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INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES
University of Nebraska Lincoln
Agricultural Research Division News

August 2005 Volume 38, Number 4

Comments from the Interim Dean

I hope all of you had a productive and enjoyable summer. It has obviously been an interesting couple of months for me. I have always been impressed with the overall quality and productivity of scientists in the Agricultural Research Division, but the short time I have been serving as Interim Dean has given me an even greater appreciation of the quality of our Institution. Dr. Nelson was a great Dean and Director of the Agricultural Research Division and is a tough act to follow. As has been the goal for a number of years, providing quality, timely service to help you be successful will continue to be the number one priority of the Agricultural Research Division. Although I may be new to the position, we are fortunate to have Dora Dill, Nelvie Lienemann, and Karen Jackson in the office to keep things moving in a highly efficient manner. Additionally, I will be relying more on Assistant Director Dan Duncan and Richard Ferguson. Richard volunteered to extend his Administrative Internship in ARD an additional six months. It is a great team to work with and we look forward to helping you succeed.

In this issue, we highlight a variety of student awards. The quality of the nominees was outstanding. Selection of award winners from a long list of highly qualified nominees was extremely difficult. We should all take great pride in the accomplishments of our students, largely because of the hard work and quality of the students, but also because their accomplishments reflect well on the overall quality of our research programs. Please take time to congratulate the awardees when you have an opportunity.

I look forward to working with and for you over the next few months and encourage you to contact me if there is some way I can be of assistance!

Z B Mayo
Interim Dean and Director

National Coalition for Rural Entrepreneurship

A new coalition to support rural entrepreneurship is being created with support from Farm Foundation.

Jim Zuiches of Washington State University is spearheading the effort, which will identify opportunities to fund rural and entrepreneurship research, education, training and support through USDA and other resources.

A series of listening sessions is planned across the country to help local and regional leaders communicate to USDA their interest and support for the coalition and to provide opportunity-based organizations a framework for having input into the federal budget-setting process related to rural entrepreneurship.

In addition to Farm Foundation, the project has support from the W.K. Kellogg Foundation, the Regional Rural Development Centers and the Northwest Area Foundation.

This project was developed following the overwhelming response the Kellogg Foundation received to a call for proposals related to rural entrepreneurship. The volume of partnerships and coalitions represented in those responses highlighted the need for an organizational structure to bring those groups together to achieve broader support of rural entrepreneurship.

Farm Foundation

Hardin Distinguished Graduate Fellowship 2005-2006

The recipient of the Hardin Distinguished Graduate Fellowship for 2005-2006 is **Veronica Ciganda** from the Agronomy and Horticulture 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. She will receive a $2,000 supplement to her graduate assistantship and the Agronomy and Horticulture Department will receive $1,000 of operational support for her research program.

The University of Nebraska–Lincoln does not discriminate based on gender, age, disability, race, color, religion, marital status, veteran's status, national or ethnic origin or sexual orientation.

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IANR

Ciganda is completing her Ph.D. in the Agronomy and Horticulture Department and her dissertation deals with "non-destructive technique for estimating plant physiological status". Ciganda's work aims to develop techniques for estimating pigment content, crop primary production and crop biomass - early detection of crop stress and crop yield prediction. Based on her findings, her research will have considerable value in that it will characterize relative chlorophyll content up and down the corn plant. These findings will have application for modelers who seek to describe and estimate crop responses to environmental conditions. The results will also be a foundation for proximal and remote sensing technology to monitor crop status in real time using radiometry in visible and near infra-red regions of electromagnetic spectrum. Dr. Anatoly Gitelson is her advisor.

Widaman Trust Distinguished Graduate Assistant Award 2005-2006

The Widaman Trust was established in 1975 through a generous gift provided to the University of Nebraska Foundation by Ms. Blanch 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% 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.

Name: Juan A. Quincke
Thesis area: Soil and Water Sciences
Department: Agronomy/Horticulture
Advisors: Charles Wortmann and Martha Mamo

Name: Mariappan Sadayappan
Thesis area: Statistics
Department: Agronomy/Horticulture
Advisors: David Marx and Achim Dobermann

Name: Walter P. Suza
Thesis.area: Plant Breeding and Genetics
Department: Agronomy/Horticulture
Advisor: Paul Staswick

Name: Tri Deri Setiyono
Thesis area: Crop Physiology and Production
Department: Agronomy/Horticulture
Advisors: Achim Dobermann, James Specht, Ken Cassman and Albert Weiss

Name: Robin A. Ten Broeck
Thesis area: Animal Science
Department: Animal Science
Advisor: Andrea Cupp

Name: April J. Tepfer
Thesis area: Cellular and Molecular Mechanisms
Department: Animal Science
Advisor: Andrea Cupp

Name: Michelle Baltes
Thesis area: Animal Science
Department: Animal Science
Advisor: Andrea Cupp

Name: Nagarama Kothapalli
Thesis area: Biotinylation of Histones
Department: Biochemistry
Advisor: Janos Zempleni

Name: Tierney R. Brosius
Thesis area: Soybean Aphid Ecology
Department: Entomology
Advisor: Tom Hunt

Name: Jennifer L. Huebner
Thesis area: Food Science
Department: Food Science and Technology
Advisor: Robert Hutkins

Name: Shakho N. Yarbayeva
Thesis area: Nutrition Biochemistry
Department: Nutrition and Health Sciences
Advisor: Julie Albrecht

Name: Yap Ching Chew
Thesis area: Nutrition Sciences
Department: Nutrition and Health Sciences
Advisor: Janos Zempleni

Name: Camile P. Semighini
Thesis area: Biological Sciences
Department: Plant Pathology
Advisor: Steven Harris

Name: Yuko Mori
Thesis area: Biomedical Sciences
Department: Veterinary and Biomedical Sciences
Advisor: Clayton Kelling

IANR Research Travel Grants

The IANR Research Travel Program has been in existence for ten years. Funds are granted quarterly on a competitive basis. Faculty with IANR research appointments are eligible apply for these travel grants. The grants allow faculty to travel to present original scholarly work at professional and scholarly meetings. Faculty members are limited to one travel grant per fiscal year. The next deadline for applications is: **Sept. 1.**

John and Louise Skala Fellowship 2005-2006

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 UNL Institute of Agriculture and Natural Resources (IANR). The recipient of this fellowship shall be engaged in research in areas relating to the new industrial uses of agricultural products. This fellowship provides a $3,000 stipend to master's students and a $5,000 stipend to doctoral students.

Four students are the recipients of these awards through the Agricultural Research Division and the College of Agricultural Sciences and Natural Resources:

Name: Jeremy Martin
Thesis area: Animal Science
Department: Animal Science
Advisors: Rick Funston and Andrea Cupp

Name: Govindarajan Konda Naganthan
Thesis area: Biological Systems Engineering
Department: Biological Systems Engineering
Advisor: Jeyamkondan Subbian

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

Name: David Monsalve
Thesis area: Food Science and Technology
Department: Food Science and Technology
Advisor: Harshavardan Thippareddi

Shear-Miles Fellowship 2005-2006

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, Corneilus 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.

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

Name: Amy Boren
Thesis area: Leadership Studies
Department: Agricultural Leadership, Education and Communication
Advisor: Susan Fritz

Name: Ty A. McCleelan
Thesis area: Turfgrass Science
Department: Agronomy and Horticulture
Advisors: Roch Gaussoin and Robert Shearman

Name: Joseph Erume
Thesis area: Integrative Biomedical Sciences
Department: Veterinary and Biomedical Sciences
Advisor: Rod Moxley

Al Moseman International Studies Fund 2005-2006

The Al Moseman International Studies Fund was established through a trust in the NU 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 multi-disciplinary 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: Stephen Opiyo
Thesis area: Bioinformatics
Department: Agronomy and Horticulture
Advisor: George Graef

New or Revised Projects May and June 2005

NEB 40-037 Identification of the triggering mechanisms of increased flood risk in the Lower Missouri River, USA
Investigator: Jozsef Szilagyi, School of Natural Resources
Status: State project effective Jan. 1, 2005 through Dec. 31, 2009

NEB 13-174 Impact of animal welfare guidelines for laying hen cage space allowance on maintenance energy requirement, behavior, and skeletal integrity of laying
Investigator: Sheila Scheideler, Animal Science
Status: Hatch project effective May 1, 2005 through Apr. 30, 2010

NEB 40-040 Multidecadal alternation of sources affecting interannual summer rainfall variations in the Central US
Investigator: Qi (Steve) Hu, School of Natural Resources
Status: Hatch project effective Feb. 1, 2005 through Jan. 31, 2010

NEB 11-129 NE1017, Developing and integrating components for commercial greenhouse production system
Investigator: George Meyer, Biological Systems Engineering
Status: Multistate project effective Oct. 1, 2003 through Sept. 30, 2008

NEB 94-031 Housing issues in Nebraska communities: Older population needs
Investigator: Shirley Niemeyer, Textiles, Clothing and Design
Status: Hatch project effective Apr. 1, 2005 through Mar. 31, 2010

NEB 13-175 Impact of biotin supplementation on early embryonic development
Investigator: Brett White, Animal Science
Status: Interdisciplinary project effective July 1, 2005 through June 30, 2007

NEB 32-013 North Central Region Sustainable Agriculture Research and Education (NCR-SARE) Program
Investigator: W. F. Wilcke, SARE
Status: Grant project effective July 1, 2005 through June 30, 2010

NEB 13-175 Impact of biotin supplementation on early embryonic development
Investigator: Brett White, Animal Science
Status: Interdisciplinary project effective July 1, 2005 through June 30, 2007

NEB 32-013 North Central Region Sustainable Agriculture Research and Education (NCR-SARE) Program
Investigator: W. F. Wilcke, SARE
Status: Grant project effective July 1, 2005 through June 30, 2010

Proposals Submitted for Federal Grants May and June 2005

The following is a listing of proposals that were submitted during May and June 2005 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.

Charles Shapiro, David Baltensperger, Jim Brandle, Charles Francis, Stephan Knezevic, Robert Wright, and Ron Johnson – USDA,CSREES – Improving organic farming systems across Nebraska agroecosystems – $798,900

Suat Irmak and Derrel Martin – USDA-NRCS –Integration of subsurface drip-irrigation and reduced tillage systems to conserve irrigation water in South Central Nebraska – $75,000

John Yohe – US AID – International Sorghum/Millet Research Support Program (INTSORMIL) – $2,900,000

David Smith – USDA-APHIS – An accurate determination of the proportion of beef cattle herds with Johne's disease: Part II – $213,667

Shashi Verma – US Department of Energy – A proposal to host the midwest regional center of the National Institute for Climatic Change Research – $780,705

James Alfano – NIH – Suppression of innate immunity by ADP Ribosyltransferase Type II effectors – $1,799,015

Gary Yuen – USDA-ARS – Evaluation of biological agents for Fusarium head blight control – $22,780

Thomas Powers – NRI – Molecular phylogeny of the tylenchomorpha: An evolutionary framework for the study of plant parasitic nematodes – $97,149

Steve Baenziger, Martin Dickman, John Watkins, Tom Clemente, and David Baltensperger – USDA-ARS – Developing winter wheat with improved Fusarium head blight tolerance – $112,313

James Steadman – USDA-AID – Bean/Cowpea CRSP Project – $80,022

Clinton Jones – NIH – Does the HSV-1 latency associated transcript (LAT) encode a protein? – $401,500

Roy Spalding – NIH – Contaminated drinking water & NHL subtypes by t(14;18) – $118,943

James Merchant, Milda Vaitkus, and Don Rundquist – US Geological Survey – NebraskaView (Year 4) – $89,500

Janos Zempleni – NIH – Roles for biotin in epigenetic events – $401,500

Jeffrey Cirillo – NIH – Entry mechanisms of mycobacterium marinum – $90,650

Mark Burbach, Byrav Ramamurthy, and Cody Knutson – EPA ORD – An integrated real-time groundwater-level monitoring network to support drought impact assessment and environmental planning – $442,160

James Specht – United Soybean Board – Genetic mapping and application of SNP dan markers in soybean – $88,397

Steven Harris and Liangcheng Du – NIH – Regulation of polarized hyphal growth in Aspergillius Fumigatus – $1,614,760

Dennis Brink – ARS – Physiological response of cattle to stable fly bites – $30,000

Donald Lee – NRI – SoyCAP – $461,052

Steve Baenziger – NRI – Wheat applied genomics – $184,000

Robert Spreitzer – US Department of Energy – Role of the Rubisco small subunit – $441,922

Tom Powers – NRI – A comprehensive genome-based diagnostics resource and pipeline for identification of threatening plant pathogens – $42,607

Ruma Banerjee – NIH – Biotechnology research training program – $1,364,390

Drew Lyon – SARE – Developing a grower research network for dryland cropping systems in Western NE – $116,310

Gary Hergert – SARE – Limited irrigation cropping systems to sustain ground water in the Nebraska High Plains – $149,130

John A. Smith – SARE – Integrated zone tillage-direct harvest dry edible bean production system to reduce operation inputs, stabilize yield, and maintain surface residue – $114,900

Carlos Urrea – SARE – Minimizing soil erosion and improving soil quality through direct harvest of dry edible beans – $141,000

Blair Siegfried and Guoqing Lu (UNO) – NRI – Identification and validation of midgut specific target sites for control of the western corn rootworm – $411,176

Audrey Atkin, Pat Dussault, Steven Harris, Etsuko Moriyama, and Kenneth Nickerson – SARE – Fungal sterol sensing proteins – $100,000.00

Stephen Danielson – SARE – Conservation biological control of insect pests by improving the management of alfalfa harvest – $139,646

Dillon Feuz – SARE – Impacts of various beef cow systems on ranch profitability and on cull cow value – $149,110

Jeyamkondan Subbiah, Milford Hanna, and Vicki Schlegel – NRI – Spectroscopy for detecting contaminants in food – $246,699

Donald Rundquist – NASA – NE aerospace eduction, research and industrial alliance (AERIAL) Year 5 – $122,653

Ron Johnson – SARE – Sustainable farming and health land: A farmer-based index – $149,675

Ruma Banerjee – Department of Health & Human Services – Transsulfuration and hyperhomocysteinemia – $1,629,410

Greg Somerville, Robert Powers, Ron Cerny, David Hage, and James Takacs – NIH – AC/MS/NMR Assay: Universal screen for protein-ligand binding – $1,289,110

Ruma Banerjee – NIH – Regulation of Homocysteine-dependent Redox Homeostasis – $1,629,410

Raul Barletta – NRI – Functional genomics of mycobacterium paratuberculosis – $999,074

John Markwell, Patricia Herman, John Osterman, and Madhavan Soundararajan – NSF – Directed evolution of plant formate dehydrogenase – $353,386

Drew Lyon – USDA-FCIC – Developing a simple decision support tool to reduce production risk of short-duration crops in the semi-arid High Plains – $162,170

Alex Pavlista – USDA-FCIC – Drought management tool to mitigate production loss of dryland and limited irrigated corn – $314,600

David Carter, Thomas Powers, Leon Higley, and Rhae Drijber – NSF – Community assemblages and succession associated with cadaver decomposition in terrestial ecosystems – $395,325

Qi (Steve) Hu – NOAA-CPPA – Understanding the drought nature in warmer climate – $281,169

Ayse Irmak, George Meyer, Donald Rundquist, Anatoly Gitelson, Steve Hu, and Loren Giesler – USDA-FCIC – A geospatially tuned risk management tool for soybean rust mitigation – $514,157

Andrew Suyker – Department of Education-EPSCoR – A comparative study of biophysical controls of carbon dioxide, water vapor, and energy exchanges in maize-soybean and oak-dominated forest ecosystems – $450,000

Laurie Hodges – USDA-FCIC – Mitigating the effects of extreme weather and unpreditable markets for market farmers - A management tool risk management – $85,422

Paul Burgener – USDA-FCIC – Decision support system for optimal crop rotations under limited irrigation – $156,970

New Design to ARD News

ARD News has a new design! In this issue, we have implemented the new guidelines provided by UNL's "Toolbox".

Our intent for the newsletter is to not only be in compliance with the guidelines, but to have a design unique to ARD. We would like to thank Linda Ulrich and Renee Lanik of CIT for their hard work in editing the articles and in creating the graphic design.

Grants and Contracts Received for May and June 2005

Agronomy and Horticulture:

Steve Baenziger, Martin Dickman, John Watkins, Tom Clemente, and David Baltensperger – USDA-ARS	$112,313.00
Ismail Dweikat – Anna Elliott	$15,000.00
George Graef, Tom Clemente, and James Steadman – USDA-ARS	$78,564.00
Sally Mackenzie – Raikes	$20,000.00
Robert Shearman – Todd Valley Farms	$14,000.00
James Specht and George Graef – North Central Soybean Research Program	$200,000.00
Miscellaneous Grants under $10,000 each	$64,025.00

Agricultural Leadership, Education and Communication:

Miscellaneous Grants under $10,000 each	$3,000.00

Animal Science:

Chris Calkins – National Cattlemen's Beef Association	$56,937.00
Andrea Cupp – NIH	$71,429.00
Sheila Scheideler – Monsanto Co.	$13,690.00
Sheila Scheideler – US Egg and Poultry Association	$39,481.00
Brett White – Layman Fund	$10,000.00
Miscellaneous Grants under $10,000 each	$15,188.00

Agricultural Research and Development Center:

Miscellaneous Grants under $10,000 each	$4,200.00

Biochemistry:

Ruma Banerjee – NIH, NIDDKD	$297,538.00
Donald Becker – Layman Fund	$10,000.00
Raymond Chollet –NSF/MCB, Metabolic Biochemistry Program	$151,424.00
Melanie Simpson – NIH	$20,000.00
Melanie Simpson – NIH, Cancer Institute	$84,000.00
Melanie Simpson – NIH, Cancer Institute	$216,818.00
Robert Spreitzer – US Department of Energy, Energy Biosciences	$110,000.00

Biological Systems Engineering:

Gregory Bashford – Layman Fund	$10,000.00
Suat Irmak, Derrel Martin, and George Meyer – Upper Big Blue Natural Resources District	$10,000.00
Jevamkondan Subbiah – Layman Fund	$10,000.00
Lijun Wang – Layman Fund	$10,000.00

Entomology:

Lance Meinke – Pioneer Hi-Bred International, Inc.	$21,009.00
Lance Meinke – Syngenta	$28,350.00
Lance Meinke – Monsanto Co.	$13,069.00
Blair Siegfried – Monsanto Co.	$22,680.00
Blair Siegfried – USDA-ARS	$25,000.00
Robert Wright – Syngenta Crop Protection, Inc.	$56,070.00
Miscellaneous Grants under $10,000 each	$15,740.00

Food Science and Technology:

David Jackson – Anderson Research Grant (Ohio State)	$16,875.00
Miscellaneous Grants under $10,000 each	$21,491.00

Industrial Agricultural Products Center

Milford Hanna, Loren Isom, and Robert Weber – Nebraska Soybean Association, USDA-RBS	$101,250.00
Milford Hanna – USDA/CSREES, S-1007	$25,000.00

Northeast Research and Extension Center:

Thomas Hunt – USDA-ARS	$15,000.00
Thomas Hunt and Leon Higley – NC Soybean Research Program	$16,292.0
Stevan Knezevic – Weed Science Program Fund	$55,113.00
Miscellaneous Grants under $10,000 each	$2,000.00

Panhandle Research and Extension Center:

Gary Hein – Monsanto Co.	$13,608.00
Robert Wilson – Monsanto Co.	$10,800.00
Robert Wilson – Sampson Range and Pasture Management	$10,000.00
Miscellaneous Grants under $10,000 each	$78,940.00

Plant Pathology:

Byeong-ryool Jeong – Layman Fund	$10,000.00
Gary Yuen – USDA-ARS,Wheat and Barley Scab Initiative	$22,780.00
Yuanzheng Zhang – Layman Fund	$10,000.00
Miscellaneous Grants under $10,000 each	$2,500.00

Sustainable Agriculture Research and Education Program:

William Wilcke – USDA-CSREES, Agreements and Special Projects Branch	$2,707,719.00

School of Natural Resources:

Steve Comfort – Pacific NW National Lab	$64,300.00
Steve Comfort – EPA, Region 7	$994,100.00
John Holz, Donald Rundquist, and Anatoly Gitelson – Nebraska Department of Environmental Quality	$105,263.00
John Holz – Nebraska Department of Environmental Quality	$45,000.00
James Merchant and Chris Chalmers – Nebraska Department of Health and Human Services	$26,498.00
Sunil Narumalani – Nebraska Military Department	$112,563.00
Ed Peters – Nebraska Game and Parks Commission	$110,606.00
James Swinehart and Ronald Goble – NSF	$87,581.00
Donald Wilhite – USDA-CSREES	$197,235.00
Miscellaneous Grants under $10,000 each	$9,568.00

Statistics:

Miscellaneous Grants under $10,000 each	$2,520.00

Textiles, Clothing and Design:

Yiqi Yang – PolyPlus Co., Ltd	$41,172.00
Yiqi Yang – Consortium for Plant Biotechnology Research	$64,988.00

Veterinary and Biomedical Sciences:

Gerald Duhamel – NIH, Allergy and Infectious Diseases	$70,884.00
Fernando Osorio – SYVA Laboratory (Spain)	$45,502.00
David Steffen – Department of Regulation and Licensure	$15,000.00
Miscellaneous Grants under $10,000 each	$15,839.00

West Central Research and Extension Center:

Rick Funston – Layman Fund	$10,000.00
Jerry Volesky – Anna Elliott	$12,000.00
Miscellaneous Grants under $10,000 each	$22,300.00

TOTAL **$7,001,812.**