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## Agricultural Experiment Station News October 1989

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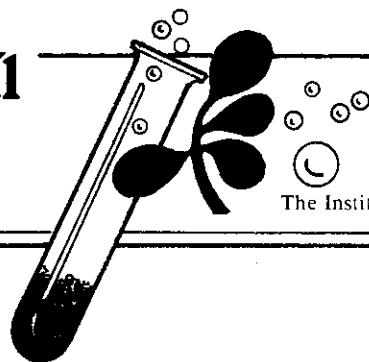
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October 1989

Volume 23, Number 1

## UNL RESEARCH COUNCIL Things You Maybe Wanted to Know, But Were Afraid to Ask

Recent questions about the UNL Research Council have indicated that some information concerning the configuration and activity of this group might be of interest to ARD Faculty. The following quote from the By-laws of the University of Nebraska- Lincoln describe the Council:

*Research Council.* The major functions and responsibilities of the Research Council shall be to encourage research throughout UN-L, to seek funds for support of research, and to administer creatively any funds allocated to it for research. The Council shall present on an annual basis to the Chancellor a statement concerning the needs for research at UN-L. The Council shall act as a central agency in integrating information on research projects. It may recommend to the Chancellor and the Board of Regents that the faculty members be relieved of teaching obligations to pursue approved research projects. The Council shall also be responsible for the selection of lectures sponsored by the Montgomery Lecture Series or by funds provided to support similar programs.

*Membership.* The Research Council shall consist of eight faculty members—two from each of the following fields: biological sciences, physical sciences, social sciences, and humanities. Members shall be appointed by the President of the Faculty Senate to three-year staggered terms from a list of nominees, at least two for each position, prepared by the Committee on Committees. The Committee on Committees shall consult with the UN-L Dean for Graduate Studies and Research in preparing its list of nominees. The Research Council shall elect one of the faculty members as chairman. The UN-L Dean for Graduate Studies and Research, or the Dean's designee, shall serve as non-voting executive secretary."

Members of the Research Council serving for the past year from July 1, 1988 - June 30, 1989 were as follows:

Henry Baumgarten, Chemistry  
Ester Cope, History  
Robert Haller, English  
Robert Hillestad, Textiles, Clothing & Design  
Khem Shahani, Food Science and Technology  
James Specht, Agronomy  
Hugh Whitt, Sociology

## CORPS OF ENGINEERS MOVES TO ARDC

The Corps of Engineers has moved in personnel and equipment at the ARDC, Mead. Summer and Fall programmed activities are:

1. Determine the extent of soil contaminants caused by past military activity and begin to design methods of removal and disposition.
2. Perform soil gas surveys to determine if TCE vapors are present in the soil and/or air.
3. Continue the sampling of working livestock and irrigation wells in order to monitor the quality of the ground water. This project includes private property east of the ARDC.
4. Investigate presence of underground tanks in the former military area. Corp of Engineers crews at the ARDC, Mead, pulled water samples on September 7 from nine (9) remaining untested wells at the Center. Soils in certain locations are also being tested.

## EPA/USDA TOURS ARDC SEPTEMBER 22

A busload of EPA and USDA agency officials toured ARDC and two other sites in the community on September 22. Primary interests were ground water quality and low input sustainable agriculture projects. Scientists from four IANR departments discussed current research projects.

## LISA UPDATE

A total of 127 Low Input/Sustainable Agriculture (LISA) proposals were received and evaluated from the North Central Region. Twelve proposals came from Nebraska as the lead state. Seventeen projects were funded with Nebraska cooperating in four projects. These four funded projects are **Low-Input Beef Cattle Systems of Production** with UNL participants being **Terry Klopfenstein** as project coordinator with **Jim Gosey, Rick Rasby, Bruce Anderson, Rick Stock and George Pfeiffer**; **Beginning Former Sustainable Agriculture Project** with **Ron Kurpicka** of the Center for Rural Affairs being project coordinator with UNL participants being **Mike Adelaine and Chris Carlson**, and **The Middle Border On-Farm Research Consortium** with **Audrey Arner** of Land Stewardship Project (MI) being project coordinator with **Chuck Francis** being the UNL participant;



Substituting Legumes for Follow in U.S. Great Plains Wheat Production with John Gardner of North Dakota State University as Coordinator and **Robert Klein** as UNL participant. Congratulations to the UNL participants.

The 1990 LISA program will be around the same level of funding (\$915,000). A call for proposals will be distributed sometime in late October or early November. Please contact the ARD if you are interested in being placed on the mailing list for the **Call for Proposals**, or if you wish additional material describing the program. Last year's proposals writers are automatically on this year's mailing list.

## NEW FACULTY JOIN ARD

### Gary Y. Yuen

**Gary Y. Yuen** joined the Department of Plant Pathology at the University of Nebraska as an assistant professor, where his research will concentrate on soilborne fungal pathogens and biological control. He obtained his Ph.D. in plant pathology at the University of California, Berkeley, in 1984 under the director of Milton N. Schroth. Dr. Yuen subsequently held postdoctoral positions at the University of Hawaii, where he worked with Anne M. Alvarez on *Xanthomonas campestris* pv. *campestris* and at the University of California, Berkeley, where he investigated the root ecology of strawberry.

### Scott Nissen

**Scott Nissen** joined the Department of Agronomy at the University of Nebraska as an assistant professor in May 1989. His research responsibilities will involve studies on herbicide absorption, translocation, metabolism, and mechanisms of action in plants. Emphasis will be placed on perennial weeds such as leafy spurge. His teaching responsibilities will include graduate-level courses in Herbicide Mode of Action and Advanced Weed Science. He received his B.S. degree from the University of Montana, Missoula, Montana in Botany in 1975; his M.S. degree in Agronomy from the University of Nevada-Reno in 1978; and his Ph.D. degree in Crop Science/Biochemistry from Montana State University, Bozeman, Montana. His Ph.D. research involved studies investigating the physiology of root bud dormancy in leafy spurge.

### David S. Jackson

**David S. Jackson** joined the Food Science and Technology Department as an assistant professor and is developing a research and extension program in the area of cereal/oilseed science and technology. He is a native of upstate New York, and received his B.S. degree in Food Science from the

New York State College of Agriculture and Life Sciences at Cornell University. He subsequently moved to Texas, and received his M.S. degree in Food Science and Technology (with an emphasis in Cereal Technology) from Texas A&M University. He also received his Ph.D. in Food Science and Technology from Texas A&M with an emphasis in Cereal Chemistry. Dr. Jackson has worked in the area of grain quality, corn food processing, and starch chemistry.

### David Baltensperger

**David Baltensperger** has joined the staff of the University of Nebraska Panhandle Research and Extension Center. His assignment at the Center will be as the Dryland Crops Breeder, and his duties include sunflower variety testing. He has been associated with the University of Florida for the past eight years where he was an associate professor of Plant Breeding and Genetics. He earned a Master's Degree in Agronomy at the University of Nebraska in 1978 and a Ph.D. in Plant Breeding at New Mexico State University in 1980.

### Durward A. Smith

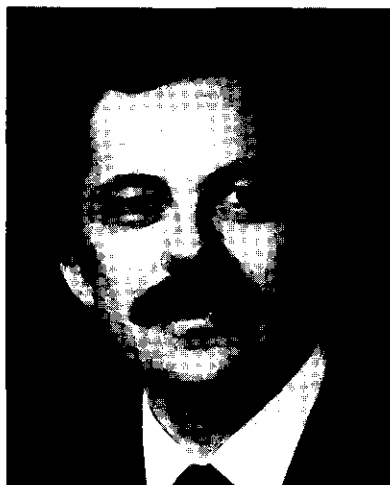
**Durward A. Smith** is a native of Washington State and has joined the Food Science and Technology Department as associate professor. He received his B.A. in Zoology at the University of Washington, his B.S. in Food Science at the University of Idaho, his M.S. and his Ph.D. degrees in Food Science at Louisiana State University. He also holds a J.D. from Jones Law School in Alabama. His past work has included emphasis on improving peeling and shelling operations, and the respective effects of these operations on product quality, nutritive value, and processing and storage energy requirements. He holds several patents in novel peeling equipment. His current research includes developing and applying new technologies to food processing, examining quality parameters of fresh and processed foods, and developing new products and concepts, especially as related to horticultural crops. He has been conducting hydrocooling demonstrations across the state this summer.

### Donald J. Lee

**Donald J. Lee** was appointed assistant professor in the Department of Agronomy. He holds degrees from Montana State University, South Dakota State University and Augustana College (South Dakota). Most recently, he was a post-doctoral research associate in the Agronomy and Plant Genetics Department at the University of Minnesota. His research experience has been in both plant breeding and molecular genetics and his research emphasis will be on the characterization of the molecular basis of genetic variation in crop species. He will teach Introductory Genetics.

## SAM CORDES BECOMES HEAD OF AGRICULTURAL ECONOMICS

Sam Cordes assumed the duties of Head of Department of Agricultural Economics on August 20. He was reared on a cattle ranch in western South Dakota. After graduating from high school, he attended the University of Wyoming and South Dakota State University. Before receiving his B.S. degree in Agricultural Economics



Sam Cordes

from SDSU in 1967, he held various jobs including that of a rural school teacher, construction worker, and ranch hand; and was also active in rodeo competition.

His Ph.D. was earned in Agricultural Economics at Washington State University (1973). While at WSU, he served one year as Executive Director of Governor Evan's Task Force on Rural Affairs.

Dr. Cordes joined the faculty of Penn State University in 1973, where his professional activities focused on the general area of community economic development, with particular emphasis on economic issues related to rural health care delivery. In 1985, he joined the faculty of the University of Wyoming as Professor and Head of the Department of Agricultural Economics.

Cordes has written, co-authored, or edited four books/monographs, seven chapters in book/monographs, and approximately 90 articles and other types of publications; has presented formal papers at more than 40 professional meetings; has served as speaker, discussant, or organizer at over 70 conferences/seminars/panels; and has served as executive producer of eight videotapes. Two of these videotapes have won honors in national film competition.

In 1988, Dr. Cordes was one of Secretary Bowen's initial appointees to the 18-member National Advisory Committee on Rural Health, U.S. Department of Health and Human Services. He has also served on the American Hospital Association's Council on Research and Development, and currently serves on the Advisory Committee to the Western Rural Development Center. Prior leadership experiences include the Presidency of the American Rural Health Association, Chairperson of the Editorial Board of *The Journal of Rural Health*, Chairperson of the Professional Activities Committee of the American Agricultural Economics Association, and Chairperson of the Awards Programs of the Western Agricultural Economics Association.

Dr. Cordes and his wife, Patricia, are the parents of four children. He enjoys relaxing with friends and family, reading, skiing and traveling.

## ROBERT C. SHEARMAN HEADS AGRONOMY

Robert C. Shearman assumed the duties of Head of the Department of Agronomy on July 1, 1989. He was raised on a family-owned greenhouse and nursery business in Redman, Oregon. He received his B.S. in agronomy from Oregon State University in 1967 and his M.S. and Ph.D. in crop science from Michigan State University in 1971



Robert C. Shearman

and 1973, respectively. His graduate studies with turfgrass were in crop ecology and physiology under the guidance of Dr. J. B. Beard.

Dr. Shearman joined O.M. Scott & Sons Co., in the Pacific Northwest as a research agronomist in 1973. While working with O.M. Scott & Sons, he developed a turfgrass research facility in Gervaise, Oregon, and did product development research throughout the Northwest. In 1975, Dr. Shearman was appointed assistant professor of horticulture and turfgrass science at the University of Nebraska with a joint research, extension, and teaching appointment and a courtesy appointment in Agronomy. He was promoted to full professor in 1986.

Shearman has been a catalyst in developing a strong interdisciplinary team effort in turfgrass research and extension. The extensive program emphasizes turfgrass integrated pest management (IPM). The IPM program is nationally recognized and has served as a prototype for many developed in other states. The interdisciplinary effort is exemplified by the array and quality of extension publications, videos, slide sets and tapes, and programs that have been developed and by the number of individuals involved in producing those materials.

Dr. Shearman has developed a cooperative and interdisciplinary research program that has been productive in quantity and quality of research. The research program has contributed to turfgrass science in the areas of turfgrass species, tolerance mechanisms, thatch management, associative nitrogen fixation, nitrogen use efficiency, integrated pest management, and water conservation.

As a member of ASA and CSSA since 1969, Dr. Shearman has served as chair of CSSA Division C-5 and presently as ASA Board Representative for Division C-5. He is an associate editor of the Turfgrass Science ASA Monograph, which is presently being revised, and serves on the CSSA Organization, Policy and Bylaws Committee.

**JUDY ANNE DRISKELL LEADS HUMAN NUTRITION AND FOOD SERVICE MANAGEMENT**

Judy Anne Driskell became professor and Chair of the Human Nutrition and Food Service Management Department on April 1, 1989. Judy was reared in Detroit, Michigan and received her B.S. in 1965 from the University of Southern Mississippi (Biology major; General Home Economics & Secondary Education minors); her M.S. degree from Purdue University in 1967 (Foods and Nutrition major; Biochemistry minor) and her Ph.D. degree from Purdue University in 1970 (Foods and Nutrition major; Molecular Biology minor).



Judy Anne Driskell

Dr. Driskell has conducted extensive research on the role of vitamins in nutrition and health and developed analytical methods for vitamins. She received the Board Award, Research in Applied Fundamental Knowledge of Human Nutrition in 1987. She was listed as an expert in B-Complex Vitamins by Vitamin Nutrition Information Service; and was selected to serve as Nutrition Scientists for the United States Department of Agriculture/Cooperative State Research Service, 1981-82, and 1985.

Before assuming her new position, Dr. Driskell served on the faculty at Virginia Polytechnic Institute and State University, Florida State University, and Auburn University. She was Head of the Department of Human Nutrition and Foods at Virginia Tech from 1982 to 1987.

**ARD ADVISORY COUNCIL NEWS**

The ARD Advisory Council is an IANR standing committee that serves to communicate ideas and concerns between the ARD staff and the Director. Examples of some of the issues discussed during the past year include:

- the increasing cost of doing field work.
- proprietary research.
- impact of "centers" on ARD and individual faculty.
- safe use and disposal of hazardous material.
- the definition of interdisciplinary research.
- the ARD project review process.
- dissemination of extramural funding information.

The Council also helps establish major committees and helps administer ARD programs such as the Widaman Trust Graduate Fellowships, Interdisciplinary Research Team grants

and the Foreign Travel Awards. Current (1989-1990) members and the units they represent are listed below. If you have any concerns or ideas relating to the direction or operations of ARD, please contact one of the Council members.

Azzaddine Azzam	Ag Econ, Food Science and Technology
Fred Roeth	Ag Eng.; Northeast Res & Ext Center; South Central Res & Ext Center; Southeast Res and Extension Center.
Pat Shea	Agromony Department
Shashi Verma	CAMaC; Entomology, Horticulture, Environmental Programs
Rodger Johnson	Animal Science
Sri Srikumaran	Biometrics; Forestry Fisheries & Wildlife; Veterinary Science
Rita Kean (Secretary)	Ag Communications; Ag Education; Consumer Science & Ed; Human Develop & the Family, Human Nutrition & Food Serv Mgt.; Textiles, Clothing & Design
Thomas Powers (Chairman)	Biochemistry, Plant Pathology
John Campbell	West Central Res & Ext Center, Panhandle Res and Extension Center

**USDA COMPETITIVE GRANTS PROGRAM**

The USDA Competitive Research Grants Program began within CSRS at a funding level of \$14.4 million in FY 1978. The Administration's request for FY 1990 is \$63.54 million. When the proposed FY 1990 budget is expressed in 1978 constant dollars, it is \$28.6 million. This funding level represents a real increase of only \$14.2 million in 12 years. The USDA Competitive Grants Program is widely viewed as inadequate to meet the needs and demands of modern agriculture. The Board on Agriculture of the National Research Council and NASULGC have an effort underway to increase competitive grant funding in agriculture to \$500 million over the next five years. Below are three tables of information on the USDA Competitive Grants Program.

**Table 1. USDA Competitive Grants Funding History**

	Appropriations	1978 Dollars
	————— millions of \$ —————	
1978	14.4	14.4
1981	16.0	11.7
1984	17.5	10.0
1987	40.8	19.2
1990 (proposed)	63.5	28.6

**Table 2. Comparison of Funding for Biological Research in USDA, NSF, and NIH for FY 1988**

	USDA	NSF	NIH
Number of proposals received	1,668	5,359	19,474
Percent of proposal funded	20.7	40.2	33.9
Percent of requested funds that was awarded	9.2	11.7	35.9
Average amount of award (thousand of dollars per year)	\$50.0	\$67.9	\$181.1

**Table 3. Funding Practices in the USDA Competitive Grants Program**

	1978	1981	1984	1987
Number of proposals	1,109	793	853	1,626
Percent of proposals funded	17.0	26.0	25.7	24.1
Percent of requested amount awarded	5.7	11.1	10.6	12.6
Average annual award (thousand of dollars per year)	—	37.4	35.2	54.6

**PESTICIDE DOCUMENT NEARS COMPLETION**

A new, comprehensive document on "Policies Relating to Pesticide Fertilizer use in Agricultural Research" is nearing completion and will be circulated for comment soon. An interdisciplinary task force has been assembling the policy document to replace the guide that was last published in 1982. Sections of the policy relating to pesticide rinsate and waste disposal will be substantially expanded to ensure compliance with requirements being imposed by both the Nebraska Department of Environmental Control and the U.S. Environmental Protection Agency.

Effective date for the new policy is expected to be October 1, 1989.

**NEW AND REVISED PROJECTS**

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

**15-051 The Structure of Telomeres from Euplotes Cras-sus**

*Investigator:* C. M. Price, Biochemistry  
*Status:* New Hatch project effective June 1, 1989.

**15-052 Chloroplast Heteroplasmic Suppression**

*Investigator:* R. J. Spreitzer, Biochemistry  
*Status:* New Competitive Grant project effective June 1, 1989.

**17-046 Impact of the Soil Environment on Survival of Im-mature Western Corn Rootworms**

*Investigator:* R. J. Wright, L. J. Meinke, G. L. Hein, Entomology  
*Status:* New Competitive Grant effective July 1, 1989.

**20-036 Genetics, Breeding and Cultural Interactions of Dry Edible Beans (*Phaseolus Vulgaris L.*)**

*Investigator(s):* D. P. Coyne, J. R. Steadman, A. K. Vidaver, D. T. Lindgren, D. S. Nuland, Horticulture  
*Status:* Revised Hatch project effective June 19, 1989.

**42-015 Interpretation of Swine Enterprise Records for Increased Understanding of Profitability Relationship**

*Investigator:* T. A. Powell, Northeast Research and Extension Center  
*Status:* New Hatch project effective May 1, 1989.

**COMMODITY BOARD FUNDING ANNOUNCED**

The following projects were approved by the Nebraska Dry Bean Commission for July 1, 1989 through June 30, 1990 Funding:

D. P. Coyne	Breeding Dry Beans with Multiple Disease Resistance Combined with Improved Seed Quality, Yield, and Plant Type	\$10,000
J. R. Steadman		
A. K. Vidaver		
D. S. Nuland		
D. T. Lindgren		

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D. S. Nuland	Evaluation of Dry Bean Cultivars for Adaptive Characteristics and Performance in Western Nebraska	\$ 4,300
D. T. Lindgren		
J. R. Steadman		
D. P. Coyne		

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M. A. Hanna	Restructured Bean Product	\$10,000
R. Chinnaswamy		
R. L. Wehling		
S. L. Cuppett		
J. H. Rupnow		

\*\*\*\*\*

E. D. Kerr	New Production Systems for Dry Beans	\$10,800
J. G. Robb		
J. A. Smith		
R. G. Wilson		

C. D. Yonts

The following projects were approved by the Nebraska Wheat Board for July 1, 1989 through June 30, 1990 Funding:

G. L. Hein	Economic Impact and Management of	\$ 4,000
F. Baxendale	Russian Wheat Aphid, <i>Diuraphis</i>	
J. B. Campbell	<i>noxia</i> (Mordw.) on Wheat in Nebraska	

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P. S. Baenziger	Improving Wheat for Nebraska	\$20,000
C. J. Peterson		

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P. S. Baenziger	Selecting Nebraska Wheats for	\$14,000
C. J. Peterson	Processing Needs of Domestic and Foreign Markets	



**RESEARCH GRANTS AND CONTRACTS  
RECEIVED  
JUNE & JUNE 1989**

**AGRICULTURAL ENGINEERING**

Miscellaneous Grants Under \$5,000 each	\$ 2,560
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**AGRONOMY**

Eastin, J. - USDA/OICD	\$ 44,241
Nelson, L., VonBargen, K., Crews, P., Baltensperger, D., Campbell, J., Elmore, R., Moomaw, R., Vidaver, A. - USDA/CSRS	\$ 64,464
Powers, W. - USDA	\$ 30,000
Staswick, P. - USDA	\$ 68,000
Stubbendieck, J. - National Park Service	\$ 40,898
Miscellaneous Grants Under \$5,000 each	\$ 64,990

**ANIMAL SCIENCE**

Grotjan, H. - National Institute of Health	\$130,489
Kinder, J. & Nielsen, M. - USDA/CSRS	\$ 71,100
Klopfenstein, T. - Hoechst-Roussel Agri Vet Co.	\$ 31,000
Mandigo, R. - Nebr. Dept. of Agriculture	\$ 25,050

Mandigo, R. - National Livestock & Meat Board	\$ 9,350
Miscellaneous Grants Under \$5,000 each	\$ 35,400

**BIOCHEMISTRY**

O'Leary, M. - UN Foundation	\$ 28,000
Spreitzer, R. - USDA	\$ 84,000
Wagner, F. - Nebr. Dept. of Economic Development	\$ 10,680

**CENTER FOR METEOROLOGY & CLIMATOLOGY**

Blad, B. - NASA	\$ 39,000
Verma, S. - NASA	\$ 41,000

**ENTOMOLOGY**

Wright, R., Meinke, L., Hein, G. - USDA/CSRS	\$ 48,723
Miscellaneous Grants Under \$5,000 each	\$ 16,800

**ENVIRONMENTAL PROGRAMS**

Miscellaneous Grants Under \$5,000 each	\$ 3,169
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**FOOD PROCESSING CENTER**

Smith, D. - Nebr. Dept. of Agriculture	\$ 33,900
Miscellaneous Grant Under \$5,000 each	\$ 13,204

**FOOD SCIENCE & TECHNOLOGY**

Hutkins, R. - Nat'l Dairy Promotion & Research Board	\$ 41,860
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**HORTICULTURE**

Miscellaneous Grants Under \$5,000 each	\$ 29,339
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**NORTHEAST RESEARCH & EXTENSION CENTER**

Miscellaneous Grants Under \$5,000 each	\$ 13,566
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**PANHANDLE RESEARCH & EXTENSION CENTER**

Miscellaneous Grants Under \$5,000 each	\$ 32,854
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**PLANT PATHOLOGY**

Miscellaneous Grants Under \$5,000 each	\$ 20,290
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**SOUTH CENTRAL RESEARCH & EXTENSION CENTER**

Miscellaneous Grants Under \$5,000 each	\$ 13,150
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**VETERINARY SCIENCE**

Kelling, C. - Nebraska Pork Producers	\$ 6,000
Miscellaneous Grants Under \$5,000 each	\$ 43,957

**WEST CENTRAL RESEARCH & EXTENSION CENTER**

Danielson, M. - BASF Corporation	\$ 10,500
Klocke, N. L. - UN Foundation - Anna H. Elliott	\$ 20,000
Miscellaneous Grants Under \$5,000 each	\$ 15,048

**Total: \$1,182,582**

**STATE INVESTMENT IN AGRICULTURAL  
RESEARCH (1987)  
COMPARED BY EXPENDITURES PER \$1000  
GROSS FARM INCOME AND PER CAPITA**

Expenditures/ \$1000 Gross Farm Income (1986-1987)	Expenditures / Capita				
	<2.00	\$2.00- \$3.99	\$4.00- \$5.99	\$6.00- \$7.99	>\$8.00
<\$4.00	IL, PA	CO, MO OK, VT	WI, AR	IA, SD MN, ID	NE, KS
\$4.00-\$6.99		TX, IN KY, CA OH, MI, TN	WA, NM, AL, DE	WY	ND, MT
\$7.00-\$9.99	MA, WV	MD, ME UT	AZ, FL	MS, NC OR, GA	
>\$10.00	NJ, CT NH, RI	VA, NY NV	SC, LA	AK	HI