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Agricultural Experiment Station News March 1989

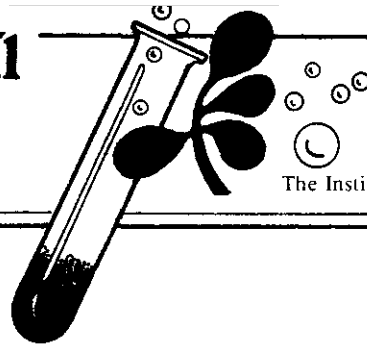
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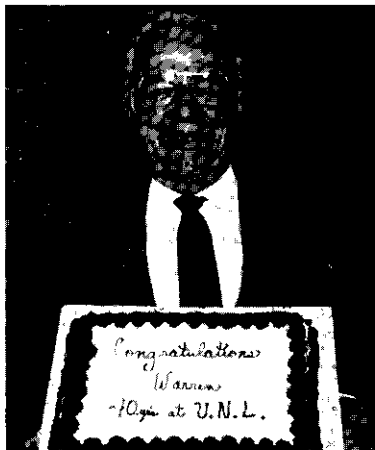


March 1989

Volume 22, Number 3

SAHS HONORED FOR SERVICE

Assistant Director Warren Sahs was recently honored for 40 years of service at UNL at a luncheon given by Chancellor Massengale. He was also honored at an informal ARD office reception and is shown here before cutting his cake. Congratulations, Dr. Sahs!



NEW MINORITY GRADUATE STUDENT RECRUITING PLAN

Vice Chancellor Yost recently announced a new Minority Graduate Student Recruiting Plan designed to increase the number of minority students pursuing graduate degrees at UNL by 50% over a three-year period. He has established seven new doctoral fellowships having \$10,000 stipends and four new masters fellowships with \$7,500 stipends. Minority students will also receive first priority in the award of four Chancellor's Fellowships that have \$8,000 stipends. A Minority Graduate Student Recruitment Fund has also been established to bring prospective minority students to campus for a recruitment visit. Vice Chancellor Yost will also provide cost sharing or matching funds for grant proposals to assist in our efforts to increase the number of fellowships for minority students. Departments are encouraged to identify qualified minority students and compete for the existing fellowships. Consider using the Minority Recruitment Fund to bring potential graduate students to campus.

NEW ARD FACULTY

Dennis Conley joined the Department of Agricultural Economics as an Associate Professor on November 1, 1988, with a joint teaching/research appointment specializing in the area of agribusiness management. Dr. Conley received his B.S., M.S. and Ph.D. degrees in Economics from Iowa State University.

Previous positions have been with the Department of Agricultural Economics at the University of Illinois-Urbana, and most recently, Farmland Industries in Kansas City, Missouri. Areas of research concentration include: academia-agribusiness management, agricultural input markets, grain marketing; industry — corporate strategic issues, marketing and management information systems, financial and operating simulations, price risk management. Conley has traveled extensively and was a marketing economist in the Ministry of Agriculture for the Royal Thai Government.



Dennis M. Conley

102ND ANNUAL REPORT PUBLISHED

Copies of the 102nd Annual Report of the Agricultural Research Division have been published and disseminated to state officials, members of the Nebraska congressional delegation, University of Nebraska administrators, IANR units, commodity boards, and Agriculture Builders. The Report documents research accomplishments of faculty members with ARD appointments during the period of July 1, 1987 to June 30, 1988. A new feature of this Report is a listing of variety/germplasm releases and patents. Please contact your unit administrator to review the Report. The Agricultural Research Division has limited copies of the Report available for those faculty who need a copy.





PROPOSED NATIONAL INITIATIVE FOR AGRICULTURAL RESEARCH

The National Association of State Universities and Land-Grant Colleges and the Board on Agriculture of the National Research Council have proposed a new program for funding agricultural research. The National Initiative for Agricultural Research emphasizes the opportunities to increase ongoing agricultural research by focusing on the sciences basic to agriculture. Elements of the proposed program include:

- Funding would be \$500 million per year.
- The grants would be awarded on a competitive basis, with quality of science and research relevance as the primary determinants.
- Competition would be open to all elements of higher education as well as to federal and non-profit laboratories.
- The Initiative would not necessarily be funded through USDA; new funding would be established to overcome old problems and images. Current federal formula funding would not be changed, but competitive and special grants may be combined into the new Initiative.
- The thrust of new research would be directed more towards the enhancement of product quality, safety, utility, and value and less toward increased food and fiber production.

The new Initiative responds to the major transition under way in agricultural science. Agricultural research priorities are shifting from simply increasing production to other areas such as enhanced competitiveness, food safety, improved nutritional quality, new uses for agricultural commodities, and environmental stewardship. A biological revolution is also sweeping across many areas of agriculture and the pace of scientific breakthroughs is rapidly increasing. Additional funding is necessary for agricultural research to meet these changing needs and exploit emerging new opportunities.

LISA DEADLINE

LISA deadline is March 15, 1989. The Agricultural Research Division needs to receive your proposal for the Low-Input/Sustainable Agriculture (LISA) federal grants program by March 15, 1989. Indirect costs can't be provided by this special grant but indirect costs can be used as your matching portion of the grant. If you have questions regarding the LISA program, please visit with Dr. Jim DeShazer at 2-2045.

FACULTY RESEARCH INTEREST PROFILE

The Office of Sponsored Programs maintains a computer-based keyword index of faculty research interests. Each faculty wishing to obtain specific information and grant opportunities should prepare a research interest profile. The Ag Research Division has a Keyword Thesaurus book to assist faculty in completing the profile. We will send the completed form to the Office of Sponsored Programs. Faculty will then receive information on federal grants available from the Department of Energy, the National Institutes of Health, and the National Science Foundation.

If you are interested in knowing when requests for proposals have been issued for your research area, please contact Diane Mohrhoff at 472-2045 for further information.

ANNA H. ELLIOTT FUND GRANTS

The Anna H. Elliott Fund was established in 1975 in the University of Nebraska Foundation with earnings to be used to support research in agriculture, particularly in the field of Plant Science with preference to Plant Sciences in Western Nebraska. Depending upon the interest income, the Agricultural Research Division requests proposals every two or three years. A recent call for proposals resulted in 25 proposals being submitted and a selection committee reviewed and selected the following proposals for funding:

Title	Investigators	Award	No. of Years
Development of a pest management program for Russian Wheat Aphid <i>Diuraphis noxia</i> (Mordw.) in Western Nebraska	Gary Hein Jim Robb	\$16,180	Two
Surge irrigation and furrow packing for improving surface irrigation efficiency and reducing groundwater contamination	Dean Yonts Dean Eisenhauer	\$10,000	Two
Development of cover crop systems to reduce soil erosion and enhance stand establishment in sugarbeets	Robert Wilson John Smith Eric Kerr	\$17,200	Two
An ecological study of Western Ragweed in a rangeland environment	Patrick Reece James Nichols	\$25,150	Two
Investigation of planter-related factors to improve sugarbeet emergence in western Nebraska	John Smith	\$17,500	Two
Root-shoot dynamics of Prairie Sandreed (<i>Calamovilfa longifolia</i>) and Sand Blue-stem (<i>Andropogon hallii</i>)	James Nichols Russell Engel Patrick Reece	\$12,497	Two
Water use, soil water extraction, nitrogen use and crop variety interactions with crop rotations and water management in west central Nebraska	Norman Klocke Gary Hergert Paul Nordquist	\$20,000	Two
Effect of tillage method and herbicide treatment on Wild Proso millet control of corn	Robert Wilson	\$7,650	Two



STATEMENT OF ACCOMPLISHMENTS

Project NEB-17-037, Population Ecology and Management of Western Bean and Spider Mites on Corn in Western Nebraska. Principal Investigator: Tom Holtzer.

A major component of western bean cutworm management on corn involves scouting individual fields for the egg stage of the pest. This is done so that the potential of the pest to cause damage can be assessed. Research on the biology and ecology of the pest revealed that eggs were most numerous in corn that was in a growth stage just before tasseling at the time of peak moth flight activity. Also, pheromone traps were shown to be as effective as light traps for determining moth activity. Information on the timing of moth activity and on the locations where eggs are most likely to reach damage causing levels allows scouts to concentrate their efforts on the situations presenting the highest risk.

Spider mite outbreaks are known to be associated with hot, dry weather. However, the reasons for this association are not entirely clear. Collaborative research was conducted on the interacting effects of plant water stress, plant physiology, and microenvironment. Methods included a combination of laboratory, greenhouse and field experiments, together with computer simulations. This work showed that the increase in leaf temperatures associated with water stressed plants can play an important, direct role in initiating outbreaks. In addition, microenvironmental conditions in water stressed canopies may limit the increase of predatory mites. This, in turn, can accentuate the rapid growth of the spider mite populations. Research is continuing to adapt and extend these findings so that weather information from the Nebraska Automated Weather Network can be used to alert farmers to high risk situations for spider mites.

Project NEB-20-023; Windbreak Shelter Effects. Principal Investigator: J.R. Brandle.

The shelterbelt project was initiated in 1964 by Professor Walt Bagley. In 1966, six 40-acre windbreak systems were established. Today, these windbreak systems provide outstanding research facilities for the investigation of the effects of shelter on crop produc-

tion. Research on the benefits of wind protection on corn, wheat, and soybean production has indicated positive yield benefits which can be attributed to the windbreak.

Economic analysis of the data indicates that an investment in a windbreak will be profitable over a wide range of situations. Positive net present values (the value of the investment after 50 years) are generated with average yield increases of as little as 5% in wheat, 4.5% in corn, and 5.5% in soybeans. Windbreaks continue to be profitable at higher interest rates (17%) and lower grain prices. In most situations, a positive cash flow begins by year 6 and the windbreak investment is paid for by year 15. Other benefits of windbreaks such as wind erosion control and wildlife habitat add to the economic value of the windbreak.

INDIRECT COSTS-BLESSING OR CURSE?

While a common item of concern in grant-funded research, indirect costs are nevertheless a fact of life for all major research institutions. From time to time, enough questions are raised about indirect costs that it is periodically helpful to review their purpose and use.

In any research project, no matter who the sponsor is, the institution must cover two components of costs—those directly attributable to the specific project and those incurred toward the general support and management of research. These general support and management costs include library costs, utility costs, the cost of operating and maintaining the Physical Plant, and costs of the general administrative organization of the institution.

Indirect costs rates are periodically established by negotiation with a designated federal agency on the basis of costs incurred by the institution for the year preceding the negotiation. The institution's rate proposal for indirect costs is carefully evaluated by federal auditors before negotiation of indirect cost rates. Indirect cost rates vary greatly between institutions. The 38% rate currently in effect for IANR projects at the University of Nebraska is among the lower rates for land-grant universities with rates of 60 to 70% being common and exceeding 100% for some institutions and private research organizations.

UNL policy provides for distribution of the indirect costs recovery (ICR) according to an established formula with a percentage being returned to the departments proportional to the amount of indirect costs generated from the grants in that department. These funds are distributed among departmental uses according to departmental policy.

The current policy also allows IANR a special exemption in which indirect costs are waived for grants of \$5,000 or less which are related to and supportive of established research programs. For grants in the \$5,000 to \$10,000 range, a straight line increasing rate is used

which would recover no indirect costs at the \$5,000 grant level, but result in full indirect cost recovery at the \$10,000 level. This provides the researcher incentive for obtaining grants in this range. There are no similar exemptions allowed for other UNL campus components. It should be noted that if sponsors of externally funded projects do not fully reimburse the University for its indirect costs, these costs must be paid from other institutional funds initially budgeted for other activities such as instruction, departmental research, and support services.

Occasionally, it is evident that there are informal arrangements to break grants up into small amounts so as to avoid indirect costs. While this has not reached problem proportions in the past, there are recent indications that this could become a problem. The practice of subdividing grants is strongly discouraged and the Agricultural Research Division will be taking a much firmer policy in identifying these situations and insisting upon conformation to current university policy. We feel that it is necessary to treat our external sponsors equitably and that using them to help circumvent the rules is not in the best interests of the University nor the individual research programs.

Other than the exemption specified above and for those standard exemptions for publicly-funded programs for which indirect costs are not allowed, indirect costs will be required on all grants. According to UNL policy, ICR waivers for special circumstances can only be granted by the Chancellor or by the Research Office as authorized specifically by the Chancellor.

Future newsletters will carry additional information on how indirect costs are distributed among the various components of the University. We hope that this information will enhance the cooperation of all researchers in order to maintain a consistent approach to the handling of indirect costs.

INTERNATIONAL TRAVEL FOR ARD FACULTY

The International Agricultural Programs Division makes available indirect cost funds on a periodic basis to the Agricultural Research Division to be used to support international travel for ARD faculty. In the most recent cycle of funding, the following faculty were selected by the selection committee to receive travel awards during 1989.

Name	Destination	Amount of Award
Dr. Alex Hogg	Poland	\$ 700.00
Dr. Charles Gardner	New Zealand	1000.00
Dr. Elbert Dickey	Ireland, England	500.00
Dr. Dave Shelton	Ireland, England	500.00
Dr. Pat Crews	China	1000.00

Diane says

"An expert is a little drip under pressure."



ASSESSMENT OF NEEDS FOR LABORATORY ANIMAL FACILITIES

The care of animals is an important aspect of ARD research protocol. If you are doing research with laboratory animals on the Lincoln campus, you should have received a letter and survey form from Dr. John Yost. The survey is designed to assess your needs for laboratory animal facilities and associated equipment.

The data received from this survey will be compiled and discussed with the faculty at two forums on campus. These forums will be held the afternoon of April 12 on the East Campus and April 13 in Manter Hall. The survey information and these discussions will assist in evaluating the UNL laboratory animal facilities to meet our needs for the next 5 to 10 years. If we are to remain competitive for research grants, we must maintain a standard of animal care that meets the NIH and our assurance document standards.

If you anticipate using animals in your research, teaching or extension program, please take a few minutes, complete this survey form and return to 107 VBS, 0944. In order for your comments to receive appropriate consideration, please submit by March 10. If you did not receive a form, contact your Department Head, or call 2-6965 and a form will be sent to you.

PROGRAM SIZE AND FY87 RESEARCH EXPENDITURES OF SELECTED AGRICULTURAL EXPERIMENT STATIONS

	Agricultural Experiment Station					
	NE	KS	IA	IL	IN	WI
Number of projects	305	362	339	354	368	607
Scientist-years	135	204	116	160	150	171
Federal formula funds*	2,925	3,052	4,765	4,618	4,231	4,519
Other CSRS*	423	1,123	793	405	885	2,450
State appropriations*	12,782	15,313	12,488	12,395	16,180	20,292
Federal grants and contracts*	3,977	5,269	2,793	3,240	6,281	14,421
Industry grants*	1,813	1,493	5,335	3,507	3,460	6,227
Other non-federal*	1,085	1,023	1,668	1,376	2,316	407

*Dollars expended in thousands.



NEW AND REVISED PROJECTS

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

10-106 Private Strategies, Public Policies, and Food System Performance

Investigator(s): A. M. Azzam, Ag Economics
Status: New Regional Hatch project effective October 1, 1987.

11-067 Integrated Irrigation Water and Nitrogen Management to Sustain Ground Water Quality and Quantity

Investigator(s): D. L. Martin and D. G. Watts, Ag Engineering
Status: Revised Regional Hatch project effective October 1, 1987.

13-093 Regulation of Synthesis of LH and FSH by Estradiol in Bovine Females

Investigator(s): J. E. Kinder and H. E. Grotjan, Jr., Animal Science
Status: New Competitive Grant effective September 1, 1988.

13-094 Nutritional Impact on Gastrointestinal Morphology and Physiology

Investigator(s): E. T. Clemens, Animal Science
Status: New Animal Health project effective October 14, 1988.

13-095 Regulation of Porcine Leydig Cell Function

Investigator(s): R. J. Kittok, J. E. Kinder and H. E. Grotjan, Jr., Animal Science
Status: New Hatch project effective November 1, 1988.

14-051 Induction of Cellular Immunity to BHV-1 by Anti-clonotypes

Investigator(s): S. Srikumaran, T. J. Zamb and D. L. Rock, Veterinary Science
Status: New Special Grant effective September 1, 1988.

91-025 Health Maintenance Aspects of Dietary Recommendations Designed to Modify Lipid Metabolism

Investigator(s): C. V. Kies, Human Nutrition & Food Service Management
Status: Revised Regional Hatch project effective October, 1, 1987.

92-015 Understanding Problems and Possibilities of Independent Living for the Rural Elderly

Investigator(s): E. R. Combs, Consumer Science & Education
Status: New Hatch project effective December 5, 1988.

RESEARCH GRANTS ANDS CONTRACTS RECEIVED

NOVEMBER & DECEMBER 1988 & JANUARY 1989

AGRICULTURAL ENGINEERING	
Miscellaneous Grants Under \$5,000 each	\$1,528
AGRONOMY	
Eastin, J. D. - USDA/OICD	43,910
Miscellaneous Grants Under \$5,000 each	\$33,250
ANIMAL SCIENCE	
Miscellaneous Grants Under \$5,000 each	19,491
ENTOMOLOGY	
Miscellaneous Grants Under \$5,000 each	5,500
ENVIRONMENTAL PROGRAMS	
Gold, R. E. - Burlington Northern via UN Foundation	200,000
Miscellaneous Grants Under \$5,000 each	3,169
FOOD PROCESSING CENTER	
Froning, G. W. - Nutrasweet Company	21,321
FOOD SCIENCE & TECHNOLOGY	
Shahani, K. M. - Dairy Bureau of Canada	22,000
Zeece, M. G. - National Live Stock & Meat Board	20,000
Miscellaneous Grants Under \$5,000 each	7,000
HORTICULTURE	
Miscellaneous Grants Under \$5,000 each	23,834
NORTHEAST RESEARCH & EXTENSION CENTER	
Miscellaneous Grants Under \$5,000 each	18,595
PANHANDLE RESEARCH & EXTENSION CENTER	
Rush, I. G. - Nebraska Beef Board	20,000
Miscellaneous Grants Under \$5,000 each	8,993
PLANT PATHOLOGY	
Partridge, J. E. - Egyptian Cultural & Ed. Bureau	5,750
Steadman, J. R. - Cornell University	7,301
Miscellaneous Grants Under \$5,000 each	600
SOUTH CENTRAL RESEARCH & EXTENSION CENTER	
Miscellaneous Grants Under \$5,000 each	15,980
VETERINARY SCIENCE	
Rhodes, M. B. - Codon	34,219
Miscellaneous Grants Under \$5,000 each	45,058
WEST CENTRAL RESEARCH & EXTENSION CENTER	
Clanton, D. C. - Nebraska Beef Industry Development Board	20,000
Miscellaneous Grants Under \$5,000 each	13,170
TOTAL	\$590,669

FEDERAL APPROPRIATIONS FOR RESEARCH

Agency	FY88 ^a	% of Total	FY89 ^a	% of Total
<i>NIH</i>	6,199	31.9	6,543	29.0
<i>Special AIDS</i>	956	4.9	1,289	5.7
<i>NSF</i>	1,717	8.8	1,885	8.4
<i>USDA-CSRS</i>	352	1.8	341	1.5
<i>USDA-ARS</i>	561	2.9	564	2.5
<i>DOD basic research^b</i>	984	5.1	1,097	4.9
<i>Special SDI</i>	3,901	20.1	3,948	17.5
<i>DOE</i>	792	4.1	1,471	6.5
<i>Special-Supercollider</i>	25	0.1	99	0.4
<i>EPA</i>	186	1.0	203	0.9
<i>NASA</i>	3,280	16.9	4,242	18.8
<i>Special-Space Station</i>	490	2.5	887	3.9
TOTAL	19,443		22,569	

^aAppropriations in millions of dollars

^bDoes not include a very large appropriation for development of military equipment and systems.

ARD TRAVEL REIMBURSEMENT PROGRAM FOR PROSPECTIVE GRADUATE STUDENTS

At the recommendation of the ARD Advisory Council, a special account was established in 1987 by the Agricultural Research Division to assist in attracting high quality graduate students into our research programs. This account is used to provide administrative units with a source of funds to partially reimburse travel expenses for prospective graduate students who wish to visit the department/district center before making a decision about which university to attend.

Each ARD administrative unit is eligible to receive funding to reimburse up to two (2) students per calendar year from this account. Only individuals who have been offered graduate research assistantships will be eligible for reimbursement. Departments/district centers will be permitted to use their own resources to reimburse prospective graduate students beyond the two per year supported from the special ARD account if they so desire.

Prospective graduate students who have been offered an assistantship may receive up to fifty percent of their expenses or \$200.00, whichever is less. Reimbursable expenses include transportation, lodging, and meals. Additional guidelines for this program should be available in departmental offices or can be obtained from the ARD office.

There has been little use of this reimbursement program in recent months and this is intended as a reminder for those who may have forgotten about its existence. If there are additional questions, contact the ARD office.