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INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES

University of Nebraska Lincoln

Agricultural Research Division News

February 2007 Volume 40, Number 1

Comments from the Dean

Dear Colleagues:

Two sets of issues will be the major topics of discussion for CARET and the land-grant system as we move through 2007. One is the administrative structure of USDA's research and education agencies and the other is the structure and appropriation levels of the CSREES budget for research, extension and higher education programs. The administrative structure will be an issue in the farm bill reauthorization discussions, while the CSREES budget structure issue will be part of the appropriation discussions.

The CREATE-21 plan that has been developed by the group formed by the NASULGC Board on Agriculture establishes the National Institutes of Food and Agriculture as an independent agency reporting to the Department of Agriculture. The institute would: conduct intramural research for USDA; distribute funds based on formulas to state agricultural experiment stations and cooperative extension services; manage competitive grant programs and, in general, function much like NIH does for the medical sciences.

The administration has proposed a similar, but much simpler, plan that would combine the function of CSREES, ARS and ERS into a single Office of Science under the leadership of the Under Secretary for Research, Education and Economics. This simpler and more easily implemented plan achieves the same objectives of better coordination and planning, more responsive and less complex administration, and program continuity, which were the objectives of CREATE-21. For these reasons, we strongly support the administration's proposals. It is more likely to meet with congressional approval and give the land-grant system what it needs in the shortest time possible and with the least disruption.

The President's proposed budget for FY08 again recommends making the multistate portion of the Hatch formula funds for research competitive. We feel that the multistate peer review and selection process used by the regional associations of Experiment Stations has led to a strong, responsive and highly relevant set of multistate projects. We think that the current funding mechanisms for multistate Hatch projects should remain in place.

We also strongly support increasing the funding levels of all formula funds and restoring the funding for Animal Health research. We agree with the proposal to move the Section 406 program to the NRI and increase NRI funding overall. This change will allow more efficient operation of the competitive programs.

Gary L. Cunningham
Dean and Director

120th ARD Annual Report

The 120th Annual Report for the Agricultural Research Division was recently published. Although this report is required by legislation establishing the Nebraska Agricultural Experiment Station on March 31, 1887, it is published primarily as a means to communicate faculty research accomplishments to key decision makers. The publication also serves as a historical record of faculty accomplishments, active projects, faculty and graduate student recognition and outputs from the research program.

The annual report is sent to wide range of people, including the Governor, members of the Nebraska Legislature, the Nebraska Congressional Delegation, University of Nebraska Board of Regents, NU and UNL administrators, state agency directors, USDA officials, ARS collaborators, experiment station directors in other states, and selected IANR clientele. This report may be accessed on the World Wide Web at: http://www.ard.unl.edu/report.shtml.

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IANR

Endeavors

Endeavors provides short reports of significant findings from ARD faculty research projects. Each year, this eight-page document highlights the accomplishments of 25 to 30 research projects. The 2005-2006 publication features a broad range of research topics from alternative crops to the impacts of consolidation in the food processing industry.

Endeavors is the principal publication provided to members of the Nebraska Legislature to report on the impacts of Nebraska's investment in agricultural research. Likewise, we use the publication in our meetings with the Nebraska Congressional Delegation and their staffs. It has also been used as the basis for discussions with IANR clientele and support groups. Copies are available for use by unit administrators and faculty in their meetings with unit external advisory committees or other clientele groups. Please contact the ARD office if you would like copies.

New or Revised Projects November and December 2006

NEB 03-101 Relocation to the Buffalo Commons: Using a marketing approach to understand residential decisions among migrants to the Nebraska Panhandle
Investigator: Randy Cantrell, Nebraska Rural Initiative
Status: Grant project effective Sept. 1, 2006, through Aug. 30, 2007

NEB 21-134 Improving food quality, safety, and security using spectral imaging and modeling
Investigator: Jeyamkondan Subbiah, Biological Systems Engineering
Status: Hatch project effective Oct. 1, 2006, through Sept. 30, 2011

NEB 21-135 NC-1023, Improvement of thermal and alternative processes for foods
Investigator: Milford Hanna, Industrial Agricultural Products Center
Status: Multistate project effective Oct. 1, 2006, through Sept. 30, 2010

NEB 22-317 Application of micropropagation and biotechnology to improvement and multiplication of horticultural crops
Investigator: Paul Read, Agronomy
Status: Hatch project effective Oct. 1, 2006, through Sept. 30, 2011

NEB 22-319 Influence of root-zone organic matter on putting green quality and performance
Investigator: Roch Gaussoin, Agronomy
Status: Hatch project effective Mar. 1, 2007, through Feb. 28, 2012

NEB 27-061 Longitudinal evaluation of Latino family development
Investigator: Cody Hollist, Family and Consumer Sciences
Status: Hatch project effective June 1, 2007, through May 31, 2012

NEB 35-002 Training graduate students in plant breeding using crop drought tolerance improvement as a model
Investigator: Sally Mackenzie, Plant Science Initiative
Status: Grant project effective Dec. 1, 2006, through Nov. 30, 2007

NEB 35-105 Etiology, epidemiology and management of wheat disease in Nebraska
Investigator: Stephen Wegulo, Plant Pathology
Status: Hatch project effective Nov. 1, 2006, through Oct. 31, 2011

NEB 35-106 Ecology, management, and detection of important corn diseases and mycotoxins in Nebraska
Investigator: Tamra Jackson, Plant Pathology
Status: Hatch project effective Dec. 1, 2006, through Nov. 30, 2011

NEB 37-032 Building research collaborations to enhance rural economic development
Investigator: Nancy Miller, Textiles, Clothing and Design
Status: Grant project effective Jan. 1, 2007, through Dec. 31, 2007

NEB 37-033 Textile materials and technologies addressing energy, health and other national security issues
Investigator: Yiqi Yang, Textiles, Clothing and Design
Status: Multistate project effective Oct. 1, 2006, through Sept. 30, 2011

NEB 38-050 Shelterbelts: Structure and function
Investigator: Jim Brandle, School of Natural Resources
Status: McStennis project effective Nov. 1, 2006, through Oct. 31, 2011

NEB 38-051 Population dynamics of paddlefish in the lower Missouri River sub-basin
Investigator: Mark Pegg, School of Natural Resources
Status: Hatch project effective Nov. 1, 2006, through Oct. 31, 2011

NEB 42-101 SCD322, Flies impacting livestock, poultry and food safety
Investigator: John B. Campbell, West Central Research and Extension Center
Status: Multistate project effective Oct. 1, 2006, through Sept. 30, 2011

NEB 43-102 Promoting healthful eating to prevent excessive weight gain in young adults
Investigator: Linda Boeckner, Panhandle Research and Extension Center
Status: Multistate project effective Oct. 1, 2006, through Sept. 30, 2011

NEB 43-103 Genetic improvement of dry edible beans
Investigator: Carlos Urrea, Panhandle Research and Extension Center
Status: Hatch project effective Nov. 1, 2006, through Oct. 31, 2011

Proposals Submitted for Federal Grants November and December 2006

The following is a listing of proposals that were submitted during November and December 2006 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.

John Yohe – US AID – International Sorghum, Millet and Other Grains Collaborative Research Support Program – $9,000,000

Alexander Pavlista – USDA-CSREES – Development of multipurpose potato cultivars with enhanced quality – $2,500

David Steffen – USDA-CSREES – NAHLN: NE (National Animal Health Laboratory Network-Nebraska) – $50,000

Roy Spalding – USDA-CSREES – Reducing groundwater nitrate concentrations – $22,768

David Billesbach – Department of Energy – Development and field testing of a rapidly deployable carbon dioxide flux management system – $63,218

Derrel Martin – Bureau of Reclamation – Modeling and field experimentation to determine the effects of land terracing and non-federal reservoirs on water supplies in the Republican River basin – $75,000

Kenneth Cassman and Haishun Yang – NSF – Before globalization: Pre-contact intensive agriculture and society in Kohala, Hawaii – $186,815

Alan Tomkins, Craig Allen, Xun-hong Chen, David Gosselin, Kyle Hoagland, Karina Schoengold, and Walter Stroup – NSF – A feedback model for natural systems-human systems coupling – $1,453,144

James Van Etten – NIH-University of California San Francisco – Center of Innovation in Membrane Protein – $140,902

Robert Oglesby, Karina Schoengold, Erkan Istanbulluoglu, Durelle Scott, James Williams, Jr., Suat Irmak, and Vitaly Zlot – NSF – Complex, inter-related natural and human dynamical systems: climate, water, and agriculture in the Great Plains – $1,475,722

Raul Barletta – USDA-NRICGP – Mycobacterium avium subsp. paratuberculosis pathogenesis – $161,561

Harshavardhan Thippareddi – USDA-CSREES – Improving safety of shell eggs and egg products by addressing critical research needs for salmonella enteritidis and salmonella – $599,951

Stephen Baenziger – USDA-Washington State University – Studying of genetic diversity in spring wheat triicum aestivum – $5,000

John Lenters – Department of Energy-NICCR – Impacts of past and future changes in climate and atmospheric composition on terrestrial ecosystem structure and functioning in the Midwestern U.S. – $132,069

Mark Hutchison – North Central Region SARE – Identification of producer certification options for local food initiatives – $57,390

David Carter and Leon Higley – National Institute of Justice – Presumptive testing for bloodstains associated with insect artifacts – $134,913

David Gosselin, Paul Blum, Wayne Woldt, and Daniel Snow – NSF – Microbially mediated arsenic mobility in groundwater systems stressed by high capacity pumping – $357,475

John Lenters – NSF – Collaborative Research: Changes in lake dynamics on the Arctic Coastal Plain of North America over the past half-century – $124,755

Donald Becker – NIH – Role of proline in redox homeostasis and apoptosis – $1,455,796

Robert Klein – USDA-Washington State University – Controlling jointed goatgrass with moldboard plowing – $8,000

Steven Thomas – NDEQ – Project implementation plan for ecological evaluation of bank restoration in the Cedar River – $149,952

Stephen Baenziger, Charles Shapiro, Drew Lyon, Stevan Knezevic, William Russell, Gary Hein, Stephen Wegulo, Rolando Flores, Vicki Schlegel, and Randy Wehling – USDA-NRI – Developing small grains cultivars optimally suited for organic production – $823,610

Kyle Hoagland – National Park Service – Evaluation of the potential impacts of human physical disturbance on Benthic communities in tributaries of the Niobrara – $5,000

Craig Allen and Gary Lynne – USDA-CSREES – Understanding resilience in working agricultural landscapes – $398,657

Carolyn Edwards and Susan Sheridan – NIH – Increasing Zambia's research capacity with children and families with HIV/AIDS – $2,184,374

Steven Thomas – NSF – Collaborative research: Nutrient processing and retention in streams – $221,859

Grants and Contracts Received for November and December 2006

Agricultural Economics:	
Richard Perrin – USDA, ARS, NPA, NRRC	$27,400.00
Agricultural Research Division:	
John Yohe – US AID	$400,000.00
Agronomy and Horticulture:	
Ken Cassman – Nebraska Corn Board	$25,504.00
Ismail Dweikat – Nebraska Sorghum Board	$13,500.00
George Graef – United Soybean Board	$70,985.00
Mark Lagrimini – USDA, ARS, NPA, NRRC	$26,250.00
Roy Spalding – USDA-CSREES	$22,768.00
Roy Spalding – Nebraska Department of Agriculture	$31,000.00
Miscellaneous Grants under $10,000	$42,000.00
Animal Science:	
Miscellaneous Grants under $10,000	$31,930.00
Biological Systems Engineering:	
David Billesbach – Department of Energy	$63,218.00
Derrel Martin – Bureau of Reclamation	$75,000.00
Entomology:	
Blair Siegfried – Nebraska Soybean Board	$16,422.00
Miscellaneous Grants under $10,000	$2,500.00
Food Science and Technology:	
Harshavardhan Thippareddi – USDA-CSREES	$599,951.00
Miscellaneous Grants under $10,000	$1,530.00
Northeast Research and Extension Center:	
Miscellaneous Grants under $10,000	$20,000.00
Panhandle Research and Extension Center:	
Gary Hein and Kansas State University – USDA-IPM	$99,581.00
Gary Hergert, Paul Burgener, Derrel Martin, Raymond Supalla, Drew Lyon, Dean Yonts, Alex Pavlista, and David Baltensperger – USDA-FCIC	$885,093.00
Miscellaneous Grants under $10,000	$26,500.00
Plant Pathology:	
Amit Mitra – Nebraska Soybean Board	$20,000.00
James Van Etten and the University of California – NIH	$140,902.00
Miscellaneous Grants under $10,000	$46,050.00
School of Natural Resources:	
Craig Allen – James S. McDonnell Foundation	$80,654.63
Daniel Snow – Nebraska Department of Environmental Quality	$60,000.00
John Holz – Nebraska Department of Environmental Quality	$44,494.00
Susan Lackey – Nebraska Health and Human Services	$26,400.00
Mark Pegg – Nebraska Game and Parks	$133,000.00
Mark Pegg – Nebraska Game and Parks	$33,300.00
Mark Pegg – Nebraska Game and Parks	$25,000.00
Larkin Powell – Platte River Whooping Crane Maintenance Trust, Inc.	$25,000.00
Steven Thomas – NSF	$87,866.00
Statistics:	
Dave Marx – USDA-ARS	$50,000.00
Veterinary and Biomedical Sciences:	
David Steffen – USDA-CSREES	$50,000.00
West Central Research and Extension Center:	
Miscellaneous Grants under $10,000	$12,054.00
Total	**$3,315,852.63**

Fall 2006 Graduate Census

Graduate student data represents students enrolled on the sixth-day census (Fall 2006) and non-enrolled students actively pursuing graduate degrees. The graduate program in the Agricultural Research Division (College of Agricultural Sciences and Natural Resources and the College of Education and Human Sciences) decreased 1% from Fall Semester 2005 to the Fall Semester 2006. 21.6% of the graduate students in CASNR majors are supported by assistantships (state-appropriated GRA and GTA; fellowships; and international agency or foreign country support). 21.6% of the students in the College of Education and Human Sciences are supported. 26% of CASNR students were not enrolled in IANR graduate programs on the sixth day of the semester.

Institute of Agriculture and Natural Resources

	M.S.				Ph.D.									
Major/Unit	GRA	GTA	Other	Self	GRA	GTA	Other	Self	2006	2005	2004	2003	2002	05-06% Chg.
College of Agricultural Sciences and Natural Resources														
Agricultural Economics	9	0	7.5	7.5	2.5	0	3.5	3	33	31	33	36	35.5	9.1%
Ag. Leadership, Education & Comm.	2.5	2.5	0	67	0	3.5	0.5	25	101	87.5	82	86.5	84	15.4%
Agronomy	5	0	9	7	8	0	17	13.5	59.5	66.5	69	80.5	75	-10.5%
Animal Science	13.25	1	12.25	4	15.5	0	4.5	10	60.5	64	62.5	72.5	79	-5.5%
Biochemistry	0	0	1.5	1.5	4	3.5	19	0	29.5	37.5	36	31	33	-21.3%
Biological Systems Engineering	2	0	5.5	6.5	1	0	7	2	24	30	20	26	21	-25.0%
Entomology	4	1	6.5	74	2	0	10	4.5	102	121.5	116	108	94	-16.0%
Food Science and Technology	11	0	3.5	6	4	0	4	2	30.5	26	33.5	33	41	17.3%
Horticulture	5	1	0	4	1	0	0	1	12	10	12.5	14	15.5	-20.0%
Master of Agriculture	0	0	0	39	NA	NA	NA	NA	39	32	23	8	10	21.9%
Mechanized Systems Management	3	0	1	2	NA	NA	NA	NA	6	3	3	4	6	100.0%
Plant Pathology	1	0	2.5	2	3	0.5	4.5	0	13.5	14	16	16	12	-3.6%
School of Natural Resources (MA/MS)	10	0	30	14.5	5	0	14.5	9.5	83.5	73.5	72.5	73	88	13.6%
Statistics	1	3.5	5.5	13	0.5	7.5	8.5	1	40.5	39.5	43	37.5	30.5	2.5%
Veterinary and Biomedical Sciences	5	0	3	5	3	0	21	0	37	24.5	26	30	31.5	51.0%
Total	71.75	9	87.75	253.0	49.5	15	114	71.5	671.5	660.5	632	656	656	4.5%
Grand Total	**421.5**				**250**				**671.5**	**660.5**	**632**	**656**	**656**	1.7%
College of Education and Human Sciences														
Family and Consumer Sciences	4	7.5	3.5	43	NA	NA	NA	NA	58	67	70	42	43	-13.4%
Nutrition and Health Sciences	5	0	8	13	NA	NA	NA	NA	26	33	44	28	39	-100.0%
Textiles, Clothing and Design (MA /MS)	5.5	0	6.5	16	NA	NA	NA	NA	28	26	32	25	26	7.7%
Interdepartmental Nutrition	3	0	1	0	6	0	5	6	21	20	6	16	15	5.0%
HUMS (FACS, NUTR, TXCD) (PhD)	NA	NA	NA	NA	2.5	1.5	7	18	29	27.5	34	30	34	5.5%
Total	17.5	7.5	19	72	8.5	1.5	12	24	162	173.5	186	141	157	-6.6%
Grand Total	**116**				**46.0**				162.0	173.5	186	141	157	-6.6%
Grand Total CASNR & CEHS	**537.5**				**296**				**833.5**	**834.0**	**818**	**797**	**813**	-0.1%
														10/16/2006