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ARD
Agricultural Research Division News
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Comments from the Dean:

Dear Colleagues:

The past few weeks have been focused in large part on revising and improving the IANR Academic Program Priorities that will be submitted to the Board of Regents as part of the UNL proposal. Listed below are the Academic Program Priorities that involve ARD research programs and faculty members:

- Agricultural Profitability
- Bioengineering (joint with the College of Engineering and Technology)
- Bioinformatics and Biological Modeling (joint with the College of Arts and Sciences)
- Biotechnology and Molecular Biology (joint with the College of Arts and Sciences)
- Children, Youth and Families (joint with the College of Human Resources and Family Sciences and College of Arts and Sciences)
- Community Development
- Ecology and Evolutionary Biology (joint with the College of Arts and Sciences)
- Ecosystem Science
- Food Safety
- Genomics, Proteomics and Structural Biology (joint with the College of Arts and Sciences)
- Meteorology and Climatology (joint with the College of Arts and Sciences)
- Molecular/Biochemical Nutrition (joint with the College of Human Resources and Family Sciences)
- Value-added Processing of Agricultural Commodities
- Water Resources and Hydrologic Sciences

We are pleased to have a significant number of joint Program Priorities with other colleges. I believe that this will demonstrate to the President and the Board of Regents that ARD faculty are deeply interested in interdisciplinary research programs that are at the cutting edge of science.

Many of you had an opportunity to study and comment on the short descriptive and rationale statements developed for these Program Priorities. After achieving a consensus on the program titles and short descriptions, detailed statements have been prepared for each priority that address the nine criteria established by the Board of Regents. These detailed statements for the 97 UNL Academic Program Priorities are now being examined by the Academic Planning Committee (APC). This committee will make recommendations to the Chancellor regarding the acceptability of the programs and the detailed statements. Following APC review, there will be opportunity for revision of the program statements prior to their submission to the Board of Regents on or before May 15, 2001.

I want to express my appreciation to the faculty members who provided input on the proposed IANR Program Priorities. These short statements were significantly improved through the input process. I also wish to extend special thanks to Glenn Hoffman, Robert Klucas, Ted Elliott, Steve Taylor, Milford Hanna, and Kyle Hoagland for writing the detailed statements for their assigned priority within one week due to the deadline imposed by UNL administration.

I also want to reassure all faculty that the ARD Program Priority areas will be enhanced by the acquisition of new funds not through the reallocation of funds from IANR units. Faculty members who cannot envision how their research fits into one of the Program Priorities should keep in mind that not all of our important programs are listed and omission of their program from the list does not indicate that the program is of less importance to IANR or the State of Nebraska. This has been a challenging exercise. I truly hope that the effort is rewarded by increased excellence in our research program.

Darrell W. Nelson
Dean and Director

IANR

Proposed University of Nebraska Policy on Ownership of Intellectual Property

Work has been under way for several months to develop a new University of Nebraska policy on ownership of intellectual property. The new policy relates primarily to the rights of the University, faculty, staff and students with regard to articles, books and other forms of scholarly communication. The provisions as described in this article are those contained in the most recent draft of the policy dated March 23, 2001. The policy has gone through a number of drafts and this latest draft reflects a great deal of input from throughout the University.

The new policy will be included in the terms of employment for all University employees. Admission to the University as a student constitutes an agreement to abide by the terms of the policy. The policy is developed around the long-standing academic tradition that faculty own the copyright to academic, scholarly and educational works resulting from their research, teaching and writing. The draft specifies, however, that there are possible exceptions to this rule which result from contractual obligations, employment obligations and certain uses of the University facilities, or by agreement governing access to certain University resources. The policy is intended to clarify many of these situations. The new policy does not affect existing University patent policies which are contained in Section 3.10 of the Bylaws of the Board of Regents of the University of Nebraska and Regent's Policy 3.2.7.

The policy document notes that the University of Nebraska is a public institution and has a responsibility to recognize the state's contribution of tax support for research and creative activity by devoting an appropriate share of the products of that research to the further benefit of the University as a whole.

The draft specifies that in some instances, the result of the creative effort of faculty, staff and students will be the property of the University, while in others, some or all of the rights of ownership shall belong to the author or inventor. Where ownership rests with the University, the University will seek to recognize and provide incentives for those persons who make significant contributions to the University's mission.

The ownership of intellectual property created by University employees is determined by the nature of the activity resulting in the intellectual property. Under the proposed policy, intellectual property not governed by patent policy is classified as either: (A) an independent work, (B) a University-supported work, (C) an institutional work or (D) a contractual work.

An independent work relates to something prepared and developed at the employee's or student's own initiative, without the use of any University resources and not pursuant to an approved agreement. The author or inventor of an independent work owns the intellectual property rights in that work. The University does not claim ownership of books, articles and other scholarly publications; or of popular novels, poems, musical compositions or other works of artistic imagination that are created by the personal efforts of faculty, staff and students and which do not make use of University resources.

A University-supported work is a creative work developed in whole or in part with a customary use of University resources. University resources are defined as normal support for employees and students, including salary, office, lab, computer support, secretarial service and other normal University resources. The employee or student owns the copyright and other rights associated with traditional works of scholarship defined as University-supported work. Employees or students shall own the right to obtain copyrights and the right to royalties or other income from University-supported work, including books, films, cassettes, compact discs, software, works of art or other material. This is subject, however, to the Board of Regents Policy that prohibits faculty members from having financial interest in or receiving compensation from the sale of educational materials used by students of the University, with some exceptions. Instructional materials developed by a faculty member in the process of delivering a course of instruction to students shall be the property of the faculty member. However, no royalty, rent or other consideration should be paid to the faculty member when the instructional materials are used at the University.

The second category of University-supported works involves the use of substantial University resources, which means the use of University funds, facilities and equipment or other resources significantly in excess of the norm for educational and research purposes in the department or unit in which the creator holds his/her primary appointment. Under this circumstance, the University shall own the work, including the right to obtain a copyright and the right to royalties or other income. In this situation, the University will negotiate in good faith with the author to determine the extent to which the author should share the rights to royalties and other "ownership" rights to such work.

The third category is institutional works, which is defined as work created at the specific instigation of the University and under the specific direction of the University, by a person acting within the scope of his/her University employment. Institutional works are often referred to in copyright law as works-made-for-hire. For example, the products of a University-initiated program in distance learning in which an employee or numerous employees are assigned the specific task of creating instructional content would be institutional works. The University owns all rights to institutional works, but the University may determine that the author/inventor should share in the rights to royalties and other rights in institutional works.

The last category relates to contractual works or creative works developed in the course of or pursuant to a sponsored research program or other contractual arrangement. Ownership of intellectual property rights defined as contractual works will be determined according to the terms of the program or contract, provided that the program or contract was approved by the University. Care should be taken to assure that any contract for sponsored research is approved and signed by a University administrative officer having proper

authority to approve and sign such a contract on behalf of the University.

Students will own the copyrights to their theses, dissertations and other student works; however, a student must, as a condition to a degree award, grant royalty-free, non-exclusive permission to the University to store copies of such works for archival purposes, to reproduce and publically distribute copies of his/her thesis or dissertation.

The proposed policy contains additional provisions relating to other aspects of the types of intellectual property mentioned here. It is hoped that the policy will encourage excellence and innovation in scholarly research and teaching by identifying and protecting the rights of the University, its faculty, staff and students.

Foundation Seed Division — Current and Future Changes

Changes in the seed industry have caused IANR to make significant changes in the Foundation Seed Division (FSD). To date these changes have included shifting administrative responsibility from the Department of Agronomy and Horticulture to the Agricultural Research Division, movement of the FSD office to the ARDC and ceasing operations at the Genoa Seed Farm. We have sold the former FSD Office location at 70th and Adams Streets and are in the process of selling the Genoa Seed Farm.

The changes in the seed industry have resulted in decreased sales of Foundation Class seed, which severely curtailed funds available for equipment and seed plant upgrades. The proceeds from the sale of the two properties mentioned above will enable FSD to make critical improvements to equipment and the seed plant; however, these improvements will be neither complete nor sustainable unless other operational changes are made and seed sales increased.

IANR, through its faculty, continues to develop cultivars of agronomic crops that are adapted to Nebraska environments. One of the goals of these breeding programs is to have these superior cultivars grown on as many acres as possible in Nebraska and surrounding states. To meet this goal, the FSD is changing many processes and functions.

One such change is a major effort to sell soybean cultivars that contain the Roundup resistant gene. Currently, IANR has an agreement with Monsanto to use its gene for research purposes. In order to place these varieties in the hands of Nebraska farmers, the FSD must obtain a license from Monsanto to sell varieties that include its gene. Monsanto grants two types of licenses to enable the sale of these products. One license would enable FSD to contract and sell seed only to seed companies that have a licensing agreement with Monsanto. The other license would enable FSD to sell to the above-mentioned group and, under certain restrictions, to independent certified seed growers who have a strong history with FSD. In order to ensure that IANR has the maximum amount of flexibility in determining how these products are marketed, FSD is pursuing the latter option.

Monsanto is not willing to sign a license agreement of the type we are pursuing to public institutions. In order to obtain this license and maintain flexibility in marketing, a private, not-for-profit company owned by UNL will be formed and will be the entity that executes the licensing agreement with Monsanto. The formation of this company will also facilitate future agreements with other companies for distribution of patented genes in IANR-developed cultivars and specialty varieties.

As is evident, many changes need to occur to enable the vast storehouse of IANR genetics to serve the public in this dynamic and changing industry. FSD is making the changes needed to ensure that both IANR and the public benefit to the maximum extent possible from the creativity of our scientists.

Proposed Statement on Licensing of Agronomic Crops Supported by Commodity Check-Off Funds

As mentioned in a previous newsletter I have been working with IANR plant breeders to develop guidelines related to the licensing of genetic material (in this case agronomic crops) that has been developed and supported using commodity check-off funds. It seems that every situation is different; in some cases the commodity board just wants the genetic material utilized, and in other cases there are many more restrictions.

The intent of this statement is to provide direction for the release of agronomic crops that provides the following: Accomplishes the largest utilization by producers for the greatest overall good and support of the industry and the citizens of Nebraska and allows producers and supporters of breeding projects access to germplasm and varieties.

In order to accomplish these goals the following has been proposed:

1. Varieties and lines of agronomic crops will be made available to the Nebraska Crop Improvement Association (NCIA), NuPride (an independent growers group affiliated with Foundation Seed) and other Nebraska companies at the ARD Dean's discretion and with concurrence of cooperating agencies such as USDA-ARS and with consultation with the appropriate crop variety release committee. If NuPride requests a variety that has limited projected sales, it can also be marketed through NCIA or other Nebraska companies.
2. If NCIA, NuPride or other Nebraska companies request a variety or line, it can still be marketed outside Nebraska's marketing area through Foundation Seed or the new 501c(3) company that is being developed by UNL.
3. Varieties, lines and sister lines not licensed to NuPride or other Nebraska companies can be marketed through Foundation Seed either as a general or an exclusive release. General releases made through NCIA can be branded and licensed to private companies. Foundation Seed would supply seed that is branded, but it also has the rights to have seed grown under contract.

4. Specialty crops (such as turf, agronomic crops with a small market potential or germplasm developed with UNL proprietary genes) may be released through the Technology Transfer Office, through Foundation Seed or the 501c(3) company with the approval of the ARD Dean. Royalties or research and development fees would be collected in a manner in compliance with University and IANR by-laws and with concurrence of cooperating agencies.
5. Research and development fees could be collected on agronomic varieties and lines licensed to NuPride, NCIA, Nebraska seed companies or companies outside Nebraska's marketing area.
6. A policy is already in effect on the distribution of these research and development fees, but the ARD policy[1] should be reviewed in light of funding by commodity boards and exclusivity issues.

As you can see, this is all very complicated, but IANR breeders' work on many crops and the historical interaction with the commodity groups has been different in every situation. Hopefully this document, which is still in the proposal stage, will allow each breeder to work with his/her commodity group and have maximum utilization. There will continue to be meetings on this proposal and much more discussion. What is desired is a statement that works for everybody. If you have ideas or suggestions, please e-mail me at: triordan@unl.edu.

[1]A Policy on the Release of Improved Plant Varieties, Clones and Breeding Materials by the Agricultural Research Division, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln

Terry Riordan
Administrative Intern

FY 2001 Federal Research and Development Funds

Listed below are the FY 2001 research and development funds to be expended by federal agencies. Many of the agencies obtained significant increases in research funds from FY 2000 levels. Of particular significance are the 14.6% and 13.2% increases in funding for NIH and NSF programs, respectively.

Agency	FY 2001 Appropriation	% Increase from FY 2000
	--- millions of $ ---	
Defense Science and Technology	9,363	8.0
All other DOD Research and Development	32,482	6.1
NASA	10,298	5.3
Department of Energy	7,994	12.3
NIH	19,597	14.6
NSF	3,240	13.2
USDA (ARS + CSREES)	1,953	10.8
Department of Interior	587	4.2
USEPA	686	6.0
NOAA	638	8.0
NIST	419	-8.5

The increase in USDA funding occurred primarily in the ARS portion of the budget and in the approval of the IFAFS program within CSREES. There was a $13 million decrease in NRI funding, and most of the other CSREES budget lines were held constant from FY 2000 levels. USDA research accounts for only about 4% of the total federal Research and Development Budget. During FY 2001, there was about a 50%-50% division between defense and nondefense Research and Development. Likewise, there was almost a 50%-50% division in federal Research and Development funds between "basic" and "applied" research. Total federal Research and Development funds for FY 2001 are $41.23 billion.

Grants and Contracts Received February and March, 2001

Agricultural Research and Development Center	
Duncan, Dan — Barta Bros. Via UN Foundation	$ 45,000
Miscellaneous grants under $10,000 each	8,769
Agronomy/Horticulture	
Baenziger, P. Stephen — Pioneer Hi-Bred International, Inc.	20,000
Gaussoin, Roch — U.S. Golf	26,216
Specht, James — USDA/ARS	35,000
Miscellaneous grants under $10,000 each	37,385
Animal Science	
Calkins, Chris — Nebraska Beef Council	30,200
Calkins, Chris — Hormel LLC	40,745
Scheideler, Sheila — The United Egg Producers	19,820
Miscellaneous grants under $10,000 each	10,325
Center for Grassland Studies	
Miscellaneous grants under $10,000 each	1,300
Entomology	
Miscellaneous grants under $10,000 each	17,470
Food Science and Technology	
Bullerman, Lloyd — Ohio State University	15,000
Meagher, Michael — anonymous	94,942
Meagher, Michael — anonymous	36,145
Miscellaneous grants under $10,000 each	93,987
Northeast Research and Extension Center	
Miscellaneous grants under $10,000 each	9,000
Panhandle Research and Extension Center	
Miscellaneous grants under $10,000 each	98,120
Plant Pathology	
Yuen, Gary — USDA through Rutgers University	17,000
Miscellaneous grants under $10,000 each	10,000
School of Natural Resource Sciences	
Walter-Shea, Elizabeth — NASA	64,380
South Central Research and Extension Center	
Stack, James — USDA through Iowa State University	32,283
Miscellaneous grants under $10,000 each	673

Proposals Submitted for Federal Grants

The following is a listing of proposals that were submitted after February 2001 by faculty for federal grant programs. While not all grants will be funded, we appreciate the faculty members' outstanding efforts in submitting proposals to the various agencies.

Donald P. Weeks — NSF — Molecular and Genetic Analyses of the Carbon Concentrating Mechanism of *Chamydomonas reinhardtii* — $35,845

Patrick J. Shea — USEPA/EPSCoR — Nebraska EPA-EPSCoR Strategic Implementation Plan — $17,400

Patrick J. Shea and **Tian C. Zhang** — USEPA/EPSCoR — Kinetic and Mechanistic Framework for Remediation Using Zerovalent Iron — $215,051

Rhonda M. Brand — USEPA/EPSCoR — Mammalian Toxicity Reduction in Remediated Water and Soil — $78,666

Vadim Gladyshev — NIH through University of Illinois — Selenoprotein Analyses — $160,000

Jeffrey D. Cirillo — NIH/NIAID — Entry Mechanisms of *Mycobacterium marinum* — $1,450,000

Clinton Jones, Fernando Osorio and **Alan Doster** — NIH — Inhibition of Programmed Cell Death by HSV-1 LAT Gene — $1,160,000

Clayton L. Kelling, Amelia R. Woolums, Subramaniam Srikumaran, Ruben Donis and **Bruce Brodersen** — USDA/NRI — Apoptosis and Cellular Immunity in BVDV and BRSV Co-Infection — $365,482

Robert J. Spreitzer — USDA/NRI — Rubisco Selection and Correction — $300,000

Michael G. Zeece, John Markwell, Susan L. Hefle and **Dwane Wylie** — USDA/NRI — Role of Structure in Plant Protein Allergenicity — $291,637

Gautam Sarath and **Robert V. Klucas** — NSF — Non Symbiotic Plant Hemoglobins and Plant Development — $467,411

Clinton J. Jones — NIH — Inhibition of Programmed Cell Death by HSV-1 LAT Gene — $1,160,000

Thomas E. Clemente — NSF — Agrobacterium-Mediated Maize Transformation: Development and Transfer of Technology for Functional Genomics — $3,313,704

Thomas E. Clemente — NSF via Iowa State University — Determinants of soybean seed composition — $125,000

John Markwell — NSF — Collaborative research on intact protein expression analysis in arabidopsis — $340,139

Andrea S. Cupp — NIH/NICHD — Role of VEGF in testis development and function — $142,433

Raul Barletta and **Anne Vidaver** — USDOE through Kamterter, Inc — Plant endophytic bacteria — $880,306

P. Stephen Baenziger — USDA/ARS — Developing scab resistant wheat germplasm by conventional breeding and transgenic approaches — $113,000

John Markwell — NSF — Collaborative research on intact protein expression analysis in arabidopsis — $340,139

Dale Lindgren — NSF — Diversification of Penstemon — $86,060

Vadim Gladyshev — NIH — Redox mechanism of cancer prevention by selenium — $145,000

Ruma Banerjee — NIH — H-Tunneling in methylmalonyl-CoA mutase — $109,515

Shashi B. Verma — NIGEC/USDOE — 2001-02 administrative and research budget of the great plains regional center of the national institute global environmental change — $1,232,402

Vadim Gladyshev — NIH — Mammalian thioredoxin reductases — $1,268,750

Qi Steven Hu — NIGEC/USDOE — Exploiting climate variability, uncertainty and vulnerability for the regional ecosystem climate impact program — $187,788

Kulvinder Gill, P. Stephen Baenziger, Thomas E. Clements and **Martin B. Dickman** — NSF — Transposen-based mutagenesis, gene and promoter discovery tools for wheat — $2,714,756

Stephen Ragsdale, Jess Miner and **James Takacs** — NIH — Enzymology of methanogenic cofactor biosynthesis — $2,073,260

Qi Steven Hu — NOAA — Diagnostic and modeling studies of land surface memory and effects on southeastern U.S. monsoon rainfall — $246,256

Charles Francis — USDA/SARE — Evaluation of impacts of SARE research/education, PDP and producer grants — $50,402

Diane says

Honesty is the best policy, especially when you want to borrow your policy.

Veterinary and Biomedical Sciences	
Lou, Marjorie — University of Nebraska Medical Center	43,390
Miscellaneous grants under $10,000 each	36,805
West Central Research and Extension Center	
Miscellaneous grants under $10,000 each	13,837
Grand Total	**$857,792**

New or Revised Projects

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

NEB-21-078 (Plant Pathology) Secretion Properties of the Type III Secretion System of *Pseudomonas syringae*
Investigator: J.R. Alfano
Status: New competitive grant effective Dec. 1, 2000

NEB-40-011 (School of Natural Resource Sciences) Windbreak Shelter Effects
Investigator(s): J.R. Brandle, L. Hodges and S. Josiah
Status: New McIntire-Stennis project effective Nov. 1, 2000

NEB-10-144 (Agricultural Economics) Social Capital: Enhancing Measurement, While Also Contributing to Improved Understanding and Policy
Investigator(s): S.M. Cordes, G.D. Lynne, J.C. Allen and J.F. Royer
Status: New Competitive Grant effective Aug. 1, 2000

NEB-12-194 (Agronomy) Novel Methods for Soybean Genetic Improvement and Genomic Analysis
Investigator: J.E. Specht
Status: New Hatch project effective Dec. 1, 2000

NEB-12-252 (Agronomy) Biosolids Application and Soil Chemical Properties: Changes in Phosphorus and Carbon Pools
Investigator: D.L. McCallister
Status: New Hatch project effective March 1, 2001

NEB-12-279 (Agronomy) The Genetic Basis of Agronomic Traits Controlled by Chromosome 3A in Wheat
Investigator(s): P.S. Baenziger, K. Gill, D. Nettleton and K. Eskridge
Status: New Competitive Grant effective July 31, 2000

NEB-12-280 (Agronomy) Spatial Distribution of Weed Patches: The Influence of Habitat Heterogeneity
Investigator: D.A. Mortensen
Status: New Competitive Grant effective Aug. 15, 2000

NEB-12-281 (Agronomy) Enhancing Crop Diversity by Understanding Genotype by Environment Interactions
Investigator: L.A. Nelson
Status: New Hatch project effective Jan. 1, 2001

NEB-14-110 (Veterinary and Biomedical Sciences) Inhibition of Apoptosis by the Bovine Herpesvirus 1 Latency Related Gene
Investigator(s): C. Jones and A. Doster
Status: New Competitive Grant effective October 1, 2000

NEB-14-111 (Veterinary and Biomedical Sciences) A Novel Strategy to Test and Monitor Beef Feedlot Food-Safety Control Points
Investigator(s): D.R. Smith, L.L. Hungerford, R.A. Moxley and T.J. Klopfenstein
Status: New Competitive Grant effective Nov. 1, 2000

NEB-14-115 (Veterinary and Biomedical Sciences) Porcine Reproductive and Respiratory Syndrome (PRRRS)
Investigator(s): F.A. Osorio and R. Wills
Status: New Hatch project that contributes to NC-229

NEB-15-093 (Biochemistry) The role of Nuclear-Encoded Sigma Factors in Maize Chloroplast Development
Investigator: L.A. Allison
Status: New Competitive Grant effective Aug. 3, 2000

NEB-17-075 (Entomology) Using Trace Elements for Labeling Corn Tissues and Insect Pests for Mark-Recapture Experiments
Investigator(s): B.D. Siegfried, L.J. Meinke, D.C. Gosselin, T.E. Hunt and F.E. Harvey
Status: New State project effective July 1, 2000

NEB-21-064 Fusarium Mycotoxins in Cereal Grains
Investigator: J.B. Dickman
Status: Revised Hatch project that contributes to NC-129

NEB-44-042 (Panhandle Research and Extension Center) Agricultural Enhancement of Potato Production and Utilization
Investigator: A.D. Pavlista
Status: New Hatch project effective March 1, 2001

NEB-48-027 (South Central Research and Extension Center) Microbial Management of Plant Diseases in Sustainable Production Systems: Microbial Diversity Habitat Receptivity, and Pathogen Populations
Investigator: J.P. Stack
Status: New Hatch project effective Nov. 1, 2000

NEB-48-028 (South Central Research and Extension Center) Spatial Distribution and Sampling of Field Crop Insects
Investigator: R.J. Wright
Status: New Hatch project effective Nov. 1, 2000