News, and IANR administrators give appropriate "credit" for all grants, regardless of size, during the annual evaluation, promotion and tenure decision processes.

It is interesting to note that ARD faculty obtained 691 grants and contracts that totaled $33.96 million during CY 2003. Thus, the average grant and contract was $49,146, although the actual size varied greatly. Federal grants obtained by faculty members totaled $23.77 million and the size of the average grant was $178,739. ARD faculty obtained 558 non-federal grants and contracts totaling $10.19 million with an average grant/contract being $18,257. Grants and contracts of over $1 million obtained by ARD faculty were rare and support only a very small number of our projects. Most of the ARD projects are supported by several modest grants that provide enough funding for one or more GRAs, operating and travel support, and some technician salaries.

I am delighted with the great increase in research grant funding obtained by UNL faculty over the past three years. ARD scientists have played a significant role in this increased grant income, and we need to continue seeking funds to support our research projects. However, our focus should be on obtaining funds that allow us to address the objectives present in our research projects, rather than merely seeking funds that may be available. Each of you are contributing to UNL's success in grant acquisition and enhanced national reputation in research. All ARD faculty should be proud of their accomplishments.

Darrell W. Nelson
Dean and Director

William G. Whitmore Student Travel Endowment

The William G. Whitmore memorial fund was established at the University of Nebraska Foundation in 1980 as a memorial to William G. Whitmore, a member of the Board of Regents at the University of Nebraska from 1902 to 1916. The income from the fund supports a travel grant program for graduate students within IANR whose advisor or co-advisor has an ARD research appointment. In accordance with the donor's instructions, this program will support attendance to professional society meetings in the fields of animal science, agricultural education and leader-
ship, and veterinary and biomedical sciences. Priority for grants will be given to graduate students who are personally presenting the results of their research and/or scholarly investigations.

The Whitmore Research Travel Committee makes grants for expenses, including transportation (which is not to exceed coach class airfare), registration, lodging, meals, etc. Grants under this program are limited to a maximum of $500 per individual per fiscal year. Twelve students applied for the travel award. Eleven IANR students received the William G. Whitmore memorial grant for travel during the period July 1 - Dec. 31, 2004:

Name: Andrea J. Gage
Department: Agricultural Leadership, Education and Communication
Meeting: Association of Leadership Education
Place: Memphis, Tennessee

Name: Bobbie Geisert
Department: Animal Science
Meeting: Annual Meeting of the Society of Study of Reproduction
Place: Vancouver, British Columbia, Canada

Name: Ana Z. Ruiz
Department: Animal Science
Meeting: Annual Meeting of the Society of Study of Reproduction
Place: Vancouver, British Columbia, Canada

Name: Oscar Esquivel
Department: Animal Science
Meeting: Institute of Food Technologists Annual Meeting
Place: Las Vegas, Nevada

Name: Angel Rios Utrera
Department: Animal Science
Meeting: ADSA/ASA/Joint Annual Scientific Meeting
Place: St. Louis, Missouri

Name: Kristi Sayer
Department: Animal Science
Meeting: American Society of Animal Science Meeting
Place: St. Louis, Missouri

Name: Kimberly Hargrave
Department: Animal Science
Meeting: American Society of Animal Science Meeting
Place: St. Louis, Missouri

Name: Juliati Rahajeng
Department: Animal Science
Meeting: Cold Springs Harbor Lab — Mouse Molecular Genetics
Place: Cold Springs Harbor, New York

Name: David Monsalve
Department: Animal Science
Meeting: Animal Science Association/Poultry Science
Place: St. Louis, Missouri

Name: Sandra Sattler Weber
Department: Human Sciences, Leadership Studies
Meeting: Strengthening Partnerships: New Paths to Rural Prosperity
Place: Sacramento, California

Name: Rohana P. Dassanayake
Department: Veterinary and Biomedical Sciences
Meeting: Conference on Research Works in Animal Disease
Place: Chicago, Illinois

The next call for these travel funds will be sent to the unit administrators the first week in October 2004 for travel from Jan. 1 to June 30, 2005.

David H. and Annie E. Larrick Fund 2004

The David H. and Annie E. Larrick fund supports graduate students who are conducting research in fields other than animal science, agricultural education and leadership, and veterinary and biomedical sciences. The Larrick endowment will assist the following students with $500 for travel grants to present research findings at national or regional meetings.

Name: Hui Shen
Department: Agronomy and Horticulture
Meeting: ASA-CSSA-SSA Annual Meeting
Place: Seattle, Washington

Name: Anna Prudova
Department: Biochemistry Department
Meeting: Folic Acid, Vitamin B-12 and the Carbon Metabolism Meeting
Place: Snowmass Village, Colorado

Name: Mary Carla McCullough
Department: Biological Systems Engineering
Meeting: Self-sustaining Solutions for Streams, Watersheds and Wetlands
Place: St. Paul, Minnesota

Name: Jennifer Melander
Department: Biological Systems Engineering
Meeting: Biomedical Engineers Society Annual Fall Meeting
Place: Philadelphia, Pennsylvania

Name: Jonathan Morse
Department: Biological Systems Engineering
Meeting: Biomedical Engineers Society Annual Fall Meeting
Place: Philadelphia, Pennsylvania

Name: Jason Byler
Department: Biological Systems Engineering
Meeting: American Society of Agricultural Engineers Meeting
Place: Ottawa, Ontario, Canada

Name: Philip Christenson
Department: Biological Systems Engineering
Meeting: American Society of Agricultural Engineers Meeting
Place: Ottawa, Ontario, Canada
Hardin Distinguished Graduate Fellowship 2004-2005

The recipient of the Hardin Distinguished Graduate Fellowship for 2004-2005 is Zheng Qing Fu, who is in the Plant Pathology Department. The fellowship is made possible by an endowment established at the University of Nebraska Foundation by former University of Nebraska Chancellor Clifford Hardin to support outstanding graduate students doing research in plant physiology. He will receive a $2,000 supplement to his graduate assistantship and the Agronomy and Horticulture Department will receive $1,000 of operational support for his research program.

Zheng Qing Fu is completing his Ph.D. in the Plant Pathology Department and his dissertation deals with “determining plant responses to biotic stresses at the molecular level.” Zheng’s work will provide important
information to improve germplasm resistance in plants, both in developed and developing countries' projects focusing on a protein from a bacterial plant pathogen called HopPtoS2. His hypothesis is that the plant proteins modified by HopPtoS2 are likely to be involved in plant defense, and they are inactivated when they are ADP-ribosylated by HopPtoS2. This could be an excellent example of a bacterial plant pathogen turning off a defense response that is normally triggered when the plant senses biotic stress. Jim Alfano is his advisor.

**Widaman Trust Distinguished Graduate Assistant Award**

The Widaman Trust was established in 1975 through a generous gift provided to the University of Nebraska Foundation by Ms. Blanche Widaman. Ms. Widaman asked that the income from the trust be used by UNL for basic research in agriculture and the funds support people rather than purchase supplies and/or equipment. She suggested that the money be used for scholarships or fellowships for graduate students conducting basic research in agriculture.

The criteria established for the Widaman Trust Distinguished Graduate Assistant Award specifies that only 5 percent of the graduate students in a department can receive the recognition and that the awardees must demonstrate outstanding scholarship and excellence in research. We congratulate the following graduate students for receiving the Widaman Trust Distinguished Graduate Student Award for 2004-2005.

Name: Aaron L. Waltz  
Thesis area: Agronomy  
Department: Agronomy and Horticulture  
Advisors: Alex Martin and Fred Roeth

Name: Maria Susan Grigera  
Thesis area: Agronomy  
Department: Agronomy and Horticulture  
Advisors: Rhea Drijber and Brian Wienhold

Name: Jennie M. James  
Thesis area: Animal Science  
Department: Animal Science  
Advisor: Chris Calkins

Name: Rebecca Bott  
Thesis area: Reproductive Physiology  
Department: Animal Science  
Advisor: Andrea Cupp

Name: Razvan Dumitru  
Thesis area: Biochemistry  
Department: Biochemistry  
Advisor: Steve Ragsdale

Name: Balaji Sethuramasamyraj  
Thesis area: Agriculture and Biological Systems Engineering  
Department: Biological Systems Engineering  
Advisor: Viacheslav Adamchuk

**Al Moseman International Studies Fund 2004-2005**

The Al Moseman International Studies Fund was established through a trust at the University of Nebraska Foundation. This fund supports students with the potential to contribute to international development. The U.S. role in technical assistance in future international agricultural development programs requires leadership in identifying and creating initiatives to achieve cooperation among multidisciplinary team members and to surmount traditional precedents in host country scientific and administrative procedures. This award is designated for graduate students in the agronomy graduate program with interests in international agriculture and world food development. Preference will be given to students who are working in plant breeding and genetics.

The recipient of this $2,500 award through the Agricultural Research Division and the College of Agricultural Sciences and Natural Resources is:

Name: Arlene Adviento-Borbe  
Department: Agronomy and Horticulture  
Advisor: Achim Dobermann

**John and Louise Skala Fellowship 2004-2005**

The John and Louise Skala Fellowship was established at the NU Foundation. Fifty percent (50%) of the net income of this fund shall be used annually or otherwise for one or more fellowships to full-time graduate students in the Institute of Agriculture and Natural Resources. The recipient of this fellowship must be engaged in research in areas relating to the new industrial uses of agricultural products.

Name: Jeffrey T. Krumm  
Thesis area: Entomology  
Department: Entomology  
Advisors: John E. Foster and Thomas E. Hunt

Name: Kari Shoaf  
Thesis area: Food Science and Technology  
Department: Food Science and Technology  
Advisor: Robert Hutkins

Name: R.M. Wajira Ratnayake  
Thesis area: Food Science and Technology  
Department: Food Science and Technology  
Advisor: David S. Jackson

Name: Maricelis Acevedo  
Thesis area: Biological Sciences  
Department: Plant Pathology  
Advisor: James Steadman
Four students are the recipients of this $5,000 award through the Agricultural Research Division and the College of Agricultural Sciences and Natural Resources:

Name: Leslie A. Stalker  
Thesis area: Animal Science  
Department: Animal Science  
Advisor: Don Adams

Name: Ajay Kumar  
Thesis area: Agriculture/Biological Systems Engineering  
Department: Biological Systems Engineering  
Advisor: Milford Hanna

Name: Junjie Guan  
Thesis area: Biological Systems Engineering  
Department: Biological Systems Engineering  
Advisor: Milford Hanna

Name: Yixiang Xu  
Thesis area: Food Science and Technology  
Department: Food Science and Technology  
Advisor: Milford Hanna

Shear-Miles Fellowship 2004-2005  

The Shear-Miles Agricultural Scholarship and Fellowship was established at the NU Foundation with a $173,000 gift from the estate of Dorothy S. Miles. James Dennis, executor of the Miles estate, said Dorothy Miles planned that the gift memorialize her father and father-in-law, Cornellius Lott Shear and George Miles. Shear and Miles both graduated from the College of Agriculture at the University of Nebraska. Shear received his bachelor's and master's degrees in 1887 and 1901 and Miles graduated in 1903. This endowed fund provides scholarships and fellowships to benefit the Agricultural Research Division and the College of Agricultural Sciences and Natural Resources.

Two students will be recipients of this $2,000 award given for the third time by ARD:

Name: Jennifer Moss  
Thesis area: Leadership Studies  
Department: Agricultural Leadership, Education and Communication  
Advisor: John Barbuto

Name: Tanja Petnicki-Ocwieja  
Thesis area: Molecular Biology  
Program: Plant Science Initiative  
Advisor: Jim Alfano

Grants and Contracts Received  
July and July 2004

Agricultural Economics  
- Miscellaneous Grants Under $10,000 each  
  $ 2,500

Agriculture Research and Development Center  
- Duncan, Dan — Barta Brothers via UNL Foundation  
  10,000

Agronomy and Horticulture  
- Baenziger, Stephen, Thomas Clemente, Martin Dickman,  
  John Watkins and David Baltensperger — USDA/ARS  
  106,218
- Spalding, Roy — Nebraska Department of  
  Environmental Quality  
  27,500
- Wortmann, Charles — Charles and Katherine W.  
  Baker via UNL Foundation  
  12,000
- Miscellaneous grants under $10,000 each  
  80,410

Animal Science  
- Cupp, Andrea — NIH  
  71,196
- Keown, Jeffrey, Sarah Ivan and Bill Chapman —  
  Nebraska Corn Development, Utilization and  
  Marketing Board  
  10,000
- Klopfenstein, Terry, Rodney Moxley, David Smith,  
  Galen Erickson and Susan Hinkley — Bioniche  
  Life Sciences  
  25,000
- Miscellaneous grants under $10,000 each  
  10,000

Biochemistry  
- Banerjee, Ruma — Jonty Foundation  
  80,000
- Banerjee, Ruma — American Heart Association  
  25,000
- Banerjee, Ruma — National Institute of Diabetes and  
  Digestive and Kidney Diseases  
  297,538
- Ragsdale, Stephen — USDA  
  140,000
- Ragsdale, Stephen — NSF  
  70,000
- Weeks, Donald — Consortium for Plant Biotechnology  
  Research, Inc.  
  40,000
- Miscellaneous grants under $10,000 each  
  11,250

Biological Systems Engineering  
- Franti, Thomas — Charles B. and Katherine W. Baker via  
  UN Foundation  
  12,000
- Irmak, Suat — Burlington Northern Endowment via UN  
  Foundation  
  38,000
- Miscellaneous grants under $10,000 each  
  2,000

Director’s Office  
- Nelson, Darrell — USDA/ARS  
  1,415,900

Entomology  
- Kamble, Shripat and Robert Wright — USDA through  
  Michigan State University  
  25,000
- Meink, Lance — Monsanto Corporation  
  22,000
- Siegfried, Blair — Monsanto Corporation  
  25,200
- Miscellaneous grants under $10,000 each  
  22,600

Food Science and Technology  
- Benson, Andrew — Biobalance Corporation  
  24,820
- Benson, Andrew — NIH-NIAID  
  195,500
- Ryu, Doyin — Layman Fund via UN Foundation  
  10,000
- Miscellaneous grants under $10,000 each  
  1,700

Northeast Research and Extension Center  
- Hunt, Thomas and Leon Higley — Nebraska Soybean  
  Board  
  28,630
- Miscellaneous grants under $10,000  
  79,700
The following station projects were approved recently by the USDA Current Research Information System (CRIS):

**New or Revised Projects**

**NEB-12-274 (Agronomy and Horticulture)**
Physiological Bases of Environmental Constraints on Plant Growth and Productivity
*Investigator:* Timothy Arkebauer  
*Status:* Revised Hatch project effective July 1, 2004

**NEB-12-306 (Agronomy and Horticulture)**
A Phenological Network for Ecological Viticulture
*Investigator:* Paul Read  
*Status:* State Interdisciplinary project effective July 1, 2004

**NEB-12-307 (Agronomy and Horticulture)**
Seasonal Dynamics of Annual Forage Crops to Enhance Grazing Livestock Systems
*Investigator:* Bruce Anderson  
*Status:* New Hatch project effective June 1, 2004

**NEB-13-169 (Animal Science)**
Evaluating Heat Stress Effects on Reproduction in Laying Hens
*Investigator:* Mary Beck  
*Status:* Special Hatch project effective March 1, 2004
The following is a listing of proposals that were submitted the past two months by faculty 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.

Steve Hu — NOAA — Sources of Multidecadal Variation in the Interrelationship of ENSO and Summer Rainfall in the Central United States — $215,253

Milford Hanna and John Belot — NSF — New Rare Earth Catalysts for the Fabrication of Biodegradable Polyester Monoliths Using Renewable Molecular Feedstocks — $525,379

F. Edwin Harvey — NSF — Collaborative Research: Multiscale Hydrogeologic Assessment of a Floodplain — $85,747

Galen Erickson, Dennis Schulte and Rick Stowell — USDA/NRI — Nutritional and Management Methods to Reduce Ammonia and Greenhouse Gas Emission from Confined, Open-Cattle Systems — $499,672


Marjorie Lou — NIH — Protein-thiol Mixed Disulfides in Cataractogenesis — $1,709,454

Kenneth G. Hubbard — NOAA — Quality Control and Trends in 20th Century U.S. Snowfall Using a Newly Digitized Data Set — $36,000

Donald A. Wilhite — USDA/CSREES — Developing Drought Mitigation and Preparedness Technologies for the U.S. — $187,584

Donald A. Wilhite — USDA/CSREES — Post Award Management of Biomass R&D Initiative Projects — $25,000

Raul Barletta — USDA/NRI — Functional Genomics of Mycobacterium paratuberculosis — $1,000,000

Stephen Ragsdale — USDOE — Enzymology of Methanogenesis: Mechanism of Methyl-Coenzyme M Reductase — $535,398


Jeffrey D. Cirillo and Andrew K. Benson — NIH/NIAID — Evolutionary Mechanisms for Emergence of Legionella — $1,733,000

Kenneth G. Hubbard and Stephen M. Goddard — NSF — ITR Collaborative Research: A Distributed Database of in situ, Remotely Sensed and Modeled Climate Data for Decision Makers — $668,405

Donald Wedin and Tim Arkebauer — NSF through University of Minnesota — Duluth — Acclimation of Soil Respiration to Experimental Warming in Grasslands — $254,284

Jeffrey D. Cirillo — NIH-NIAID — Evolutionary Mechanisms in Infectious Diseases — $1,460,000

John Osterman, Patricia Herman and John Markwell — USDOE — Formate Metabolism in Plants — $501,251

Mark Hutchison and Marilyn Schlake — USDA/FSMIP — Implementation of a Producer/Buyer Distribution System — $675,112

James Specht — USDA/ARS — Drought Stress Tolerance in Nebraska — $68,185


Alexander R. Martin — USDA/ARS — Effect of Transgenes from Sorghum on the Fitness of Shattercane X Sorghum Hybrids — $75,000

Curt Weller — USDA/ARS — Development of Sorghum Lipids as Nutraceuticals — $40,000

James L. VanEtten — NIH — DNA Replication and Gene Expression of Chlorella Viruses — $1,120,000

Loren Giesler and Thomas Hunt — USDA/NRI — Survey and Rapid Delineation of Exotic Crop Disease and Arthropod Pests Populations in the Great Plains Region — $963,040

Milford A. Hanna and Loren Isom — USDA/CSREES — Improving Organic Crop Production Across Ecoregions: an Agroecosystem Approach — $798,900
James Specht — USDA/ARS — Genetic Mapping and Applications of SNP DNA Markers in Soybean — $38,199

Gary Hein — USDA/ARS — Biologically Intensive Areawide IPM of the Russian Wheat Aphid and Greenbug — $85,436

James R. Steadman — USDA/ARS — Resistance Improvement of Bean Through Multi-site Screening and Pathogen Characterization — $41,800

David Stanley — NSF — Temporal Organization of Prostaglandin Action in Insect Cell Immunity — $262,334

Craig R. Allen — USGS — Evaluation of the Nebraska Landowner Incentives Program Practices for Species at Risk — $44,000

Donald F. Becker — NIH — Mechanistic Studies of PRODH and Redox Homeostasis — $1,533,840


**Nebraska Crops — 2004**

<table>
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<tr>
<th>Crop</th>
<th>Acres planted</th>
<th>2004 acres as % of 2003 acres</th>
<th>Nebraska acres as % of U.S. acres</th>
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<tr>
<td></td>
<td>1,000 acres</td>
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</tr>
<tr>
<td>Corn</td>
<td>8,300</td>
<td>102</td>
<td>10.3</td>
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<tr>
<td>Soybeans</td>
<td>4,750</td>
<td>104</td>
<td>6.3</td>
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<tr>
<td>Winter Wheat</td>
<td>1,950</td>
<td>103</td>
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<tr>
<td>Grain Sorghum</td>
<td>550</td>
<td>83</td>
<td>6.8</td>
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<tr>
<td>Oats</td>
<td>140</td>
<td>64</td>
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<td>Dry Beans</td>
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<tr>
<td>Sugar Beets</td>
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<td>110</td>
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<tr>
<td>Sunflowers</td>
<td>41</td>
<td>62</td>
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**Leading States for Cash Receipts, 2002**

Top 10 States by their Value of Cash Receipts (Million Dollars)

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