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## Agricultural Experiment Station News May 1984

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THE AGRICULTURAL EXPERIMENT STATION  
INSTITUTE OF AGRICULTURE  
AND NATURAL RESOURCES  
UNIVERSITY OF NEBRASKA-LINCOLN 68583-0704



# Agricultural Experiment Station News

May 1984

VOL 17 NO 10

## FACULTY PROMOTIONS

The Board of Regents approved promotion recommendations for the following Agricultural Research Division faculty effective July 1, 1984:

### Rank of Professor:

<b>James F. Amend</b>	Veterinary Science
<b>Robert A. Britton</b>	Animal Science
<b>E. Denis Erickson</b>	Veterinary Science
<b>Lenis A. Nelson</b>	PH Station/Agronomy
<b>Merlyn K. Nielsen</b>	Animal Science
<b>Dennis D. Schulte</b>	Agric. Engineering
<b>Shashi B. Verma</b>	CAMaC
<b>Steven S. Waller</b>	Agronomy

### Rank of Associate Professor:

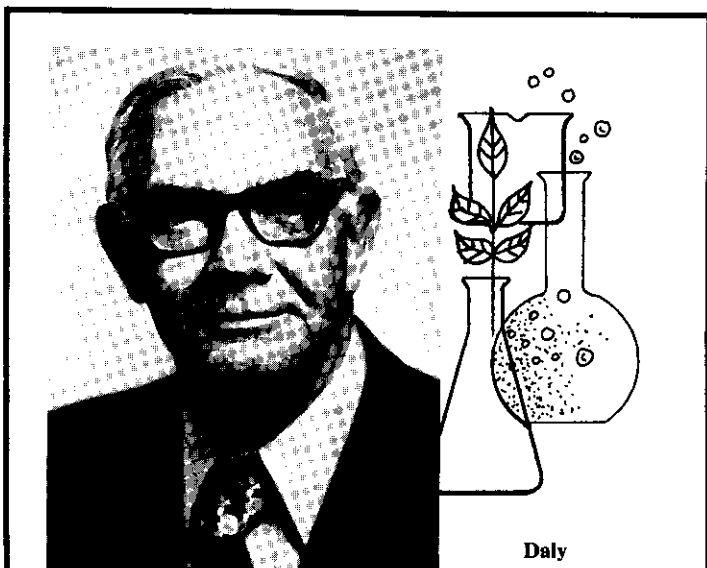
<b>Alan R. Doster</b>	Veterinary Science
<b>J. Ackland Jones</b>	Entomology
<b>George E. Meyer</b>	Agric. Engineering
<b>James E. Partridge</b>	Plant Pathology
<b>Walter W. Stroup</b>	Biomet. & Info. Sys.
<b>Wallace W. Wilhelm</b>	Agronomy (adjunct)

The following faculty were granted continuous appointments by the Board of Regents effective July 1, 1985:

<b>Dennis R. Brink</b>	Animal Science
<b>Michael C. Brumm</b>	NE Station/Ani. Sci.
<b>Elbert C. Dickey</b>	Agric. Engineering
<b>William A. Gustafson, Jr.</b>	SE Ext & Rsch/Hort.
<b>J. Ackland Jones</b>	Entomology
<b>George E. Meyer</b>	Agric. Engineering
<b>Patrick E. Reece</b>	PH Station/Agronomy
<b>David P. Shelton</b>	NE Station/ Agr. Engr.

## IANR FIELD DAYS

High Plains Ag. Lab Wheat Field Day	June 26
IANR AG EXPO, Uni. Field Lab	July 26
Panhandle Station Field Day	Aug. 2
South Central Station Field Day	Aug. 24
High Plains Ag. Lab Fall Field Day	Aug. 28
Northeast Station Field Day	Aug. 21
Gudmundsen Research Center Field Day	Aug. 29



Daly

## NATIONAL ACADEMY OF SCIENCES

**J. M. Daly**, Professor of Biochemistry, has been elected to the National Academy of Sciences. Daly is an internationally recognized authority on the biochemistry and physiology of plant diseases. His research accomplishments include determining the structure of two host-specific plant pathotoxins and elucidating the chemical structure of several more.

Daly received his B.S. degree from the University of Rhode Island and his M.S. and Ph.D. degrees from the University of Minnesota. He taught at the University of Minnesota and Notre Dame before joining the University of Nebraska in 1955.

Considering that only 0.1% of the scientists in the country are elected to the Academy, this is an outstanding honor for both Daly and the University of Nebraska. The University of Nebraska Board of Regents recognized Daly by a special resolution, May 19, honoring his achievement.

There are only two University of Nebraska faculty members who are members of the National Academy of Sciences and one who is a member of the National Academy of Engineering and all three are on the IANR faculty. These include **Mike Daly**, **Myron Brakke** (Professor of Plant Pathology), and **Bill Splinter** (Professor and Head of Agricultural Engineering).

## PROJECT ACCOMPLISHMENTS

13-057

**Title: Improving Utilization of Starch in High Grain Rations for Finishing Cattle**

**Leader: Dennis R. Brink**

This project demonstrated that feeding mixtures of whole and cracked corn improved performance of finishing cattle when compared to performance of either grain fed alone. However, intensive digestion studies indicated that the improvement cannot be sufficiently explained by optimizing rate or extent of starch digestion.

Additional feedlot studies and experiments with individually fed steers revealed that addition of 25-50% whole shelled corn or rolled sorghum grain significantly improved performance of cattle fed ground high moisture corn during the first 28 days the cattle received the grain diet and was related to control of acidosis.

Additional studies conducted in this project verified the response to additional limestone in beef finishing diets. Adding 2% limestone consistently improved feed conversion 2.5% compared to 1% limestone. Since limestone is relatively inexpensive, adding approximately 2% limestone can reduce the cost of finishing cattle.

17-032

**Title: Biology and Integrated Control of Greenbug and Other Arthropods on Grain Sorghum**

**Leader: S. Dean Kindler**

Biotype E greenbugs continue to be the predominate biotype infesting wheat and sorghum. Greenbugs have become an important problem on Kentucky bluegrass in several states, including Nebraska. Preliminary biological data on the host-plant range indicate that some sorghum germplasm resistant to biotypes C and E are susceptible to the Nebraska bluegrass greenbug.

Nineteen grain sorghum lines were identified from greenhouse seedling tests to carry high level of resistance to biotype E greenbug. Subsequent tests indicated that three of the varieties had high levels of adult plant resistance as well. Studies indicate biotype E resistance is heritable and dominant. None of the Sudangrass and forage sorghum lines screened in the seedling stages had practical levels of resistance to biotype E greenbugs.

It is not economically justified to control first-generation European corn borers infesting grain sorghum based on the results of experiments conducted for 3 years (1981-83) in which 209 commercial grain sorghum hybrids were artificially infested with high populations of the larvae of the European corn borer.

## NEW OR REVISED PROJECTS

20-034

**Title: Quality and Nutritive Value of Processed Potatoes**

**Leader: Robert B. O'Keefe, Panhandle Station**

**Objectives:** (1) Identify and quantify those pre- and post-harvest properties of newly harvested and store potatoes which control culinary and nutritional quality for processing and to determine the factors which control these properties. (2) Innovate the necessary processing technology to insure diversified markets for nutritionally improved potatoes and potato products and to improve utilization of potatoes and potato wastes. Revised Hatch project effective October 1, 1983 that contributes to NC-150.

27-004

**Title: Spectral Radiation Techniques to Estimate Productivity and Water Stress in Vegetation**

**Leader: Blaine L. Blad, CAMaC**

**Objectives:** (1) Evaluate the use of emitted and reflected radiation from vegetative canopies to detect biophysical changes in vegetation caused by water stress. Develop relationships to describe the spectral response of vegetation as a function of water stress. (2) Identify spectral wavebands and develop transformation indices that can be used to predict the yields of agronomic and rangeland vegetation, to identify types of vegetation in the field and to assess the stage of phenological development. New Hatch project effective April 18, 1984.

### AGRICULTURAL RESEARCH ADVISORY COUNCIL

The 1984-85 Advisory Council will have four new members as a result of the recent mail balloting.

#### *New Members:*

<b>Burt Maxcy</b>	District 1 (Agr. Econ., Food Sci & Tech)
<b>John Norman</b>	District 3 (Agronomy)
<b>James Amend</b>	District 6 (Biometrics, FF & W, Vet Sci)
<b>Leslie Lane</b>	District 7 (Agr. Biochem., Plant Path)

#### *Continuing Members:*

<b>Jim Gilley</b>	District 2 (Agr. Engr., NE Station, SE Ext. & Res. Center)
<b>Blaine Blad</b>	District 4 (CAMaC, Entomology, Environ. Prog. and Horticulture)
<b>Austin Lewis</b>	District 5 (Ani. Sci.)
<b>Pat Knaub</b>	District 8 (Agr. Com., Agr. Educ., Ed F & R, Human Devel. & Fam., T C & D)
<b>Bob Wilson</b>	District 9 (NP Station, PH Station)

A joint meeting of the 1983-84 Council and newly elected members will be held on **June 26, 1984**.

Faculty are urged to contact their Council representatives if they have concerns or issues they wish for the Council to discuss.

## WIDAMAN TRUST AWARDS

Sixteen IANR graduate students have been selected to receive the 1984-85 Widaman Trust Outstanding Graduate Student Awards. The annual stipends for their research assistantships will be increased by \$1,000 effective July 1, 1984.

### **Brian D. Adam**

Field of Study: Agricultural Economics  
Adviser: D. G. Anderson

### **Mrinal Bhattacharya**

Field of Study: Food Engineering  
Adviser: M. A. Hanna

### **William C. Bridges, Jr.**

Field of Study: Quantitative Genetics  
Adviser: C. O. Gardner

### **Raymond A. J. Budde**

Field of Study: Plant Biochemistry  
Adviser: R. Chollet

### **Ralph M. Cleale IV**

Field of Study: Ruminant Nutrition  
Adviser: T. J. Klopfenstein

### **Michael L. Day**

Field of Study: Reprod. Phy. & Endroc.  
Adviser: J. E. Kinder

### **Kurt A. Frantzen**

Field of Study: Biochemistry  
Adviser: J. M. Daly

### **David R. Frederickson**

Field of Study: Weed Science  
Adviser: P. J. Shea

### **Roger Nixon Gates**

Field of Study: Forage Quality  
Adviser: S. S. Waller

### **Joe D. Hancock**

Field of Study: Nonruminant Nutrition  
Adviser: E. R. Peo, Jr.

### **Larry W. Hand**

Field of Study: Meat Science  
Adviser: R. W. Mandigo

### **Bobbi A. (Mehlin) Holm**

Field of Study: Wildlife Science  
Adviser: R. J. Johnson

### **Georgianne L. Huckfeldt**

Field of Study: Textile Science  
Adviser: J. M. Laughlin

### **David M. Kopec**

Field of Study: Plant Breed. & Turfgrass Phys.  
Advisers: R. C. Shearman and T. P. Riordan

### **Rebecca R. Krueger**

Field of Study: Food Science & Technology  
Adviser: C. E. Walker

### **Paul J. Whalen**

Field of Study: Fermentation  
Adviser: K. M. Shahani

**Blaine Blad** (CAMaC), **Austin Lewis** (Animal Science) and **Jim Steadman** (Plant Path) were appointed by the Chairman of the Agricultural

Research Division Advisory Council to serve as the selection committee. A special congratulation is extended to each of the recipients on receiving this distinguished award.

## DEADLINES WORTH NOTING

*Grants for Foreign Travel*—The **American Council on Learned Societies** (ACLS) awards travel grants to persons who are to read papers or take some major official part in international conferences held outside North America. An inquiry to the Travel Grant Office of ACLS identifying the name, dates, place and sponsorship of the meeting with a brief description of applicant's scholarly interests and proposed role in the meeting is necessary to apply. Membership in ACLS is not required. For meetings between November and February apply by July 1 to ACLS, 226 East 45th Street, New York, NY 10012.

*Study Abroad Programs*—Application deadlines for the 1985-86 **Fulbright Scholar Awards** are as follows: June 15, 1984 for Australia, India and Latin America and the Caribbean; September 15, 1984 for Africa, Asia, Europe and the Middle East. Details available from **Institute for International Studies**, 1033 OldH, City Campus 0320, 472-3076.

*NSF Grants for Multiuser Research Equipment*—To encourage cooperative use of equipment among groups of investigators and to improve the overall quality of research in the environmental, behavioral, neural, social and economic sciences, the **National Science Foundation** awards grants for multiuser research equipment. Investigators may be within the same department or from different departments, schools, institutions, or regions working in related areas or conducting multidisciplinary research. Competition is limited to single pieces of equipment or multiple-component systems generally costing more than \$15,000. The Division of Social and Economic Sciences will consider \$10,000 requests for microprocessors. Research Services, 414 Adm, City Campus 0430, 472-3171 has the details.

*National Science Foundation Target Dates*—Deadline dates for National Science Foundation proposals are:

June 1, 1984 Metabolic Biology.

June 15, 1984 Ecology; Population Biology; Physiological Ecology.

July 1, 1984 Social & Developmental Psychology; Earth Sciences Research Equipment; Earth Sciences.

July 2, 1984 Biochemistry; Biophysics; Cellular Physiology; Cell Biology; Developmental Biology; Genetic Biology; Regulatory Biology.

Specific details are available through the Office of Research and Sponsored Programs Services, 414 Adm, City Campus 0430, 472-3171.

## PATENT RIGHTS FROM UNIVERSITY RESEARCH

UNL patent procedures, as specified by Board of Regents Bylaws, require that discoveries or inventions by University personnel which result from the performance of duties owed to the University or from the use of University properties and facilities must be offered to the Board of Regents in writing before making a patent application. This is done by submitting the necessary information on standard forms for Offer of Invention and for invention disclosure. This offer should be forwarded through the appropriate administrative offices, normally the office of the Department Head and the office of the appropriate Dean.

Within IANR, Dale Vanderholm, Associate Dean and Associate Director, Ag. Research Division, acts as the IANR patent officer so the offer should be submitted through him for forwarding to the University patent administrator. If the Board of Regents accepts the offer of invention, work will begin on evaluating and exploiting the invention and the inventor will be notified of the acceptance. If the Board rejects the offer, all rights go to the originator. In that case, the University will not pay for any part of the cost of licensing or obtaining patent protection.

Experience has shown that very few of these inventions result in actual patents which are licensed and produce royalty income to the University and to the inventors. In the rare situation in which this occurs, however, University patent procedures specify the distribution of royalties. From the net royalty paid to the University by a licensee, direct expenses of obtaining patent protection in licensing are first deducted, then remaining royalty is divided, with one third going to the inventor(s), one third to the appropriate administrative unit, and one third to the office of the patent administrator to support its activity, including the cost of patents which are not licensed.

The actual obtaining and licensing of patents is a complex process requiring many steps and decisions. Even with minimal potential for income to the university and inventors, there is still often justification for patent protection in order to encourage the development and marketing of university research by the private sector. For this reason, as a public service institution, it is in the interest of the university to assure the utilization of inventions for the public good and patenting is important to accomplish this.

— Dale Vanderholm

## REMINDER---

If you are an investigator with a project funded by one of the commodity boards, remember that year-end progress reports to the appropriate Board

will be due shortly. Reports should be submitted to the **Agricultural Research Division** office by **July 15** so they can be forwarded as a group. These reports are required by the State auditors and are important to our keeping Board members informed. Recent discussions with Boards have made it clear that members read these reports with interest. Keep in mind, if the Board does not know how your project is coming along, future funding could be affected.

— Dale Vanderholm

## FACULTY EXCHANGE PROGRAMS

As part of its emphasis on international education, the University of Nebraska-Lincoln is promoting faculty exchange programs with foreign universities in the People's Republic of China and the Federal Republic of Germany. Contact the **UNL Institute for International Studies** (1034 OldH, City Campus 0320, 472-3076) for guidelines and application materials.

## RESEARCH GRANTS AND CONTRACTS

RECEIVED  
APRIL 1984

<i>Agricultural Research Division</i>	
Miscellaneous Grants Under \$5,000 each	5,000
<i>Agronomy</i>	
<b>Burnside, O. C.</b> - E.I. duPont deNemours & Company	6,000
Miscellaneous Grants Under \$5,000 each	11,100
<i>Animal Science</i>	
<b>Mandigo, R. W.</b> - Nebraska Beef Industry Development Board	11,250
<b>Peo, E. R.</b> - Fats and Protein Research Foundation	12,000
Miscellaneous Grants Under \$5,000 each	1,000
<i>Center for Agricultural Meteorology and Climatology</i>	
<b>Rosenberg, N. J. &amp; Hubbard, K. G.</b> - U.S. Dept. of Comm/NOAA	14,999
<i>Environmental Programs</i>	
Miscellaneous Grants Under \$5,000 each	3,300
<i>Food Science and Technology</i>	
<b>Bullerman, L. B.</b> - Monsanto Sorbate Research Fund	33,000
<b>Walker, C. E.</b> - Nebraska Department of Economic Development	13,900
<i>Horticulture</i>	
Miscellaneous Grants Under \$5,000 each	2,750
<i>Northeast Station</i>	
Miscellaneous Grants Under \$5,000 each	7,060
<i>North Platte Station</i>	
<b>Campbell, J. B.</b> - USDA/Agricultural Research Service	22,000
<b>Clanton, D. C.</b> - International Minerals & Chemical Corporation	7,500
Miscellaneous Grants Under \$5,000 each	7,500
<i>Panhandle Station</i>	
Miscellaneous Grants Under \$5,000 each	13,650
<i>Plant Pathology</i>	
Miscellaneous Grants Under \$5,000 each	3,250
<i>South Central Station</i>	
Miscellaneous Grants Under \$5,000 each	1,700
<i>Southeast Extension &amp; Research Center</i>	
Miscellaneous Grants Under \$5,000 each	3,500
Total	\$180,459