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"ARD News October 2007" (2007). *Agricultural Research Division News & Annual Reports*. 178.
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Agricultural Research Division News

October 2007

Volume 40, Number 5

Comments from the Associate Dean

Greetings:

It's that wonderful time of year when you have the opportunity to enjoy the great fall weather in Nebraska and fill out e-ARFA and AD-421 reports (CRIS reports). Well, maybe I stretched things a little by using the word "enjoy" in the same sentence as e-ARFA and AD-421 reports. Although these reports may not be high on your list of most enjoyable tasks, I do want to assure you that both are extremely important. This year CSREES modified the AD-421 form, incorporating some components of Logic Models (Outputs, Outcomes, and Impacts). In many ways, the changes in the AD-421 form mirror much of the information we would like for you to include in the Accomplishments section of your e-ARFA. If you click on the e-ARFA "help" tab under Goals and Accomplishments, definitions for Outputs and Impacts are available. We hope you will start thinking about using the Logic Model approach (Outputs, Outcomes, Impacts) as you fill out the accomplishments section of your e-ARFA. One benefit will be that you can use much of the same information for both the e-ARFA and the AD-421, and it will help focus the narrative on the significance of your science. Use of formal Logic Models is probably more common in extension than research programs, but most successful research grant writers include the principles of Logic Models in developing their proposals: (1) Why is it important that your research proposal be funded, and if the research is successful, what difference will it make? (= Outcomes and Impacts); (2) What needs to be done and who do you need to reach to accomplish the desired results? (= Outputs); and (3) Resources needed to accomplish the goals of the project (available resources, and a budget for additional resources to complete the project = Inputs).

As you become more familiar with Logic Models, we hope the changes in the e-ARFA and AD-421 will help reduce, or at least streamline, your work load to some extent.

The final message for today: Be sure to turn in your AD-421 report by **December 10, 2007**.

Z B Mayo
Associate Dean and Director

Glimpses at ARD Research

- The School of Natural Resources' new home will help make its research, extension and teaching efforts more cohesive.
- A new Water Resources Advisory Panel will share its thoughts and opinions on water resources issues and offer UNL advice and assistance in the Water Resources Research Initiative.
- An expansion of the feedlot at the Agricultural Research and Development Center near Mead provides more research space for the animal science department.
- Nebraska counties in which a Wal-Mart is located have experienced on average a slower growth in standard of living than counties without the world's largest retailer, a preliminary University of Nebraska-Lincoln study shows.

To read more about the research that is going on through ARD, please use the following URL address to visit the "*Endeavors*" section on the ARD website:

<http://ard.unl.edu/endeavors.shtml>

New or Revised Projects July and August 2007

NEB 21-138 Analog prediction of expected water balance components and vegetation states based on data and a stochastic land surface model

Investigator: Erkan Istanbuluoglu, Biological Systems Engineering

Status: Hatch project effective June 1, 2007, through May 31, 2012

NEB 22-325 Nutrient and water management for grain and biofuel production systems of Nebraska

Investigator: Charles Wortmann, Agronomy and Horticulture

Status: Hatch project effective July 1, 2007, through June 30, 2012

NEB 28-089 Ecology and management of diabrotica species

Investigator: Lance Meinke, Entomology

Status: Hatch project effective July 1, 2007, through June 30, 2012

NEB 28-091 S1030, Flies impacting livestock, poultry and food safety

Investigator: Gary Brewer, Entomology

Status: Multistate project effective Oct. 1, 2007, through Sept. 30, 2012

NEB 31-111 Applications of high pressure processing in food and biofuels

Investigator: Jeyamkondan Subbiah, Food Science and Technology

Status: Hatch project effective July 1, 2007, through June 30, 2012

NEB 35-107 Functional map of tomato genome using direct repeat induced gene silencing

Investigator: Amit Mitra, Plant Pathology

Status: Grant project effective July 15, 2007, through July 14, 2009

NEB 36-067 NC-1039, N-3 polyunsaturated fatty acids and human health and disease

Investigator: Nancy Lewis, Nutrition and Health Sciences

Status: Multistate project effective Oct. 1, 2007, through Sept. 30, 2012

NEB 36-068 Regulation of cholesterol absorption by plant sterol and stanol esters

Investigator: Timothy Carr, Nutrition and Health Sciences

Status: Grant project effective Aug. 1, 2007, through July 31, 2010

NEB 42-103 Whole-farm economic biological stochastic simulation model of small to medium cow-calf farms with research, teaching and extension modules

Investigator: Matt Stockton, West Central Research and Extension Center

Status: Grant project effective Sept. 1, 2007, through Aug. 31, 2012

NEB 62-003 Dissecting the function of HrpJ and HrpK1 - two type III secreted proteins

Investigator: James Alfano, Plant Science Initiative

Status: Grant project effective Sept. 1, 2007, through Aug. 31, 2010

Proposals Submitted for Federal Grants July and August 2007

The following is a listing of proposals that were submitted during July and August 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.

Sunil Narumalani – National Park Service – Condition assessments of natural resources for Niobrara National Scenic River and Mount Rushmore National Memorial – \$125,340

Sunil Narumalani – USGS – Aerial digital orthophotography to interpret the Niobrara River channels – \$13,550

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

Gilles Basset – National Science Foundation – Phylloquinone (vitamin K1) metabolism in plants – \$468,395

Steven Harris – NSF – Constructing a genetic interaction network for polarity department in filamentous fungi – \$460,180

Jeyamkondan Subbiah – USDA-Biomass – High-voltage pulsed electric field pretreatment to improve cellulose digestibility – \$1,000,000

Gary Hergert – USDA-Biomass – Adapting spring and winter canola to cropping systems with limited irrigation under semi-arid conditions for biofuel production – \$920,863

Yiqi Yang – USDA-Biomass – Poultry feathers for ballistic and noise resistant textiles and composite materials with light weight – \$347,864

Ismail Dweikat – USDA-Biomass – A novel biofuel cropping system for the Great Plains – \$850,000

Sally Mackenzie – USDA-Biomass – Introduction and evaluation of male sterility to enhance feedstock production – \$695,000

Derrel Martin – Bureau of Reclamation (CESU) – Modeling and field experimentation to determine the effects of land terracing and non-federal reservoirs in water supplies in the Republican River Basin – \$30,000

Blair Siegfried – USDA-ARS-MWA – Contributions to a framework for managing insect resistance to transgenic crops – \$25,000

Yiqi Yang – USDA-DOE – Poultry feathers for ballistic and noise resistant textiles and composite materials with light weight – \$281,093

Paul Staswick – NSF – Deciphering novel signaling roles for amino acid conjugates of jasmonic acid – \$387,757

Scott Hygnstrom and Craig Allen – USGS – Individual-based models to predict the spread of chronic wasting disease in Nebraska – \$54,855

Daniel Snow – U.S. Department of Environmental Protection – Effects of cattle manure handling and management strategies on fate and transport of hormones – \$699,607

David Carter, Leon Higley and Rhae Drijber – NSF – Carcass decomposition and the resource island hypothesis: The influence of carcass mass on carbon, nitrogen, phosphorus and microbial communities – \$367,982

Kevin Pope, John Stansbury and Istvan Bogardi – USGA CRU Program – Multi-criteria assessment of habitat restoration for the Missouri River – \$107,391

James Steadman – USDA-Michigan State University – Bean and Cowpea CRSP Project – \$21,800

Ashraf Raza – The National Academies – Lung cancer biomarkers: Rapid characterization and quantitation of small molecules and proteins biomarkers by high-throughput mass spectrometry – \$102,580

Robert Spreitzer – U.S. Department of Energy – Role of rubisco small subunit – \$123,500

Stephen Wegulo – USDA-ARS – Integrating strategies to mitigate fusarium head blight and DON in winter wheat – \$44,878

David Marx – NIH-University of Missouri – Effects of gender and TMD on mandibular mechanics – \$33,901

Curt Weller – USDA-ARS – Development of sorghum lipids as nutraceuticals – \$32,000

Vadim Gladyshev – NIH – Functions of mammalian thio-redoxin reductases – \$286,724

Julie Stone – Department of Energy – Role of a transcriptional regulator in programmed cell death and plant development – \$567,429

Anatoly Gitelson – NASA – Improved quantification of vegetation biochemical variables with semi-analytical and radiative transfer modeling of spaceborne and airborne imagery – \$237,967

Paul Hanson – NSF – Midwestern soil catena evolution: How important is the loess mantel? – \$27,218

Robert Wright and Wyatt Hoback – USDA-APHIS-PPQ – Grasshoppers of the western United States: Regional publication – \$21,419

Robert Wright and Wyatt Hoback – USDA-APHIS-PPQ – Grasshoppers of the western United States: Electronic identification and information tool development – \$10,419

Donald Wilhite, Michael Hayes, Cody Knutson and Mark Svoboda – Bureau of Indian Affairs – Developing a drought preparedness framework for tribal governments: Moving from crisis to risk-based management – \$609,539

Kenneth Cassman – National Science Foundation – CNH: Collaborative Research: Pre-Contact Intensive Agriculture and Society – \$100,000

John Lenters – DOE-NICCR – Impacts of historical and future changes in climate and atmospheric CO₂ on terrestrial ecosystem structure and functioning in the midwestern U.S. – \$132,978

Kenneth Cassman – USDA (Iowa State University) – NC506, Local level sustainability of corn ethanol – \$10,000

Patrick Shea, Tian Zhang and Marjorie Langell – USEPA – Behavior of nanoparticles: Influence of natural organic matter, ionic composition, and polymer coating on the behavior of manufactured nanoparticles – \$399,990

Kenneth Cassman – USDA (Kansas) – NC506, Local impact study: Sustainable biorefining systems for corn ethanol – \$25,000

Gary Cunningham – USDA-ARS, NPA – Research at MARC – \$4,509,700

James Brandle – U.S. Forest Service – Development of biomass/carbon equations of key agroforestry shrub species – \$5,000

Ruma Banerjee – NIH – Redox Biology Center – \$2,149,275

Stevan Knezevic, Charles Shapiro, Thomas Hunt, Mark Bernards and Craig Allen – USGS – Total vegetation control on sandbars along the Missouri River utilizing lime and herbicides – \$182,286

Grants and Contracts Received for July and August 2007

Agricultural Economics:

Miscellaneous Grants under \$10,000 each \$16,012.00

Agricultural Research and Development Center:

Daniel Duncan – USDA/Foreign Agricultural Service \$67,583.00

Agronomy and Horticulture:

Stephen Baenziger, Lan Xu and Gary Hergert – Nebraska Wheat Board \$75,000.00

Stephen Baenziger and Stephen Wegulo – USDA/ARS \$46,378.00

Kenneth Cassman – National Science Foundation \$100,000.00

Ismail Dweikat – Nebraska Grain Sorghum Board \$13,500.00

Lenis Nelson – Nebraska Wheat Board \$12,000.00

Walter Schacht – Nebraska Department of Roads \$60,606.00

Robert Shearman – Todd Valley Farms \$18,000.00

Roy Spalding, Mary Spalding, Richard Ferguson and David Marx – USDA/NRI \$450,000.00

Lan Xu and Stephen Baenziger – Nebraska Wheat Board \$50,000.00

Miscellaneous Grants under \$10,000 each \$122,510.00

Animal Science:

Chris Calkins – Nebraska Beef Council \$93,000.00

Chris Calkins, Judy Driskell, Galen Erickson and Fayrene Hamouz – Nebraska Beef Council \$40,000.00

Galen Erickson – ELANCO Animal Health \$25,000.00

Galen Erickson and Terry Klopfenstein – Nebraska Corn Board \$27,955.00

Terry Klopfenstein and Aaron Stalker – Nebraska Corn Board \$22,818.00

Paul Kononoff – Nebraska Corn Board \$34,477.00

Biochemistry:

Ruma Banerjee – NIH \$2,149,275.00

Vadim Gladyshev – NIH \$286,724.00

Jaekwon Lee – NIH \$215,170.00

Robert Spreitzer – U.S. Department of Energy \$123,500.00

Biological Systems Engineering:

Suat Irmak, Ayse Irmak, Derrel Martin, Shashi Verma and Simon van Donk – Central Platte Natural Resources District \$492,564.00

Derrel Martin – Bureau of Reclamation (CESU) \$30,000.00

Entomology:

Miscellaneous Grants under \$10,000 each \$60,750.00

Food Science and Technology:

Michael Zeece, Steven Jones and Randy Wehling – Nebraska Beef Council \$56,871.00

Michael Zeece and Steven Jones – Nebraska Beef Council \$52,021.00

Miscellaneous Grants under \$10,000 each \$28,745.00

Northeast Research and Extension Center:

Thomas Hunt, Tiffany Heng-Moss and Leon Higley – North Central Soybean Research Program \$20,532.00

Thomas Hunt – USDA/ARS \$15,000.00

Terry Mader and Galen Erickson – Nebraska Corn Board \$24,180.00

Miscellaneous Grants under \$10,000 each \$69,845.00

Panhandle Research and Extension Center:

Gary Hein – Nebraska Wheat Board \$15,000.00

Gary Hergert and James Petersen – Nebraska Wheat Board \$10,500.00

Charles Hibberd – Nebraska Dry Bean Commission \$35,000.00

Carlos Urrea, Robert Harveson, James Steadman and James Schild – Nebraska Dry Bean Commission \$40,000.00

Miscellaneous Grants under \$10,000 each \$86,320.00

Plant Pathology:

Amit Mitra – USDA/NRI \$301,000.00

James Steadman – USDA/Michigan State University \$21,800.00

Stephen Wegulo – Nebraska Wheat Board \$34,275.00

Stephen Wegulo – USDA/ARS \$44,878.00

Miscellaneous Grants under \$10,000 each \$81,947.00

School of Natural Resources:

Erkan Istanbuluoglu and Mark Pegg – Nebraska Game and Parks Commission \$39,746.00

Xun-Hong Chen – Lower Elkhorn Natural Resources and Nebraska Department of Natural Resources \$84,666.00

F. Edwin Harvey – Nebraska Game and Parks Commission \$380,000.00

F. Edwin Harvey – Nebraska Game and Parks Commission \$190,380.00

John Holz and Tadd Barrow – Nebraska Department of Environmental Quality \$54,343.00

John Holz, Aris Holz and Kyle Hoagland – Nebraska Department of Environmental Quality \$150,040.00

John Holz and Tadd Barrow – Nebraska Department of Environmental Quality \$29,744.00

James Merchant and Milda Vaitkus – U.S. Geological/America View \$51,000.00

Donald Rundquist – Nebraska Department of Agriculture \$18,000.00

Daniel Snow – U.S. Department of Environmental Protection \$699,607.00

Miscellaneous Grants under \$10,000 each \$13,000.00

Statistics:

Erin Blankenship and Walter Stroup – Product Quality Research Institute (PQRI) \$48,989.00

David Marx – NIH/University of Missouri \$33,901.00

Miscellaneous Grants under \$10,000 each \$7,800.00

Veterinary and Biomedical Sciences:

Clinton Jones – NIH \$221,250.00

Marjorie Lou – Eli Lilly and Company \$46,593.00

David McVey and David Steffen – USDA/CSREES \$50,000.00

David Steffen – Nebraska Department of Agriculture \$64,186.00

Miscellaneous Grants under \$10,000 each \$1,500.00

West Central Research and Extension Center:

Miscellaneous Grants under \$10,000 each \$28,200.00

TOTAL: \$7,783,681.00