ARD News April 2003
Dear Colleagues:

In the midst of some depressing news about Nebraska's monthly tax receipts and proposed UNL budget cuts, it is important not to lose sight of the great things that are being accomplished by ARD faculty members. As the Deans completed their reviews of Annual Reports of Faculty Accomplishments and requests for promotion in rank and award of tenure, we were again reminded of the high quality of our faculty and the contributions that they are making to educate learners, solve clientele problems and add to the storehouse of knowledge in many academic fields. Below I have attempted to outline a small portion of the "good news" that has crossed my desk during the past few months:

- Five of our distinguished faculty have been selected to receive Cather-Bessey Professorships for 2003. ARD recipients are Patricia Crews, Martin Dickman, Carolyn Edwards, Stephen Ragsdale and Robert Spreitzer.

- Steve Ragsdale has received the University of Nebraska Outstanding Research and Creative Activity Award.

- Recent faculty hires in Biochemistry, Biological Systems Engineering, and Veterinary and Biomedical Sciences are highly talented individuals who will contribute tremendously to our research efforts.

- ARD grant and contract income for FY 2002 exceeded $37.1 million. Since the start of FY 2003, grant and contract income has outpaced that for FY 2002, including three federal grants that exceed $1 million.

- The mergers of academic units that are currently under way (Teachers College and CHRFS; SNRS and CSD; and Biometry and the statistics section of the Mathematics and Statistics Department) have the potential to significantly enhance ARD research because of increased collaborations.

- The approval of the Integrative Biomedical Sciences Ph.D. degree provides faculty in the Veterinary and Biomedical Sciences Department (and allied departments) with the first UNL degree in this broad area of science.

- The renovation of the Hardin Center to house the proposed School of Natural Resources and the Department of Statistics is a great step forward to allow all faculty within these academic program areas to be in one location.

- A number of our faculty and administrators continue to play major leadership roles in national professional/scientific societies, attesting to the esteem in which they are held by professional colleagues.

- ARD faculty are major contributors to new campus-wide initiatives in biomedical engineering and water resources research.

Space does not allow a more complete listing of significant accomplishments but please be assured that ARD staff are aware of many other important programs that have been completed or are under way. We salute all of the faculty accomplishments during 2002 and look forward to assisting you in 2003.

Darrell W. Nelson
Dean and Director
CSREES Budget for FY 2003 and the President's FY 2004 Request

After many months of effort, the USDA budget for FY 2003 was appropriated by Congress and signed by the President in February. Congress imposed a 0.65% rescission on all budget categories as a part of the appropriation process. The accompanying table includes data on the FY 2002 appropriation, FY 2003 appropriation and the President’s request for the FY 2004 appropriation.

Base Programs (Hatch, McIntire-Stennis and Animal Health) were initially level funded for FY 2003 but because of the rescission, we will receive slightly lower allocations than for FY 2002. Under the Special Grants category, increases for FY 2003 were approved for Global Change-UV-B Monitoring, Minor Crop Pest Management and State Specific Special Grants. The National Research Initiative Competitive Grants Program was increased by about $45.5 million. Increases also were approved for Aquaculture Centers, Sustainable Agriculture Research and Education Program, Supplemental and Alternative Crops and 1994 Research Grants. A new program, Joe Skeen Institute for Rangeland Restoration, also was approved for FY 2003.

Within the Integrated Activities Account, only the Methyl Bromide Transition Program and the Organic Transition Program obtained increases in FY 2003. In addition, a new program entitled International Science and Education Grants Program was established and two programs (Regional Rural Development Centers and Critical Issues) were moved into Integrated Activities Account from the Special Research Grants Account for FY 2003.

The President’s budget for FY 2004 level funds many of the programs from his recommendation for FY 2003. The President’s budget eliminates all State Specific Special Grants (as is the case every year) but recommends a $200 million appropriation for the National Research Initiative. A new program area, Homeland Security, is recommended at a level of $16 million.

IANR was very successful in obtaining State Specific Special Grants in the FY 2003 appropriation to support our research efforts. With the assistance of faculty, we have developed a number of very strong proposals for funding in the FY 2004 appropriation and we look forward to having even more success this year. Many of our proposals for special grants are collaborations with faculty in other states, which strengthens the case for Congressional earmarks.

Cooperative State Research, Education, and Extension Service ($000)

<table>
<thead>
<tr>
<th>Programs</th>
<th>FY 2002 Appropriation Act</th>
<th>FY 2003 President’s Budget</th>
<th>FY 2003 President’s Appropriation with Rescission</th>
<th>FY 2004 President’s Budget</th>
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<td><strong>Research and Education Activities</strong></td>
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<td><strong>Base Programs:</strong></td>
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<td>Global Change, UV-B Monitoring ......................</td>
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<td>Programs</td>
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<td>Joe Skeen Institute for Rangeland Restoration</td>
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<td>Higher Education:</td>
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<td>1890 Institution Capacity Building Grants</td>
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<td>Multicultural Scholars</td>
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<td>998</td>
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<td>Hispanic Serving Institutions Education Grants Program</td>
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<td>Alaska Native-serving and Native Hawaiian-serving Institutions</td>
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<td>2,997</td>
<td>3,477</td>
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<td>37,847</td>
<td>39,564</td>
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<td>Total, Research and Education Activities</td>
<td>550,649</td>
<td>560,044</td>
<td>625,618</td>
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**Integrated Activities**

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<th>Section 406 Legislative Authority:</th>
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<td>Food Safety</td>
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<td>Regional Pest Management Centers</td>
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<td>Crops at Risk from FQPA Implementation</td>
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<td>FQPA Risk Mitigation Program for Major Food Crop Systems</td>
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<td>Methyl Bromide Transition Program</td>
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<td>3,229</td>
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<td>Organic Transition Program</td>
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<td>41,852</td>
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<td>41,852</td>
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<td>Other Legislative Authorities:</td>
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<td>International Science and Education Grants Program</td>
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<td>497</td>
<td>1,000</td>
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<td>Critical Issues</td>
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<td>497</td>
<td>2,500</td>
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<tr>
<td>Regional Rural Development Centers</td>
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<td>3,013</td>
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<td>42,853</td>
<td>44,865</td>
<td>46,439</td>
<td>62,865</td>
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</table>

a/ Funds for critical issues are in the Integrated Activities Account.
b/ Funds for Regional Development Centers are in the Integrated Activities Account.
c/ Estimated interest earned on the Tribal Colleges Endowment Fund.
Selected Resources on Grant Writing

With the current strong emphasis on obtaining external grant funds, many faculty are taking advantage of opportunities to enhance their grant proposal writing skills. Writing workshops on and off campus have been one avenue to do this. Another is self-study, using books on how to write successful grant proposals. A few years ago, while serving as an ESCOP Administrative Intern in the ARD, Dr. David Stanley prepared a grant writing resource "Playing to Win — A Guide to Preparing and Processing Competitive Grant Proposals in the Institute of Agriculture and Natural Resources." One section of that was a list of books on grant proposal writing and on writing in general that can be found in Love Library. That list appears below.

Books on Writing Grant Proposals


Escherich, P.L. and McManus, R.E. (1983) Sources of Federal Funds for Biological Research. Museum of Natural History, University of Kansas, Lawrence, KS.


NIH — Division of Research Grants (annually): DRG Peer Review Trends. NIH, Washington, D.C.


General Writing Resources


Grants and Contracts Received February and March, 2003

Agronomy/Horticulture

Arkebauer, Timothy — USDOE/NGEC $ 77,250
Caldwell, Robert — USDA/ARS 120,000
Clemente, Thomas — USDA/CSREES 136,546
Graef, George, James R. Steadman and Thomas Clemente — USDA/ARS 42,000
Spalding, Roy — Nebraska Department of Agriculture 25,000
Specht, James — USDA/ARS 32,725
Miscellaneous grants under $10,000 each 282,902

Animal Science

Beermann, Donald — UN Foundation 11,995
Miscellaneous grants under $10,000 each 38,270

Biochemistry

Banerjee, Ruma — American Heart Association 19,000
Banerjee, Ruma — NIH 337,440

Biological Systems Engineering

Franti, Thomas G. — Charles B. and Katherine W. Baker via UN Foundation 12,000

Biometry

Eskridge, Kent — Nebr. Dept. of Health and Human Services 24,840
Stroup, Walt — Pfizer, Inc. 19,680

Entomology

Kambale, Shripat — USDA/CSREES via Michigan State University 88,124
Siegfried, Blair and Lance Meinke — USDA/CSREES via University of Maryland 71,107

Food Science and Technology

Thippareddi, Harshavardhan and Dennis Burson — USDA/CSREES 495,640
Miscellaneous grants under $10,000 each 95,214
Proposals Submitted for Federal Grants

The following is a listing of proposals that were submitted the past few months 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.

Brett R. White — USDA/NRI — Transcriptional Regulation of the Porcine GnRH Receptor Gene — $287,193

James R. Alfano — USDA/NRI — Chaperones of the type III protein secretion system of pseudomonas syringae tomato DC3000 — $355,100

Clinton Jones and Alan Doster — USDA/NRI — Regulation of the latency-reactivation cycle by the bovine herpesvirus 1 (BHv-1) latency related (LR) gene — $319,600

Gary Y. Yuen, Donald Y. Kobayashi and Gautam Sarath — USDA/NRI — Induced resistance by Lysobacter enzymogenes C3 — $299,740

Timothy M. Nowatzki, Blair D. Siegfried, Lance J. Meinke and Michael A. Caprio — USDA/NRI — Quantifying Western Corn Rootworm Movement and Mating with a Mark-Recapture Technique: Impact on Resistance Management for Transgenic Corn — $248,083

Jeffrey D. Cirillo — NIH/NIAID — Entry Mechanisms of Mycobacterium marinum — $16,175

Kenneth W. Nickerson, Gerald Duhamel, Bessie Kebaara and Dammika Navaratna — NIH — Farnesol and Biofilms in a Mouse Model Candida Infection — $141,166

Kent Eskridge and Roy Spalding — USDA/FAS/ICD/RSED/SCR — Functional Analysis of Nitrogen in Constructed Wetlands for Wastewater Treatment Using Stable Isotopes — $45,000

Andrea S. Cupp, Lane K. Christenson and Debra T. Clepton — NIH/NICHD — Molecular Mechanisms of Testis Development — $142,107

Jeffrey D. Cirillo, Gerald E. Duhamel, Steven H. Hinrichs and Peter C. Iwen — NIH — Virulence Mechanisms of Francisella tularensis — $1,631,250

Stephen L. Taylor — USDA/Special — Midwest Advanced Food Manufacturing — $422,444

F. Edwin Harvey — NSF through University of Kansas — An Investigation of Flow and Solute Transport in a Floodplain Aquitard — $78,212

David A. Wedin, Geoffrey M. Henebry, David B. Loope, Tim Arkebauer and David Billesbach — NSF — Sand Hills Biocomplexity: Integrating Biogeo-physical Processes Across Space and Time — $1,996,117

Larkin A. Powell — USDA/North Central Region SARE — Comparing Sustainability of Grazing in the Nebraska Sandhills: Which Regime is Best for Cattle and Wildlife — $34,544

Tom Clemente — NSF through Cornell University — From Proplastid to Chloroplast: Understanding Plastid Differentiation in Maize Through Microarray and Proteome Analysis — $389,225

Don Wilhite — USDA/Special — Developing Drought Mitigation and Preparedness Technologies for the U.S. — $183,184

Shashi B. Verma — USDOE/NIGEC — 2003-04 Administrative and Research Budget of the Great Plains Regional Center of the National Institute for Global Environmental Change — $1,246,907

Steven Harris — NSF — The Role of a Fungal PARP homologue in hyphal cell death — $427,421

Bill Zanner — NSF — Multi-Proxy Reconstruction of Climate Variability in the Great Plains Over the Last 130 ka From Modern and Buried Soils — $136,689

Janos Zempleni -- NIH -- The Essential Role of Biotin in Cell Proliferation -- $605,000


James E. Specht -- USDA/ARS -- Field Drought Tolerance in Soybean Plant Introductions and Breeding Lines in Nebraska -- $313,939

John Lindquist -- USDA/NCIPM through University of Wisconsin -- Manipulating Pseudomonas syringae PV Tagetis Populations to Enhance Biological Suppression of Canada Thistle -- $29,581

Robert M. Caldwell -- USDA/ARS -- Manure and Nutrient Management Practices to Protect Human Health and the Environment -- $96,000

Michael G. Dosskey, Dean E. Eisenhauer and Thomas G. Franti -- USDA/FS -- Improved Methods for Assessing Infiltration in Vegetative Buffer Systems -- $10,911

Gary Hein, Paul Burgener and Drew Lyon -- USDA/ARS -- Biologically Intensive Areawide IPM of the Russian Wheat Aphid and Greenbug -- $569,240

Sally Mackenzie -- NIH -- Mitochondrial Genome Dynamics in Arabidopsis -- $1,249,880

Larkin Powell -- NSF -- Complex Metapopulation Dynamics: The Influence of Landscape Factors, Alternate Prey Density and Carnivores on the Breeding Success and Movements of Songbirds -- $679,921

David R. Smith, Galen Erickson, Rod Moxley, Terry Klopfenstein and Susanne Hinkley -- USDA/CSREES -- Intervention Strategies to Reduce Escherichia coli 0157:H7 in Beef Feedyards -- $591,551

John Weber and Brett White -- NIH -- Novel System for Identifying Functional Genes in Mice -- $290,000

Roch E. Gaussoin and Ryan Michael Goss -- USDA/CSREES -- Management of biotechnology-derived forage and turf grasses and mechanisms of herbicide tolerance and resistance -- $187,185

Janos Zempleni, Marjorie Lou, Rocio Rodriguez-Melendez and Gautam Sarath -- NIH -- Vitamin-dependent modifications of histones -- $1,127,306

Milford A. Hanna -- USDA/CSREES -- Industrial Agricultural Products Center -- $49,815

Susan L. Hefle -- USDA/CSREES -- Alliance for Food Protection -- $136,920

Terry Klopfenstein, Charles A. Francis, James Brandle and Daniel T. Walters -- USDA/CSREES -- Integrated Crop/Livestock/Agroforestry Research for Sustainable Systems in Nebraska -- $55,142

Stephen L. Taylor -- USDA/CSREES -- Development and Quality/Safety Enhancement of Specialty Food Products -- $39,254

Robert W. Hukins, John H. Rupnow, Georgianna Whipple, Harshavardhan Thippareddi and Lisa Durso -- USDA/CSREES -- Food Safety: Lifelong Learning Through Teacher Training -- $528,264

Xun-Hong Chen -- USGS -- Modeling of Streamflow Dynamics in Alluvial Valleys with Irrigated Agriculture -- $64,466

David S. Jackson and Gang Guo -- NSF/EPA -- Environmentally Benign Processes for Corn Nixtamalization\(TSE03-K\) -- $388,970

Robert G. Wilson, Gary L. Hein and Robert M. Harveson -- USDA/CSREES -- Use of Patterns of Fructan Metabolism in Roots of Canada Thistle to Develop Integrated Control Strategies in Cropland and Range Ecosystems -- $200,646

Mark Burbach and Michael J. Hayes -- USGS -- An Integrated Real Time Ground Water Level Monitoring Program for Improving Drought Assessment -- $133,300

Marjorie F. Lou -- NIH -- Redox Signaling in the Lens -- $1,450,000

James E. Specht -- United Soybean Board/USDA -- Genetically Map the Yield QTLs in Exotic Line PI 71.506 -- $99,800

Harshavardhan Thippareddi -- USDA/CSREES through KSU -- Voluntary HAACP Program -- $158,918

David Baltensperger -- USDA/SARE -- Producer Driven Education to Improve Bio-diversity in Semi-arid High-Plains Cropping Systems -- $141,000
Amit Mitra — NSF — Efficient Gene Silencing by Intrinsic Direct Repeats: Mechanism and Utilization — $390,000

Thomas E. Hunt — USDA through KSU — Updating Dispersal Parameters to Evaluate the Risk of Resistance to Bt-Corn in Two Corn Borers when Insecticides are Used in Refuge Plantings — $55,419

New or Revised Projects

The following station projects were approved recently by the USDA Current Research Information System (CRIS):

NEB-12-294 (Agronomy and Horticulture) Detection and Assessment of Genetic Variation in Economically Important Weed Species
Investigator: Donald Lee
Status: New Hatch project effective January 2, 2003

NEB-13-154 (Animal Science) Role of Paracrine Growth Factors in Bovine Ovarian Follicular Development
Investigator: Andrea S. Cupp
Status: New Animal Health project effective May 1, 2002

NEB-13-156 (Animal Science) Reproductive Performance in Domestic Ruminants
Investigator: Andrea S. Cupp
Status: New Hatch project that contributes to regional project W-112 effective October 1, 2001

NEB-13-161 (Animal Science) Genetic Variation in Feed Energy Utilization
Investigator: Merlyn K. Nielsen
Status: New Hatch project effective March 1, 2003

NEB-14-125 (Veterinary and Biomedical Sciences) Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety
Investigator(s): Rodney A. Moxley, Gerald E. Duhamel and David R. Smith
Status: New Hatch project that contributes to regional project NC-1007 effective October 1, 2002

NEB-15-099 (Biochemistry) Engineering Plants for Increased Photosynthetic Efficiency: Introduction of the CO₂ Concentration Mechanism from C₄ Plants into C₃ Plants
Investigator(s): Donald P. Weeks and Thomas Clemente
Status: New State project effective July 1, 2002

NEB-16-097 (Food Science and Technology) Physical, Chemical and Biological Control of Molds and Mycotoxins in Foods and the Environment
Investigator: Lloyd B. Bullerman
Status: New Hatch project effective September 1, 2002

NEB-21-082 (Plant Pathology) Detection and Properties of Nebraska Plant Viruses with Emphasis on Soybean Viruses
Investigator: Leslie C. Lane
Status: New Hatch project effective December 1, 2002

NEB-21-083 (Plant Pathology) Biological Control of Grass and Cereal Diseases in Nebraska
Investigator: Gary Yuen
Status: New Hatch project effective January 1, 2003

NEB-24-035 (Ag.Lec) Surveying and Characterizing Distance Education Interventions in Nebraska Rural Communities
Investigator: James W. King
Status: New State project effective March 1, 2003

NEB-33-001 (Center for Grassland Studies) Grassland Studies
Investigator: Martin A. Massengale
Status: New State project effective May 1, 2003

NEB-43-071 (West Central Research and Extension Center) Improving Irrigation Management to Conserve Water Resources in West Central Nebraska
Investigator: J.O. Payero
Status: New Hatch project effective June 1, 2002

NEB-44-016 (Panhandle Research and Extension Center) Weed Control Systems for Western Nebraska Irrigated Crops and Rangeland
Investigator: Robert G. Wilson
Status: Revised Hatch project effective October 1, 2002

NEB-44-062 (Panhandle Research and Extension Center) Improvement of Proso Millet and Other Crops for Adaptation to Western Nebraska
Investigator: David Baltensperger
Status: New Hatch project effective October 1, 2002

NEB-91-058 (Nutritional Science and Dietetics) N-3 Polyunsaturated Fatty Acids and Human Health and Disease
Investigator: Nancy M. Lewis
Status: New Hatch project that contributes to regional project NC-1167 effective October 1, 2002

NEB-94-030 (Textiles, Clothing and Design) New Technologies for the Utilization of Textile Materials
Investigator: Yiqi Yang
Status: New Hatch project that contributes to regional project S-1002 effective March 1, 2003
The Economic Research Service has completed an extensive study of the economic well-being of U.S. farm households. This article is a summary of the findings from the study. Since their inception in the 1930s, price and income support programs have been devised to both raise the level of farm income and close the gap between farm and non-farm incomes. Concurrent with farm program changes over the years was a dramatic shift in the structure and organization of farms. Current farm operations are complex business entities requiring astute management of contracts, alliances and ventures. Farm households are faced with wide-ranging decisions about how to allocate their limited resources among farm and non-farm activities. Just as farms are diverse in their structure, so are households in their employment, investment and consumption.

The main findings from the report are:

- Farm households are no different than other households in pursuing two careers and diversifying earnings. More than half of all U.S. farm operators work off-farm, with 80% of these working full-time jobs. Nearly half of all spouses also are employed off the farm.

- The farm business as a source of income has played an increasingly smaller role in determining the well-being of farm households. Nearly 90% of total farm household income in 1999 originated from off-farm sources. The contribution of earned income (off-farm) amounted to 53% of total farm household income.

- While farm business income exhibits considerable variability, farm household income is relatively stable.

- The age and status of the farm operator most determines the level and sources of household income and wealth, but farm type and size, operator education, farm tenure and family size are also factors.

- Income available to farm households can support a standard of living equal to or above that of non-farm households.

- Consumption expenditures of farm households are lower than that for all U.S. households.

- For most non-farm households owning businesses, the business is the main source of income; for most farm proprietorship households, the farm detracts from total household income.

- Despite conventional thinking, farm households are not financially disadvantaged, compared with other U.S. households.

- Average wealth of farm households has increased and farm households have broadened their portfolio to include more non-farm investments.

- Even for farms located in rural areas, off-farm income is still the dominant source of household earnings.

"Taken from the USDA ERS Agricultural Economic Report Number 812. A copy can be ordered by telephoning 800-999-6779.

Diane says

If you say nothing, no one will repeat it.