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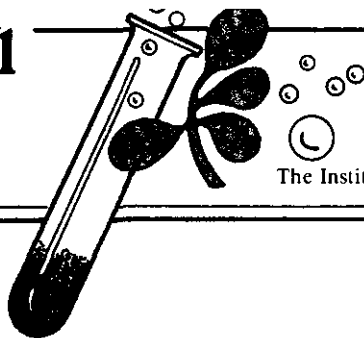
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February 1996

Volume 30, Number 4

COMMENTS FROM THE DEAN

Dear Colleagues:

The start of a new year is a good time to reflect upon what has been accomplished in the past year. Articles in this issue of *ARD News* detail your success in obtaining grants and contracts and in documenting significant outputs from your research programs. For the second year, the average of all ARD-affiliated units equaled or exceeded all of the goals established by the ARD Advisory Council for outputs and grants. Congratulations on this achievement.

In reviewing research grants obtained by ARD-affiliated units, I was impressed by the strong relationship between the number of grant proposals written per FTE and the amount of federal grant funds obtained per FTE. It is truly a "numbers" game. ARD faculty submitted 168 proposals to federal agencies during 1995 (1.3 per FTE) and obtained \$8,609,400 (\$70,400 per FTE). Proposal submission rates varied from zero to 8.1 per FTE between units.

The USDA spends only 3 percent of U.S. science and technology funds each year and one-half of the USDA funds are expended by ARS. In contrast, the proportion of science and technology funds spent by DOD (27 percent), NIH (28 percent), NASA (15 percent), NSF (7 percent) and DOE (6 percent) is much higher than USDA. Historically, most of the proposals written by ARD faculty have been directed to USDA programs. Given the much larger amount of research funds available in other agencies, it may be wise to increase our proposal submissions to non-USDA parts of the federal science establishment.

Each of you should have received a copy of *Playing to Win*, a booklet designed to explain the grant proposal preparation and submission processes. If the guidance in this booklet is followed, your success rate with federal granting agencies will improve. We hope that the overall competitiveness of ARD faculty for grants will continue to increase as it has for the past five years.

Darrell W. Nelson
Dean and Director

RECOGNITION OF JUNIOR FACULTY FOR EXCELLENCE IN RESEARCH

In 1991, the ARD Advisory Council established a program to recognize the research accomplishments made by junior faculty members. No more than two junior faculty are recognized each year. The recognition consists of a certificate, engraved plaque, and \$3,000 for use in professional development or research-related activities.

Criteria used to evaluate nominees include scientific publication record, especially those publications resulting from research at UNL, external grant funding, and recognition by peers. A subcommittee of the ARD Advisory Council evaluates the nominations and recommends recipients to the Dean for Agricultural Research.

The following faculty member was selected for recognition during the 1995-96 academic year:

**Dr. Ruma V. Banerjee, Assistant Professor,
Department of Biochemistry.**

Congratulations to Dr. Banerjee! A call for nominations is issued each year on about June 1. We encourage faculty and administrators to nominate deserving junior faculty in their units.

AVERAGE UNIT OUTPUTS EXCEED GOALS AGAIN IN FY 1995

We are pleased to report that during FY 1995 ARD units achieved all of the goals for FY 1995 that were established by the ARD Advisory Council. This is a tremendous accomplishment and all faculty should be very proud of their role in achieving the goals. The ARD goals and the unit averages in several categories are shown below:

Indicator	FY 1995 Unit Ave.	ARD Goal	% of Goal	No. Units Exceeding Goal
Approp \$/FTE	158,572	150,000	106	12
Grant \$/FTE	104,152	100,000	104	6
Grant \$/App \$	0.664	0.667	100	6
Tot Resources \$	262,723	250,000	105	10
Ref Pubs/FTE	3.47	3.0	116	11
Theses/FTE	1.43	1.0	143	10



It is the policy of the University of Nebraska-Lincoln Institute of Agriculture and Natural Resources not to discriminate on the basis of sex, age, handicap, race, color, religion, marital status, veteran's status, national or ethnic origin or sexual orientation.



It is now our challenge to remain at these levels of accomplishment. Continuation of these levels of output and grant funding will ensure that the Nebraska Agricultural Research Division programs are recognized and highly respected throughout the U.S. We also should keep in mind that achieving quantitative goals does not ensure that our programs meet the needs of Nebraska. Only the people we serve can pass judgment on how well we are accomplishing our role and mission.

NEW OR REVISED PROJECTS

The following station projects were approved recently by the USDA Cooperative State Research Service:

NEB-12-248 (Agronomy) Measuring Crop Nitrogen Status Using On-The-Go Sensors

Investigator(s): D. D. Francis and T. A. Peterson
Status: New Competitive Grant effective Sept. 15, 1995

NEB-12-250 (Agronomy) State-of-The Mass Selective Detector for Identification and Confirmation Analyses

Investigator(s): S. D. Comfort and P. J. Shea
Status: New Competitive Grant effective Sept. 15, 1995

NEB-13-101 (Animal Science) Genetic Variation for Reproduction and Energy Utilization

Investigator: M. K. Nielsen
Status: Revised Hatch project effective Oct. 1, 1995

NEB-14-088 (Veterinary and Biomedical Sciences) Analysis of BHV-1 Gene Expression During Reactivation from Latency

Investigator: C. Jones
Status: New Competitive Grant effective Sept. 15, 1995

NEB-14-089 (Veterinary and Biomedical Sciences) Role of Group A Bovine P Protein in Induction of Heterotypicimmunity

Investigator: G. E. Duhamel
Status: New Competitive Grant effective Sept. 15, 1995

NEB-15-076 (Biochemistry) Hemoglobins in Higher Plants

Investigator: R. V. Klucas
Status: New Hatch project effective Nov. 1, 1995

NEB-16-056 (Food Science and Technology) Molds and Mycotoxins in Foods, Feeds and the Environment

Investigator: L. B. Bullerman
Status: Revised Hatch project effective Oct. 2, 1995

NEB-16-068 (Food Science and Technology) Fate of Fumonisin in B₁ in Heat Processed Corn Products

Investigator: L. B. Bullerman
Status: New Competitive Grant effective Sept. 1, 1995

NEB-21-062 (Plant Pathology) Pathogenicity and Sclerotial Development of *Sclerotinia sclerotiorum*: Involvement of Oxalic Acid and Chitin Synthesis

Investigator: M. B. Dickman
Status: New Competitive Grant effective Sept. 15, 1995

PROPOSALS SUBMITTED FOR FEDERAL GRANTS

The following is a listing of proposals submitted after Dec. 1, 1995 by faculty for federal grant programs. While not all grants will be funded, we applaud the faculty member's effort in submitting proposals to the various agencies.

Steve Taylor — USDA/CSREES — Development and Quality/Safety Enhancement of Specialty Food Products — \$39,470

Milford Hanna — USDA/CSREES — Industrial Agricultural Products Center — \$60,144

Steve Taylor — USDA/CSREES — Midwest Advanced Food Manufacturing Alliance — \$397,518

Darrell Watts and Roy Spalding — USDA/CSREES — Management of Irrigated Corn and Soybeans to Minimize Ground Water Contamination — \$200,000

Donald Wilhite — USDA/CSREES — Developing Drought Mitigation and Preparedness Technologies for the U.S. — \$187,952

Charles Francis, Terry Klopfenstein and James Brandle — USDA/CSREES — Integrated Crop/Livestock Research for Sustainable Systems in Nebraska — \$55,446

Judy Driskell — National Research Initiative Competitive Grants Program — Effects of Beta-Carotene and Alpha-Tocopherol on Atherosclerosis in Rabbits — \$137,988

James Partridge — National Research Initiative Competitive Grants Program — Temperature Stress Response Modulates Disease/Resistance Expression — \$125,542

M. Paul Scott and John Golbeck — National Research Initiative Competitive Grants Program — The Role of NifS in Photosynthetic Iron-sulfur Cluster Formation — \$103,022

Albert Weiss, Timothy Arkebauer, Steve Baenziger, Kent Eskridge, Jerry Maranville and Dave Shelton — USDOE — Wheat Ecosystems for the Future: Addressing Global Change — \$696,236

James Brandle — National Research Initiative Competitive Grants Program — via Iowa State University — Microclimate Inhomogeneities in Agricultural and Agroforestry Ecosystems — \$131,341

Marjorie Lou — NIH — Protein-Thiol Mixed Disulfides in Cataractogenesis — \$223,639

Swey-Shen Chen — NSF — Construct of Synthetic Chimeric B-T Peptide for Foot-and-Mouth Disease Virus (FMDV) — \$384,834

Swey-Shen Chen — NSF — Analysis of the Role of IgE Peptide in IgE Gene Disrupted Mice — \$800,300

Ruma Banerjee — NIH — Reaction Mechanisms of Cobalamin-Dependent Enzymes — \$132,167

Donald Becker and Stephen Ragsdale — NIH — The Catalytic Role of Ni F430 in Methyl-CoM Reductase — \$40,308

Patrick J. Shea, Steve D. Comfort, Garald L. Horst, Tian C. Zhang and Rhae A. Drijber — National Science Foundation — Environmental Processes for Accelerated Bioremediation of Xenobiotics in Soil and Water — \$432,752

Raul G. Barletta — NIH — New Molecular Targets for Antimycobacterial Agents — \$397,381

David W. Stanley-Samuelson — National Research Initiative Competitive Grants Program — Impairing Eicosanoid Mediated Immune Responses in Moths — \$95,196

Martha Rowe, Svata Louda, Donald Lee, and Robert Masters — National Research Initiative Competitive Grants Program — Relationship Between Leafy Spurge Genetic Variation and the Oviposition and Galling by a Monophagous Biocontrol Agent, *Spurgia esulae* Gagne — \$218,557

Blair D. Siegfried, Lance J. Meinke and Robert J. Wright — National Research Initiative Competitive Grants Program — Adult Western Corn Rootworm Insecticide Resistance: Mechanisms and Impact on Larvae — \$123,850

David W. Stanley-Samuelson — National Research Initiative Competitive Grants Program — Phospholipid Digestion in Insects: Enzyme Purification and Inhibitors — \$115,545

Martin Dickman — National Science Foundation — Prepenetration Developmental Mechanisms in Pathogenic Fungi: Comparison of Plant and Insect Pathogens — \$110,567

Martin Dickman — National Research Initiative Competitive Grants Program — Molecular Mechanism of Fumonisin Induced Pathogenesis in Chicken — \$219,627

John Markwell and Gautam Sarath — National Science Foundation — Chloroplast Protein Phosphatases — \$371,387

Ruben Donis — National Research Initiative Competitive Grants Program — Identification of Virulence Determinants of Bovine Viral Diarrhea Virus by Reverse Genetics — \$272,403

Fernando A. Osorio and Alan R. Doster — National Research Initiative Competitive Grants Program — The Biology of Persistent Infections Caused by Porcine Reproductive and Respiratory Virus — \$188,146

Thomas O. Powers and A. Szalanski — National Science Foundation — WWW Tylenchida Bibliography — \$85,062

Curtis Weller and Susan Cuppett — National Research Initiative Competitive Grants Program — Optimization of Sorghum Wax Extraction — \$118,417

Susan Cuppett — National Research Initiative Competitive Grants Program — Antioxidant Efficacy of Rosmarinic Acid During Lipid Oxidation Processes — \$334,996

Aristoppos Gennadios, Milford A. Hanna and Curtis L. Weller — National Research Initiative Competitive Grants Program — Renewable Films and Coatings from Egg White — \$53,684

Lois E. Hamilton — National Research Initiative Competitive Grants Program — Wheat Gluten Binders for Textile Print Pastes — \$123,804

James E. Kinder — National Research Initiative Competitive Grants Program — Role of Pulsatile LH During Different Stages of Luteal Development of Cattle — \$209,969

H. Edward Grotjan — National Research Initiative Competitive Grants Program — Recombinant Bovine Gonadotropins — \$162,807

Michael G. Zeece — National Research Initiative Competitive Grants Program — Capillary Electrophoretic Analysis of Collagen and its Non-Reducible Cross Links — \$234,350

Thomas E. Janousek — National Research Initiative Competitive Grants Program — Western Equine Encephalomyelitis: Equine Infections in an Endemic Area — \$234,792

Viswas M. Ghorpade, Charles A. Kingsbury and Milford A. Hanna — National Research Initiative Competitive Grants Program — Reactive Extrusion Production and Purification of Levulinic Acid for Industrial Uses — \$224,774

Milford A. Hanna, Sandeep Bhatnagar and David Jones — National Research Initiative Competitive Grants Program — Neural Network Modeling and Control of Extrusion Process — \$189,938

Leon Higley, Marion Ellis, Fred Baxendale, David W. Stanley-Samuelson and Raul Barletta — USDA/CSREES — 1996 Research Apprenticeship Program — \$12,500

Swey-Shen Alex Chen — National Research Initiative Competitive Grants Program — Synthetic Co-Linear B-T Peptide for Foot-and-Mouth Disease Virus (FMDV) — \$547,160

Albert Weiss, Timothy J. Arkebauer and P. Stephen Baenziger — National Science Foundation — An Experimental System to Evaluate the Effects of Global Change Scenarios on Managed Ecosystems — \$797,382

David W. Stanley-Samuelson — National Science Foundation — Academic Research Infrastructure (Instrumentation) Program — \$100,000

Roy F. Spalding and Zongwei Cai — National Science Foundation — Acquisition of Specialized Mass Spectrometers for Environmental Research — \$472,400

Subramaniam Srikumar — National Research Initiative Competitive Grants Program — Molecular Characterization of MHC Class I Down-Regulation by Bovine Herpesvirus I — \$204,775

Ruben Donis — National Institutes of Health — Institutional Development Award — \$858,926

Stephen G. Ernst — National Research Initiative Competitive Grants Program — Polyamines and Plant Development: Investigation by Genetic Modulation of S-Adenosylmethionine Decarboxylase Activity — \$281,249

Donald P. Weeks — National Science Foundation — Isolation and Characterization of Genes Involved in CO₂ Accumulation in *Chlamydomonas reinhardtii* — \$428,895

Ruben Donis, Clinton Jones, Martin Dickman, Fernando Osorio and T. Jack Morris — USDHHS-PHS-NIH — Comparative Pathobiology Research Program — \$858,926

David R. Shelton, Woojoon Park, C. James Peterson, P. Stephen Baenziger and David Baltensperger — National Research Initiative Competitive Grants Program — The Relationship of Asian Rolled Noodle Color Stability and Trace Metal Concentration — \$168,579

John Allen and Sam Cordes — USDA/CSREES — Partnership for Rural Nebraska — \$250,000

Bob Volk — U.S. Geological Survey — Evaluation of Constructed Wetlands and Information Transfer — \$20,000

Roy F. Spalding and Zongwei Cai — National Science Foundation — Acquisition of Specialized Mass Spectrometers for Environmental Research — \$472,400

Sharron Quisenberry, Gary Hein and Xinzhi Ni — USDA/North Central IPM Grants Program — Intercropping Strategies to Deploy Insect Resistant Wheat Cultivars — \$50,790

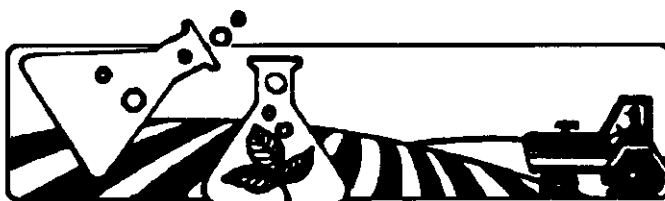
Subramaniam Srikumar — National Research Initiative Competitive Grants Program — Molecular Characterization of MHC Class I Down-Regulation by Bovine Herpesvirus I — \$204,775

Thomas E. Janousek — National Research Initiative Competitive Grants Program — Use of Remote Sensing Technology in Determining Mosquito Larval Habitats — \$230,309

Richard K. Perrin, Glenn Helmers, and E. Wesley Peterson — National Research Initiative Competitive Grants Program — Environmentally Adjusted Measures of Productivity, Returns to Research and Grains from Trade — \$151,557

Lance J. Meinke, Blair D. Siegfried, Robert J. Wright and Laurence D. Chandler — National Research Initiative Competitive Grants Program — Monitoring Resistance in Adult Western Corn Rootworms and Potential Effects on Larvae — \$100,337

Blair D. Siegfried, John F. Witkowski and Robert J. Wright — National Research Initiative Competitive Grants Program — Development of Diagnostic Techniques for Monitoring Bt Resistance in the European Corn Borer — \$60,276



GRANTS AND CONTRACTS RECEIVED DECEMBER 1995 AND JANUARY 1996

Agricultural Economics	
Miscellaneous grants under \$5,000 each	17,900
Agricultural Meteorology	
Easterling, W. — USDOE/NIGEC	1,399,389
Hubbard, K. — USDA/ARS	110,000
Agronomy	
Andrews, D. — USAID	60,000
Baenziger, P. S. — USDA/ARS	100,000
Maranville, J. W. — USAID	27,250
Mason, S. — USAID	23,500
Miscellaneous grants under \$5,000 each	46,100
Animal Science	
Miscellaneous grants under \$5,000 each	60,683
Biochemistry	
Ragsdale, S. — Consortium for Plant Biotechnology Research, Inc.	58,000
Miscellaneous grants under \$5,000 each	23,475
Biological Systems Engineering	
Clements, L. D. — USDA/CSREES	28,000
Miscellaneous grants under \$5,000 each	2,500
Biometry	
Young, L. and Gotway, C. — Nebr. Dept. of Health	12,650
Center for Grassland Studies	
Gaussolin, R. and Masters, R. — U.S. Environmental Protection Agency	25,600

Center for Rural Revitalization	
Cordes, S., Allen, J. and Van der Sluis, E. — Uni. of Missouri	51,448
Entomology	
Miscellaneous grants under \$5,000 each	33,200
Forestry, Fisheries and Wildlife	
Jellinski, D. — U. S. Forest Service	36,540
Kayes, T. — Michigan State University	58,780
Savidge, J. A. — U.S. Fish and Wildlife	10,000
Miscellaneous grants under \$5,000 each	600
Horticulture	
Miscellaneous grants under \$5,000 each	26,000
Industrial Ag Products Center	
Hanna, M. A. and Bibby, G. — National Corn Growers	33,438
Northeast Research and Extension Center	
Miscellaneous grants under \$5,000 each	22,500
Panhandle Research and Extension Center	
Miscellaneous grants under \$5,000 each	72,675
Plant Pathology	
Dickman, M. — USDA/CSREES	50,100
Miscellaneous grants under \$5,000 each	5,560
South Central Research and Extension Center	
Miscellaneous grants under \$5,000 each	14,300
Veterinary and Biomedical Sciences	
Barletta, R. — Texas A and M	20,000
Duhamel, G. — USDA/NRI	100,000
Jones, C. — USDA/NRI	162,620
Srikumaran, S. — USDA/NRI	135,000
Miscellaneous grants under \$5,000 each	28,735
Water Center/Environmental Programs	
Spalding, R. F. — Lower Platte South NRD	35,375
Volk, B. G. — USDA/ARS	150,000
Miscellaneous grants under \$5,000 each	5,500
West Central Research and Extension Center	
Miscellaneous grants under \$5,000 each	6,600
Grand Total	3,054,018

GRANT AND CONTRACT INCOME OBTAINED BY ARD UNITS DURING THE LAST THREE CALENDAR YEARS

Listed below is the grant and contract income obtained by faculty members in units during the last three calendar years. Also listed is the average for the three years. Grants obtained by interdisciplinary centers are not listed. Therefore, the listing is not a completely accurate representation of the grant funds available to units because some faculty members obtain significant research funding from interdisciplinary centers. Units not listed are either service-oriented or represent disciplines with very limited opportunities for grant funding.

Unit	1993	1994	1995	Average 1993-95
-----\$/research FTE/year-----				
Ag Economics	22,945	18,869	3,955	15,256
Ag Meteorology	422,431	430,606	617,943	490,327
Agronomy	73,749	66,690	91,364	77,268
Animal Science	54,820	62,363	42,776	53,320
Biochemistry	166,383	185,078	222,334	191,265
Biol Sys Eng	98,040	103,544	50,519	84,034
Biometry	1,899	1,646	16,086	6,544
Entomology	82,907	107,809	57,578	82,765
Family and Con Sci	24,765	22,695	21,293	22,918
Food Sci and Tech	88,234	170,152	208,439	155,608
For, Fish and Wild	255,985	311,368	284,425	283,926
Horticulture	139,163	34,891	65,420	79,825
Northeast R and E	52,738	48,443	66,883	56,021
Nutr Sci and Diet	5,456	25,235	12,992	14,561
Panhandle R and E	78,378	83,445	92,581	84,801
Plant Pathology	101,971	186,034	157,817	148,607
South Cen R and E	91,034	29,409	88,292	69,578
Tex, Cloth and Des	0	0	0	0
Vet and Biomed Sci	76,137	117,863	167,402	120,467
West Cen R and E	20,146	25,179	22,484	22,603
Average	92,833	101,579	114,529	102,980

We are pleased that the 1995 average grant and contract income per FTE increased by 12.7 percent over 1994 and 23.4 percent over 1993. A number of units had significant increases in grant income during 1995. Keep up the good work.

WRITING RESEARCH PROJECT OBJECTIVES

Writing good objectives is one of the most difficult parts of preparing a research proposal. This is true for all types of proposals, including ARD Hatch Project proposals and proposals for competitive federal grants. The lack of well-written objectives is often an issue of concern in ARD project reviews. For competitive grant programs, poorly written objectives seriously disadvantage a proposal.

Grant proposal writing workshops usually include training on writing good objectives. There are a number of guidelines that can help writers develop their objectives.

One of the difficulties writers encounter in writing objectives is differentiating between the ends and the means. Objectives should be statements of end results. They should be statements of measurable benefits or outcomes.

The statement "to study disease resistance of tomatoes" is not a good objective. The phrase "to study" is simply a procedure or a means to an end. It has no measurable end point or outcome. The actual desired outcome might be something like, "identify the genes that control fusarium wilt resistance in tomatoes."

"SAM is an acronym used to describe good objectives. Objectives should be Specific, Achievable, and Measurable.

By "specific," we refer to clear, concise, usually one-sentence objectives that relate directly to a problem statement. "Achievable" objectives are ones that actually can be accomplished or on which scientific advances can be made during the life of the project with the resources available.

To address the "Measurable" aspect, you need first to identify the desired result or impact areas, for example, a new, wilt resistant tomato variety.

In this example, the measurement indicator can be answered simply yes or no, i.e., whether the variety is developed or not. For other objectives, a specific numerical improvement in a characteristic might be identified. Definitive measurement indicators such as these may not be possible in every type of research, but it always should be possible to identify a potential impact or outcome for the research that can be expressed to define a desired measurable end point.

After you've written your objectives, re-read them, asking, "Is this what I really expect to accomplish by the end of the project?" If not, go back and revise the objectives. If you're satisfied with the objectives, you can proceed to write a work plan that clearly expresses the experimental design and procedures to follow to accomplish the objectives presented.

Writing good objectives is not easy, but it is important. Good objectives convey to proposal reviewers that you've planned an important, high quality project that is likely to succeed and they help you establish your own realistic projection of what you expect to accomplish.

ARDC ADVISORY COMMITTEE CHANGES MEETING FORMAT

The ARDC Advisory Committee, ARD Dean Darrell Nelson and ARDC Director Dan Duncan have agreed to a new format for the Advisory Committee meetings. The new meeting times are permanently scheduled for the fourth Friday of every odd-numbered month from 11 a.m. to 1 p.m.

The schedule for these meetings calls for the first 30 minutes to be informational and a discussion of management issues at the ARDC. The remaining 90 minutes will be a seminar format with the first 30 to 45 minutes (beginning at 11:30 a.m.) involving the presentation of current, eminent or future research/demonstration projects at the ARDC. The remaining time will be spent in an open discussion relating to the presentation topic.

The unique part of this format is the seminar portion in which all faculty and students are invited to participate.

If you have any questions or have a topic you would like to present, please contact Dan Duncan at 4-8011 or ARDC001@UNLVM.UNL.EDU.

SPECIAL RESEARCH GRANT PROGRAM AWARDS

Layman Awards

IANR faculty submitted nine proposals for funding by the Layman Trust. A subcommittee of the ARD Advisory Council carefully evaluated each proposal and ranked the submissions in relation to quality of science and the potential impact of the proposed research. All proposals were forwarded to the Vice Chancellor for Research.

The primary aim of the Layman Awards is to provide seed money to enhance the possibility of obtaining external support for the research project. Only untenured faculty or tenured faculty who have not yet received an external grant are eligible for the program.

Four proposals submitted by ARD faculty were funded:

Rhae Drijber \$7,456

Agronomy Department

"Hierarchical Arrangement of Microbial Communities Within Soil Aggregates"

Ruben Donis \$7,500

Veterinary and Biomedical Sciences

"Engineering a Cell Line for Rapid Diagnosis of BVD Virus and the Study of Cytopathology"

Daniel Pomp \$7,500

Animal Science Department

"Development of Methods for Differential Display PCR Evaluation of Genetic Differences Between Animals"

Lance Meinke \$7,500

Entomology Department

"Development of a Monitoring Technique to Document the Presence of Western Corn Rootworm Insecticide Resistance"

Innovative/High Risk Research Program

Three proposals were submitted for consideration by the Innovative and High Risk Program during the past six months. This program is designed to fund very innovative research projects with the objective of developing data that can be used to support requests for grants from federal agencies. These proposals can be submitted at any time during the year. The proposals are evaluated quarterly or on an as-needed basis by a subcommittee of the ARD Advisory Council.

The following proposal was funded by the Innovative/High Risk Research Program:

Jim E. Partridge \$15,000 (renewal)

Plant Pathology Department

"Avirulence gene D from *Pseudomonas* is a Suicide Gene"

Interdisciplinary Research Projects

The Agricultural Research Division funded two new proposals and five renewals for fiscal year 1995-96. There were 25 proposals submitted. Funding for this program is made available to one or more interdisciplinary research groups on an annual basis. Projects are designed to provide integrated research results that contribute to the role and mission of the IANR Agricultural Research Division.

New projects are as follows:

Patrick Shea \$14,000

Agronomy Department

"Integration of Abiotic Treatments with Plant-Based Strategies for Remediating Soil Contaminated with Organonitrogen Compounds"

Rick Koelsch \$19,720
Biological Systems Engineering
"Whole Farm Nutrient Budgeting for Livestock Systems"

Renewal projects (year 2 of 2) are as follows:

Gerald E. Duhamel \$18,700
Veterinary and Biomedical Sciences
"Synergism Between *Bacteroides* spp. and *Serpulina hyodysenteriae* in Swine Dysentery: A model of inflammatory bowel disease modulation by anaerobic bacteria"

Durward Smith \$ 7,200
Food Science and Technology
"Insect and Mechanical Damage Control During Shipping by Insecticide Infusion and Modified Atmospheric Packing"

John A. Smith \$10,300
Panhandle Research and Extension Center
"New Seedbed Preparation Technology for Improved Sugarbeet Emergence"

Clinton Jones \$20,000
Veterinary and Biomedical Sciences
"How Does the Fungal Toxin, Fumonisin, Induce Carcinogenesis?"

Pat J. Shea \$20,000
Agronomy Department
"Impact of Pesticide Residues in Composted Lawn Waste on Vegetable Crops"

International Travel Program

Three proposals for funding by the International Travel Program were received by ARD during the past year. Limited foreign travel funds (up to \$1,000) are provided by the Agricultural Research Division to ARD faculty and to non-ARD faculty (with sufficient evidence of ARD-related activities) to pursue professional development opportunities. The ultimate long-term goals of this program are to enhance research expertise in priority areas, increase external grant support, improve the Division's effectiveness and efficiency, and develop new cooperative programs. There were three proposals submitted for travel during Jan. 1 - June 30, 1995. This proposal was selected:

Gerald E. Duhamel \$ 1,000
Veterinary and Biomedical Sciences
Travel to Copenhagen, Denmark, Malmo and Stockholm, Sweden; Oslo, Norway; and Dublin, Ireland and participate as invited guest speaker at the Annual Meeting of the British Pig Veterinary Society to be held in London, United Kingdom.

The title of presentation — "Porcine colonic spirochetosis: A diarrheal disease associated with intestinal colonization by a newly recognized species of spirochetes"

There was no call for proposals for July 1 - Dec. 31, 1995, due to lack of funding.

Burlington Northern Endowment for Water Research

The Burlington Northern Endowment Grant was established in the University of Nebraska Foundation in 1982 to support water and irrigation research projects. The endowment originally was used to support an energy and water efficiency irrigation project. Three proposals were granted second year funding as follows:

Garald Horst \$23,328
Horticulture Department
"Research on Irrigation Management to Minimize Chemical Movement Below Turfgrass"

C. Dean Yonts \$19,500
Panhandle Research and Extension Center
"Control of Pesticides and Nitrates in Surface Irrigation Runoff Water"

Thomas G. Franti \$20,000
Biological Systems Engineering
"Evaluation of Agricultural Management Practices for Reduction of Atrazine and Other Agrichemicals in Surface Water"

Anna H. Elliott Foundation

Seventeen proposals were submitted for approval for the Anna H. Elliott Fund that was established in the University of Nebraska Foundation with the stipulation that earnings from that fund would be used to support research in some area of agriculture, particularly in the field of plant science with preference to plant sciences in Western Nebraska. Funding available for distribution will be approximately \$60,000 per year from which the committee will fund in the range of four to six projects, depending on levels of request. Seven proposals were funded as follows:

Drew J. Lyon \$ 5,000
Panhandle Research and Extension Center
"Effects of Intermittent Plowing in Three Wheat-Fallow Tillage Systems"

Dermott P. Coyne \$ 7,500
Horticulture Department
"Identification of RAPD Molecular Markets for Resistance to common Bacterial Blight (CBB) and Rust in Dry Beans to Facilitate Gene Pyramiding for Durable Resistance"

Gary Hergert \$13,920
West Central Research and Extension Center
"A Management Strategy for Improving Corn Yields on High pH Western Nebraska Soils"

C. Dean Yonts \$ 7,050
Panhandle Research and Extension Center
"Design and Evaluation of Cover Crop Systems for Sugarbeet Production Under Furrow Irrigation"

David D. Baltensperger \$ 9,500
Panhandle Research and Extension Center
"Genetic Analysis of Proso Millet Yield Components and Tillage by Date of Planting Interactions"

Patrick E. Reece \$14,691
Panhandle Research and Extension Center
 "Stocking Rate of Grazing Date Interaction Effects on
 Tiler Dynamics of Sandhills Grasses"

Gary Hein \$ 8,650
Panhandle Research and Extension Center
 "Occurrence of High Plains Virus in Western Nebraska
 Wheat Curl Mites and the Interaction of Wheat Streak
 Mosaic Virus and High Plains Virus on Winter Wheat"

University of Nebraska Foundation Awards

Each year the University of Nebraska Foundation provides \$400,000 to the University of Nebraska System for support of "cutting edge" programs of special interest to Nebraskans. Traditionally most of the funding has been used to purchase equipment. This year, no proposals submitted by IANR faculty were funded. Thanks to all faculty who submitted proposals to the UN Foundation grant program.

RESEARCH SUPPORT ALLOCATION

With static budgets and the need to reallocate funds to address highest priority research areas, several questions have been raised concerning the allocation procedures for support budgets in the Agricultural Research Division. The Dean's Office adheres to the following policies in administering the appropriated support funds:

- The Dean's Office allocates a maximum amount of the available research funds to the individual administrative units at the beginning of each fiscal year based on program quantity and quality.
- Unit administrators are encouraged to allocate as much of their research funding as possible to the individual researchers at the beginning of each year.
- Support funds should be allocated to projects on the basis of need and potential return on investment in terms of productivity and output.
- Department heads/chairs and district directors are usually in a better position than is the dean to determine how to most effectively use the limited funds available for supporting individual research projects.
- All ARD researchers are expected to generate some of their own funding support if they are to maximize research productivity and achieve the level of excellence expected.
- It is recognized that not all research areas have the same potential for grant support.

These policies have been in effect for more than a decade. I hope these statements clarify the budgetary philosophy existing in the ARD Dean's Office. Faculty with

suggestions or concerns about the allocation procedures used for research support funds are encouraged to visit with their unit administrator, their representative on the ARD Advisory Council, or with Darrell Nelson or Dale Vanderholm. Constructive inputs are always welcome.

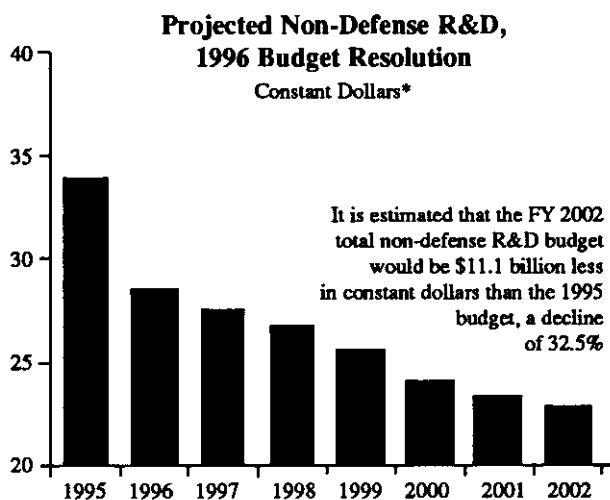
Darrell W. Nelson

THE OUTLOOK FOR FEDERAL SCIENCE AND TECHNOLOGY FUNDING

Federal science and technology funding for FY 1995 totaled \$35 billion. If DOD, NASA and DOE funding for demonstrating, testing and evaluating existing technologies is included, the total research and development costs are \$70 billion. Universities perform about 31 percent of the science and technology research as compared to 29 percent for federal labs and 21 percent for industry.

Approximate science and technology budgets for various agencies are: DOD, \$9.5 billion; HIH, \$9.8 billion; NASA, \$5.3 billion; NSF, \$2.4 billion; DOE, \$2.1 billion; DOT, \$1.7 billion; USEPA, \$1.7 billion; and USDA, \$1.1 billion. Attempts to balance the federal budget by 2002 will result in flat or decreasing science and technology budgets for most agencies. If an estimated 3 percent annual inflation rate is included in the calculation, it is estimated that the FY 2002 federal science and technology budget will be \$11.1 billion less than the FY 1995 budget. This would represent a 32.5 percent decline in purchasing power.

Given below is a graphical representation of the projected inflation-adjusted science and technology outlays for the fiscal years from 1995 to 2002 as estimated by AAAS.



*Expressed in FY 1995 dollars, adjusted to 3% inflation rate annually.

Source: AAAS preliminary data

Diane Says

Don't confuse mere inconveniences with real problems.