ARD News December 2008

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Comments from the Dean Gary Cunningham

Ours is a great land-grant university, and we in the Agricultural Research Division are proud to be part of it. In IANR the three missions of the land-grant university – research, teaching, and extension education – closely entwine. We work together. We learn from each other. And because we are integrated and collaborative in our work in IANR, we are well-positioned to take advantage of the new competitive grants program for research, education and extension that is part of the 2008 Farm Bill, and called AFRI for Agriculture and Food Research Initiative.

AFRI combines the funding authorities of the National Research Initiative (NRI) and the Initiative for Future Agriculture and Food Systems (IFAFS). AFRI offers increased potential funding opportunities, along with new competitive grant programs for research and integrated projects. These new proposals can be a combination of research, education and extension projects.

We are uniquely positioned to submit proposals that align with all three. IANR faculty often hold dual appointments in research and teaching or research and extension. In IANR we see science as a continuum, from research on the most fundamental issues through applications supporting teaching and extension education relevant to living systems from the molecular to the global levels of organization. We expect IANR scientists will enjoy great success in applying for AFRI grants.

The first steps to this success include preparing and submitting effective applications. New application procedures and processes are required. To help everyone understand these procedures and maximize our potential for success, we are pleased to offer the AFRI Research Proposal Opportunities workshop on Jan. 6, 2009. This workshop will be presented via Breeze. You can participate individually at your computer, or host an online broadcast for a group and view it together.

Sessions include:

**AFRI Research Program Areas** with Dr. Debora Hamernik, USDA
- Review of standard research, integrated designations and program leadership

**Observations from a Panel Member** with Dr. Clinton Jones, UNL
- Characteristics of a successful research proposal

**Proposal Development Services** from Tisha Gilreath Mullen, UNL Office of Research
- Reviews and assistance from proposal writers

**Submitting your Proposal** from Lynne Smejdir, IANR Finance and Personnel
- Requirements for submitting your proposal

**AFRI Integrated Program Areas** with Dr. Debora Hamernik, USDA
- Identifying standard and integrated research designations

**Features of a “High Impact” Extension Component** with Elbert Dickey and Rick Koelsch, Extension Administration
- Self-assessment in evaluating quality of extension components

**Evaluation of Impact** from Jason Ellis, AgLEC
- Key planning considerations

**Observations from a Panel Member** with Linda Boeckner, UNL Panhandle R&E Center
- Additional characteristics of a successful research proposal

To participate in the AFRI Research Proposal Opportunities event on Jan. 6, 10:30 a.m. to 12:00 p.m. CST, and 1:00 to 2:30 p.m. CST, you should:

- Plan to use a computer with Internet access and a phone.
- Go to ARD website ard.unl.edu/fundinginfo/shtml for connection links.
- If you are unable to view the program on the 6th of January, the content will be available from the above website.

We in IANR have an important opportunity to showcase our work, submit effective proposals, and receive valuable grant funding in the months ahead. I urge you to be part of this workshop Jan. 6. Together we will share grant recipient success in 2009.

Gary Cunningham, Dean and Director
Undergraduate Honors Research Program

Funds for the 2009 Academic Undergraduate Honors Student Research Program have been allocated to units for support of undergraduate 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. One proposal was received and funded. The following student has received funding:

Kelsey Swartz (Biochemistry) $2,500
Mentor: Dr. Robert Spreitzer
“Hybrid Rubisco Enzymes”

Mussehl Endowment

Three proposals were submitted for the Mussehl Endowment. This substantial endowment was established in the University of Nebraska Foundation by the Mussehl Estate to support poultry research programs at UNL. Projects eligible for support from the Endowment include poultry management, health, nutrition, physiology, waste management and utilization, and poultry product research. The following proposals were funded:

Sheila Scheideler (Animal Science)
Dana Hahn (Animal Science)
Funded: $25,000 November 1, 2008 - October 31, 2009

Sheila Scheideler (Animal Science)
Patricia Weber (Animal Science)
“The Effects of Social and Environmental Enrichments on Behavior and Welfare of Turkey Hens”
Funded: $24,604 November 1, 2008 - October 31, 2009

Jens Walter (Food Science and Technology)
Sheila Scheideler (Animal Science)
“Identification of Novel Enzymes for the Supplementation of Poultry Feed Using a Metagenomic Approach”
Funded: $25,000 November 1, 2008 - October 31, 2009

David H. and Annie E. Larrick/William G. Whitmore Funds, 2009

The David H. And Annie E. Larrick Student Support Fund was established in the University of Nebraska Foundation in 1998 by Ronald Larrick in honor of his grandparents. It was decided that these funds will be devoted to supporting graduate student travel to professional and scientific meetings. All currently registered graduate students whose advisor or co-advisor currently has an ARD research appointment are eligible.

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 1902-1916. The Whitmore fund is specifically designated to support travel of graduate students in the fields of animal science, agricultural education and leadership and veterinary and biomedical sciences. Most of the Larrick funds are used to support graduate students in other departments.

The Larrick and Whitmore Graduate Student Travel Grant Programs provide funding for travel expenses not to exceed $500. The following students received funding for January-June 2009:

Name: Virgil Bremer
Department: Animal Science Department
Meeting: American Society of Animal Science
Place: Des Moines, Iowa

Name: Sarah Vanness
Department: Animal Science Department
Meeting: American Society of Animal Science
Place: Des Moines, Iowa

Name: Racheal Slattery
Department: Animal Science Department
Meeting: American Society of Animal Science
Place: Des Moines, Iowa

Name: Amy Miller
Department: Biochemistry Department
Meeting: American Society for Biochemistry
Place: New Orleans, Louisiana

Name: Krishnamoorthy Pitchai
Department: Biological Systems Engineering
Meeting: American Society of Agriculture and Biological Engineers
Place: Reno, Nevada

Name: Isa Kabenge
Department: Biological Systems Engineering
Meeting: American Society of Agriculture and Biological Engineers
Place: Reno, Nevada
<table>
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<tr>
<th>Name</th>
<th>Department</th>
<th>Meeting</th>
<th>Place</th>
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<tbody>
<tr>
<td>Denis Mutiibwa</td>
<td>Biological Systems Engineering</td>
<td>American Society of Agriculture and Biological Engineers</td>
<td>Reno, Nevada</td>
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<tr>
<td>Pratik Bhandari</td>
<td>Biological Systems Engineering</td>
<td>American Society of Agriculture and Biological Engineers</td>
<td>Reno, Nevada</td>
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<td>Eunju Jung</td>
<td>Child, Youth and Family Services</td>
<td>Society for Research in Child Development</td>
<td>Denver, Colorado</td>
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<td>Amanda Fujikawal</td>
<td>Entomology Department</td>
<td>American Academy of Forensic Sciences</td>
<td>Denver, Colorado</td>
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<td>Andrew Brown</td>
<td>Nutrition and Health Sciences</td>
<td>American Society for Experiment Biology</td>
<td>New Orleans, Louisiana</td>
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<td>Valerie Pestinger</td>
<td>Nutrition and Health Sciences</td>
<td>American Society for Nutrition</td>
<td>New Orleans, Louisiana</td>
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<tr>
<td>Gaganpreet Kaur Mall</td>
<td>Nutrition and Health Sciences</td>
<td>American Society for Nutrition</td>
<td>New Orleans, Louisiana</td>
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<td>Gregory Curtrell</td>
<td>School of Natural Resources</td>
<td>Graduate Climate Conference</td>
<td>Seattle, Washington</td>
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<tr>
<td>Yi Zou</td>
<td>Textiles, Clothing and Design</td>
<td>American Chemical Society</td>
<td>Salt Lake City, Utah</td>
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<tr>
<td>Namal Liyanage</td>
<td>Veterinary and Biomedical Sciences</td>
<td>American Society for Microbiology</td>
<td>Philadelphia, Pennsylvania</td>
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**New or Revised Projects**

**September and October 2008**

**NEB 21-147 Evaluating performance of tractor continuously variable transmissions (CVTs) and row-crop planters**
Investigator: Michael Kocher, Biological Systems Engineering

**NEB 21-149 NE-1035, Commercial greenhouse production: Component and system development**
Investigator: George Meyer, Biological Systems Engineering

**NEB 22-335 Ecophysiology of interplant competition**
Investigator: John Lindquist, Agronomy and Horticulture

**NEB 26-189 Dried distillers grains with solubles (DDGS) in growing-finishing swine diets**
Investigator: Phil Miller, Animal Science

**NEB 26-190 S-1040, Genetic selection and crossbreeding to enhance reproduction and survival of dairy cattle**
Investigator: Jeffrey Keown, Animal Science

**NEB 27-063 NC-1171, Interactions of individual, family, community, and policy contexts on the mental and physical health of diverse rural low-income families**
Investigator: Susan Churchill, Child, Youth and Family Studies

**NEB 28-100 NC-205, Ecology and management of European Corn Borer and other lepidopteran pests of corn**
Investigator: Blair Siegfried, Entomology
Status: Multistate project effective July 1, 2008, through Sept. 30, 2010

**NEB 31-118 NC-213, Marketing and delivery of quality grains and bioprocess co-products**
Investigator: Lloyd Bullerman, Food Science and Technology

**NEB 36-072 W-2002, Nutrient bioavailability - phytonutrients and beyond**
Investigator: Janos Zempleni, Nutrition and Health Sciences
NEB 38-067  Assessment of the impact of water and nutrient management practices on groundwater nitrate concentrations
Investigator: Mary Spalding, School of Natural Resources
Status: Hatch project effective Aug. 1, 2008, through July 31, 2013

NEB 38-068  Causes and predictability of drought in the Great Plains
Investigator: Robert Oglesby, School of Natural Resources

NEB 62-004  Phylloquinone (Vitamin K1) biosynthesis and engineering in plants
Investigator: Gilles Basset, Plant Science Initiative

Proposals Submitted for Federal Grants
September and October 2008

The following is a listing of proposals that were submitted during September and October 2008 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.

Shannon Bartelt-Hunt and Daniel Snow – NSF – Collaborative Research: Fate and bioavailability of steroidogenic compounds in aquatic sediment – $211,714

Paul Hanson – NSF – Dune Undergraduate Geomorphology and Geochronology Project in Wisconsin – $44,228

Yiqi Yang and Narendra Reddy – NSF – Developing wheat protein fibers as a new class of biomaterials for tissue engineering applications – $195,704

Yiqi Yang and Narendra Reddy – NIH – Plant protein fibers as a new class of biomaterials for tissue engineering scaffolds – $426,706

Daniel Peterson – NIH – Adaptive immune response to symbiotic bacteria as a mediator of gut homeostasis – $379,890

Anatoly Gitelson – Binational Agricultural Research and Development Fund – Remote pigment assessment in inland waters for quantitative monitoring of potentially nuisance algae – $150,000

Robert Hutkins and Rodney Moxley – USDA-BARD – Oligosaccharide mixtures as novel anti-adhesive agents for the prevention of bacterial infectious diseases – $201,600

James Specht – USDA-ARS – Drought stress tolerance in Nebraska – $89,072

Yiqi Yang and Narendra Reddy – NSF – Developing composites from textile wastes for high value industrial applications – $195,704

Yiqi Yang and Narendra Reddy – NSF – Developing plant protein fibers as substrates for sorption loading of drugs for controlled release applications – $198,602

Anne Vidaver – USDA-CSREES – Developing a national recovery plan for gumming disease of grasses and ryegrass toxicity, caused by rathayibacter toxicus – $19,700

Anatoly Gitelson – NASA – A MODIS based decision support tool for Gulf Coast Salt Marsh Conservation and Restoration – $150,049

Anatoly Gitelson – NASA – The effects of projected climate change on land use, freshwater supply, agriculture, and estuarine water quality in the Mid-Atlantic Region – $559,920

Kyle Hoagland – U.S. Army Corps of Engineers – U.S. Army Corps of Engineers-Civil Works Joining Fee for the Great Plains (GP) Cooperative Ecosystems Studies Unit (CESU) – $10,000

James Alfano, Thomas Clemente and Paul Staswick – Department of Agriculture-BARD – Elucidating functions of type III effectors from necrogenic and tumorigenic bacterial pathogens – $180,000

Wayne Woldt and Erkan Istanbulluoglu – NSF – Observing system stimulation experiment for watershed resilience – $330,426

Robert Harveson – USDA-CSREES – The 2008 Legume IPM PIPE Subcontract - Nebraska – $24,310

Mark Pegg, Kevin Pope and Brenda Pracheil – U.S. Fish and Wildlife Service – Rates and consequences of downstream paddlefish passage through Missouri River dams – $72,326

Scott Hygnstrom – Department of Agriculture-APHIS – Toward the development of spatially explicit models of wildlife disease – $138,015

Jeyamkondan Subbiah – NSF – Spectral imaging to determine the histopathology of unstained skin for early melanoma detection – $498,950


Jeyamkondan Subbiah, Harshavardhan Thippareddi, Milford Hanna, Vicki Schlegel, Paul Read, Richard Perrin and David Rickert – USDA-CSREES – Improving profitability by extracting bioactive and high-value ingredients from winery co-products using novel processing technologies – $1,611,598
### Grants and Contracts Received for September and October 2008

<table>
<thead>
<tr>
<th>Research Division</th>
<th>Principal Investigator</th>
<th>Funding Source</th>
<th>Amount</th>
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<tr>
<td>Agricultural Research Division:</td>
<td>Gary Cunningham</td>
<td>USDA-ARS</td>
<td>$901,900.00</td>
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<td>Agronomy and Horticulture:</td>
<td>Peter Baenziger</td>
<td>NRI</td>
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<td></td>
<td>Kenneth Cassman, James Specht, Haishun Yang, Daniel Walters and Suat Irmak</td>
<td>Nebraska</td>
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<td></td>
<td>George Graef</td>
<td>USDA-ARS</td>
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<td>George Graef</td>
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<td>James Specht</td>
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<td>James Specht and George Graef</td>
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<td>Paul Read</td>
<td>Nebraska Department of Agriculture-Grape and Winery Board</td>
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<td>Phillip Miller and Thomas Burkey</td>
<td>Pioneer Hi-Bred International</td>
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<td>Miscellaneous grants under $10,000 each</td>
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<td>Biochemistry:</td>
<td>Kathryn Hanford</td>
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<td>Biological Systems Engineering:</td>
<td>Viacheslav Adamchuk, Charles Shapiro, Charles Wortmann, Richard Ferguson and Richard Perrin</td>
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<td>David Billesbach</td>
<td>Department of Energy</td>
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<td>Suat Irmak</td>
<td>Central Platte Natural Resources District</td>
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<td>Erkan Istanbulluoglu</td>
<td>NSF</td>
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<td>Miscellaneous grants under $10,000 each</td>
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### Entomology:
- Miscellaneous grants under $10,000 each | $48,400.00

### Food Science and Technology:
- Andrew Benson, Jens Walter and Robert Hutkins – USDA-NRI | $370,927.00
- Rolando Flores – Nebraska Corn Board | $49,570.00
- Jens Walter, David Jackson and Vicki Schlegel – Nebraska Corn Board | $32,260.00

### Northeast Research and Extension Center:
- Tom Hunt and Robert Wright – Nebraska Soybean Board | $20,732.00
- Donald Levis – Nebraska Pork Producers Association | $19,040.00
- Miscellaneous grants under $10,000 each | $53,350.00

### Panhandle Research and Extension Center:
- Robert Harveson – USDA-CSREES-WRIPMC | $24,310.00
- Miscellaneous grants under $10,000 each | $40,850.00

### Plant Pathology:
- James VanEtten – University of California-San Francisco | $28,429.00
- Stephen Wegulo – Nebraska Wheat Board | $34,275.00
- Miscellaneous grants under $10,000 each | $47,951.00

### School of Natural Resources:
- Xun-hong Chen – Lower Platte North Natural Resources District | $100,954.00
- Scott Hygnstrom – USDA-APHIS | $138,015.00
- Scott Hygnstrom – USDA-APHIS | $50,000.00
- Susan Lackey – Lower Elkhorn Natural Resources District | $95,600.00
- James Merchant – AmericaView Inc. | $23,989.00
- Sunil Narumalani – Nebraska Military | $66,290.00
- Donald Rundquist – Florida A&M University | $37,907.00
- Donald Rundquist – Nebraska Department of Agriculture | $20,000.00
- Mary Spalding and Roy Spalding – Nebraska Department of Environmental Quality | $62,176.00
- Mark Svoboda, Brian Wardlow and Tsegaye Tadesse – USGS | $58,726.00
- Mark Svoboda, Brian Wardlow, Brian Fuchs and Soren Scott – NASA | $147,985.00
- Sashi Verma – Nebraska Department of Environment Quality | $19,200.00
- Sashi Verma – U.S. Department of Energy | $350,000.00
- Miscellaneous grants under $10,000 each | $18,434.00

### Statistics:
- Kent Eskridge – Nebraska Department of Health and Human Services | $10,412.00

### Veterinary and Biomedical Sciences:
- Clinton Jones – USDA-NRI | $375,000.00
- David McVey – USDA-CSREES | $49,805.00
- David Steffen – Nebraska Game and Parks Commission | $100,000.00

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**TOTAL:** $4,874,269.00

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**Wishing you a New Year of Peace and Happiness!**

ARD Staff

Gary   David    Dan    Dora    Nelvie    Karen   Deb