Comments from the Dean

Congratulations are due IANR faculty for their outstanding success over the last six months in generating grant funding to support their research, extension and teaching efforts. Since July 1, 2007, IANR scientists and their collaborators at UNL and other institutions have received new and continuing grants totaling more than $74 million. This is remarkable even for a faculty who over the past several years has generated close to 40% of the grant funds obtained by UNL scientists. Perhaps even more important than the overall total funding is the fact that almost 80% of the $74 million was awarded in 44 grants, each of which is greater than $300,000. This surely reflects a healthy level of collaborative interdisciplinary work that will lead to useful new knowledge and productive relationships for the future.

Another remarkable feature of these grants is the extent to which the work they support aligns with the IANR strategic plan and with the planned programs of our CSREES plan-of-work. Ten of the 44 grants totaling over $6 million address issues directly relevant to “a quality environment and effective natural resource management.” Thirteen of the grants are supporting research that should lead to “more sustainable and economically viable food and biomass systems.” These include both crop and livestock systems. Research and education leading to “viable communities and appropriate quality of life for individuals and families” are supported by eight of the grants. Thirteen of the grants address fundamental scientific questions whose answers can and will lead to new understandings and novel approaches to addressing issues in agriculture, natural resources, and human health and well-being.

While attracting these very important large awards from a diverse group of federal agencies that primarily focus on research relevant to national needs, IANR scientists have maintained their strong commitment to addressing immediate issues relevant to the people of Nebraska. This commitment is reflected in over $3 million in grants received during the past six months from Nebraska’s commodity boards to support research, extension, and teaching efforts identified as high priorities for the state.

IANR’s grant funding reflects healthy balances across:
• our land-grant missions of teaching, research and extension;
• the spectrum from fundamental science to practiced applications;
• the three themes of our strategic plan; and
• results relevant to state, national, and global issues.

IANR faculty are doing important work and doing it well.

Gary Cunningham, Dean and Director
Z B Mayo, Interim Associate Dean and Director

Wishing you a New Year of Peace and Happiness!
ARD Staff

Gary Z B Dan Dora Nelvie Karen
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 1902-1916. 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 instructions, this program will support attendance to professional society meetings in the fields of animal science, agricultural education and leadership, 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. The following IANR students received William G. Whitmore memorial funds for travel during the period January 1 through June 31, 2008:

- **Name:** Jolene Kelzer  
  **Department:** Animal Science Department  
  **Meeting:** Midwest Section American Dairy Science  
  **Place:** Des Moines, Iowa

The next call for these travel funds will be sent to the unit administrators around the second week in April 2008 for travel from July 1 to December 31, 2008.

Undergraduate Honors Research Program

Funds for the 2008 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. Two proposals were received and funded. The following students have received funding:

- **Lindsey Hofman** (Animal Science) $2,500  
  Mentor: Dr. Jennifer Wood  
  “Insulin Regulation of Mitotic Kinases and Connexins in Mouse Granulosa Cells”

- **Scott Kindle** (Biochemistry) $2,500  
  Mentor: Joan Krush  
  “A Unicellular Model for Insights into Human Disease: Understanding DJ-1 Function”

David H. and Annie E. Larrick Fund, 2008

The David H. and Annie E. Larrick fund supports travel of 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 travel grants to present research findings at national or regional meetings.

- **Name:** Neal Bryan  
  **Department:** Agronomy and Horticulture  
  **Meeting:** Society for Range Management/American Forage  
  **Place:** Louisville, Kentucky

- **Name:** Ramesh K. Singh  
  **Department:** Agronomy and Horticulture  
  **Meeting:** American Society of Agriculture and Biological Engineers  
  **Place:** Providence, Rhode Island

- **Name:** Ai Pheeng Wee  
  **Department:** Biological Systems Engineering  
  **Meeting:** American Society of Agriculture and Biological Engineers  
  **Place:** Providence, Rhode Island

- **Name:** Ajay Kumar  
  **Department:** Biological Systems Engineering  
  **Meeting:** American Society of Agriculture and Biological Engineers  
  **Place:** Providence, Rhode Island

- **Name:** Brian Twombly  
  **Department:** Biological Systems Engineering  
  **Meeting:** American Society of Agriculture and Biological Engineers  
  **Place:** Providence, Rhode Island

- **Name:** Dwight Easterly  
  **Department:** Biological Systems Engineering  
  **Meeting:** American Society of Agriculture and Biological Engineers  
  **Place:** Providence, Rhode Island

- **Name:** Michael Burgert  
  **Department:** Biological Systems Engineering  
  **Meeting:** American Society of Agriculture and Biological Engineers  
  **Place:** Providence, Rhode Island

- **Name:** Kim Cluff  
  **Department:** Biological Systems Engineering  
  **Meeting:** American Society of Agriculture and Biological Engineers  
  **Place:** Providence, Rhode Island
**Mussehl Endowment**

Seven 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)
Mahmoud K. Masa’deh (Animal Science)
“Dried Distillers Grains with Solubles in Laying Hen Rations”
**Funded: $25,000**  **November 1, 2007 - October 31, 2008**

**Sheila Scheideler** (Animal Science)
**Patricia Weber** (Animal Science)
“The Effects of Social and Environmental Enrichments on Leg Strength and Welfare of Turkeys”
**Funded: $25,000**  **November 1, 2007 - October 31, 2008**

**Jayne Stratton** (Food Science and Technology)
**Tamra Jackson** (Plant Pathology)
**Lloyd Bullerman** (Food Science and Technology)
**Soo-Hyun Chung** (Food and Nutrition - Seoul, Korea)
“Prevalence & Detection of Mycotoxins in Dried Distillers Grains from Nebraska and Other Midwestern States”
**Funded: $12,500**  **November 1, 2007 - October 31, 2008**

**Jens Walter** (Food Science and Technology)
**Sheila Scheideler** (Animal Science)
**Robert Hutkins** (Food Science and Technology)
“Use of Probiotic Lactobacilla and Prebiotic Carbohydrates to Reduce Infections in Poultry”
**Funded: $25,000**  **November 1, 2007 - October 31, 2008**

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<tr>
<th>Name</th>
<th>Department</th>
<th>Meeting</th>
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<tr>
<td>Parikshit K. Ranade</td>
<td>Biological Systems Engineering</td>
<td>American Society of Agriculture and Biological Engineers</td>
<td>Providence, Rhode Island</td>
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<tr>
<td>Abby R. Stilwell</td>
<td>Entomology</td>
<td>North Central Branch/Entomological Society of America</td>
<td>Columbus, Ohio</td>
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<tr>
<td>Harsha Ariyarathna</td>
<td>Food Science and Technology</td>
<td>American Academy of Allergy, Asthma and Immunology</td>
<td>Philadelphia, Pennsylvania</td>
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<tr>
<td>Sugjeemdra Kadkol</td>
<td>Food Science and Technology</td>
<td>Annual Meeting/Food Expo</td>
<td>New Orleans, Louisiana</td>
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<tr>
<td>Afua O. Ofori-Anti</td>
<td>Nutrition and Health Sciences</td>
<td>American Academy of Nutrition</td>
<td>San Diego, California</td>
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<tr>
<td>Heather Rasmussen</td>
<td>Nutrition and Health Sciences</td>
<td>American Society for Experimental Biology</td>
<td>San Diego, California</td>
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<tr>
<td>Karina R. Lora</td>
<td>Nutrition and Health Sciences</td>
<td>American Society for Nutrition</td>
<td>San Diego, California</td>
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<tr>
<td>Sarah Ehlers</td>
<td>Nutrition and Health Sciences</td>
<td>American Society for Nutrition</td>
<td>San Diego, California</td>
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<tr>
<td>Yap Ching Chew</td>
<td>Nutrition and Health Sciences</td>
<td>American Society for Nutrition</td>
<td>San Diego, California</td>
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<tr>
<td>Yousef Hassan</td>
<td>Nutrition and Health Sciences</td>
<td>American Society for Nutrition</td>
<td>San Diego, California</td>
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New or Revised Projects
September and October 2007

NEB 21-139  SCD-325, The science and engineering for a biobased industry and economy
Investigator: Milford Hanna, Biological Systems Engineering

NEB 24-159  Understanding effective rural economic development
Investigator: David Peters, Agricultural Economics

NEB 26-181  NE1027, Ovarian influences on embryonic survival in ruminants
Investigator: Jennifer Wood, Animal Science

NEB 31-112  Discovering the molecular foundations of lactobacillus reuteri autochthon in gut ecosystems
Investigator: Jens Walter, Food Science and Technology

NEB 35-108  Development of plant disease management strategies in soybean
Investigator: Loren Giesler, Plant Pathology

NEB 38-055  Alluvial architecture and late quatemare evolution of the Platte River Valley in East-central Nebraska
Investigator: Paul Hanson, School of Natural Resources

NEB 38-056  Ecology of deer and chronic wasting disease in Nebraska
Investigator: Scott Hygnstrom, School of Natural Resources
Status: Hatch project effective July 31, 2007, through July 31, 2012

NEB 38-057  Mapping, quantifying, and predicting current and future invasive plant species spread in the North Platte corridor
Investigator: Sunil Narumalani, School of Natural Resources

NEB 39-146  Mannheimia haemolytica: Characterization of isolates associated with fatal bronchopneumonia of cattle
Investigator: David McVey, Veterinary and Biomedical Sciences

Proposals Submitted for Federal Grants
September and October 2007

The following is a listing of proposals that were submitted during September and October 2007 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.

Richard Koelsch and Loren Isom – USDA-CSREES – Co-location of a bio-diesel plant, oilseed crush facility, methane digester and hog operation – $26,575

Scott Hygnstrom – USDA-APHIS – Toward the development of spatially explicit models of wildlife disease – $120,000

James Specht – USDA-ARS – Genetic mapping and applications of single nucleotide polymorphism (SNP) DNA markers in soybean – $38,000

David Peters, Miguel Carranza, Bruce Johnson and Randolph Cantrell – North Central Regional Center for Rural Development – The community, social and economic effects of immigration enforcement: A case study of Grand Island, Nebraska – $17,812

Robert Hutkins and Rodney Moxley – BARD Binational Agricultural Research and Development Fund – Commercial probiotic oligosaccharides as anti-adhesive agents for the prevention of bacterial infectious diseases – $201,600

James Van Etten – NIH – DNS replication and gene expression of chlorella viruses – $297,635

Sally Mackenzie – USDA-CSREES – Training graduate students in plant breeding using crop drought tolerance improvement as a model – $399,999


Paul Hanson – NSF – Dune Undergraduate Geomorphology and Geochronology Project in Wisconsin – $82,680

Steve Hu – NOAA – Transition of weather and climate forecasts into effective decision-making tools – $99,953

Yiqi Yang and Narendra Reddy – NSF – Grafted and crosslinked starch fibers and films for tissue engineering applications – $195,473

Gary Cunningham – USDA-ARS – Research at MARC – $4,709,700

Yiqi Yang and Narendra Reddy – NSF – Plant protein based fibers and their products for controlled release applications – $196,637

P. Stephen Baenziger and Stephen Wegulo – U.S. Wheat and Barley Scab Initiative – To enhance variety development of scab resistant hard winter wheat varieties in Nebraska – $99,426

Stephen Wegulo – U.S. Wheat and Barley Scab Initiative – Integrating strategies to mitigate fusarium head blight and DON in winter wheat – $47,586

Kenneth Cassman – University of Minnesota – Sustainable biorefining systems for corn ethanol in the North Central Region: Local Impact Study – $25,000

Steven Harris – U.S. Wheat and Barley Scab Initiative – GPI-anchored proteins and virulence in fusarium graminearum – $47,586

Charles Wood, Peter Angeletti, Luwen Zhang and You Zhou – NIH – Viral latency and persistent infections in AIDS associated oral malignancies – $5,527,544

Brian Fuchs – NOAA – Enrichment of drought-monitoring information for the United States – $107,675

Raul Barletta – USDA-CSREES – Testing and development of mycobacterium paratuberculosis live attenuated vaccines – $84,136

Raul Barletta – USDA-CSREES – Role of PPE and related proteins in the immunopathogenesis of paratuberculosis – $95,698

Marjorie Lou – NIH – Protein-thiol mixed disulfide in cataractogenesis – $494,711

James Steadman – USDA-Michigan State University – Bean and Cowpea CRSP Project – $11,187

Mark Svoboda, Meghan Sittler, Kelly Smith, Cody Knutson and Donna Woudenberg – NOAA-SARP – Development of a Drought Ready Communities Program – $288,670

Kenneth Hubbard, Christy Carlson, William Sorensen, Jun Li, Sebastien Korner and Jae Ryu – NOAA-TRACS – A temporal and spatial climate analysis tool for ACIS – $284,593

Mark Svoboda – NOAA-Storm Center Communication Inc. – Implementing a rapid response drought DSS for decision makers and the media – $80,054

Xiaomao Lin and Kenneth Hubbard – NOAA-CCDD – Bayesian daily homogeneity and assessment of uncertainty in the U.S. daily max/min temperatures and their extremes – $447,584

Jae Ryu, Mark Svoboda, Cody Knutson, Tsegaye Tadesse, Meghan Sittler, Soren Scott and Christy Carlson – NOAA – A methodology for improving hydrologic drought predictions and visualization – $467,653


Qi Hu, Robert Oglesby and Song Feng – NOAA – Understanding the role of North Atlantic SST forcing on warm season precipitation and drought in North America – $354,672

Kenneth Hubbard and Xiaomao Lin – NOAA-CCDD – A regional signal of climate change in observed vertical temperatures of the near surface layer – $270,836

Ji-Young Lee and Jens Walter – NIH – Evaluation of antiatherogenic role of blue-green algae – $1,264,323

Donald Rundquist – NOAA-Florida A&M University – Remote sensing services in support of the Florida A&M Environmental Cooperative Science Center – $40,000

Rhae Drijber – USDA-ARD – Developing technologies to improve soil and nutrient management – $43,000

John Yohe – USAID – INTSORMIL - Sorghum, Millet and Other Grains Collaborative Research Support Program – $2,900,000
Grants and Contracts Received for September and October 2007

**Agricultural Research Division:**
- Gary Cunningham – USDA-ARS-NPA $923,600.00

**Agronomy and Horticulture:**
- Ken Cassman, James Specht, Daniel Walters, Achim Dobermann, Haishun Yang and Suat Irmak – Nebraska Soybean Board $58,484.00
- Kenneth Cassman – Kansas State University $25,000.00
- Kenneth Cassman – University of Minnesota $25,000.00
- George Graef – United Soybean Board $74,619.00
- George Graef – Nebraska Soybean Board $51,500.00
- George Graef and James Specht – Nebraska Soybean Board $176,768.00
- George Graef, Loren Giesler and James Specht – Nebraska Soybean Board $16,660.00
- Roy Spalding and Mary Spalding – Nebraska Ethanol Board $25,122.00
- James Specht – USDA-ARS $38,000.00

**Miscellaneous Grants under $10,000 each** $46,000.00

**Animal Science:**
- Andrea Cupp, John Weber and Brett White – NIH-NICHD $252,588.00
- Phillip Miller – Nebraska Corn Board $26,000.00
- Sheila Scheideler – Midwest Poultry Research Program $31,869.00
- Miscellaneous Grants under $10,000 each $7,500.00

**Biochemistry:**
- Thomas Clemente and George Graef – Nebraska Soybean Board $71,796.00
- Donald Becker – NIH – Coordination of functions by proline metabolic proteins $566,381

**Biological Systems Engineering:**
- David Jones and Amalia Yiannaka – USDA-Oklahoma State University – Interdisciplinary innovation education to solve real business and design problems $139,405
- Yiqi Yang and Narendra Reddy – NIH – Plant protein fibers and fibrous substrates as a new class of materials for tissue $565,389

**Entomology:**
- Leon Higley and Stephen Spomer – Nebraska Game and Parks Commission $138,000.00
- Miscellaneous Grants under $10,000 each $2,500.00

**Food Science and Technology:**
- Miscellaneous Grants under $10,000 each $7,957.00

**Northeast Research and Extension Center:**
- Stevan Knezevic, Charles Shapiro, Thomas Hunt, Mark Bernards and Craig Allen – USGS $182,286.00
- Miscellaneous Grants under $10,000 each $18,475.00

**Panhandle Research and Extension Center:**
- Miscellaneous Grants under $10,000 each $54,700.00
Plant Pathology:
- Amit Mitra – Nebraska Soybean Board $28,060.00
- James Steadman – USDA-Michigan State University $11,187.00
- James Van Etten – NIH $297,635.00
- Gary Yuen – USDA-ARS $36,976.00
- Miscellaneous Grants under $10,000 each $16,200.00

School of Natural Resources:
- Kyle Hoagland – National Park Service $10,616.00
- Steve Hu – NOAA $99,953.00
- Ken Hubbard, Haishun Yang, Ken Cassman, Achim Dobermann and Jinsheng You – NOAA $68,927.00
- Scott Hygnstrom – USDA-APHIS $120,000.00
- Cody Knutson, Mark Svoboda and Jae Ryu – NOAA $108,088.00
- Mark Kuzila – Nebraska Department of Natural Resources and USDA-NRCS $75,000.00
- John Lenters – NSF $114,087.00
- James Merchant – Nebraska Department of Health and Human Services $128,100.00
- Sunil Narumalani – National Park Service $125,341.00
- Donald Rundquist – NOAA-Florida A&M University $40,000.00
- Steve Thomas – NSF $51,345.00
- Shashi Verma – U.S. Department of Energy $350,000.00
- Miscellaneous Grants under $10,000 each $19,500.00

Statistics:
- Kent Eskridge – Nebraska Department of Health and Human Services $23,427.00
- Marjorie Lou – NIH $494,711.00
- David Steffen – Nebraska Department of Agriculture-USDA $94,052.00

Veterinary and Biomedical Sciences:
- Miscellaneous Grants under $10,000 each $8,000.00

Water Center:
- Daniel Snow – U.S. Fish and Wildlife Service $11,410.00

West Central Research and Extension Center:
- Miscellaneous Grants under $10,000 each $8,000.00

**TOTAL:** $4,734,444.00