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## Agricultural Experiment Station News October 1991

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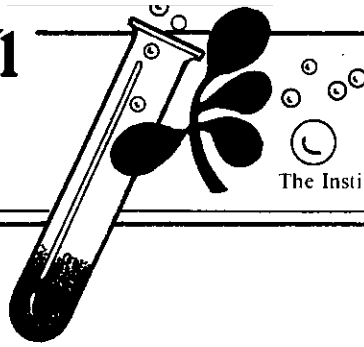
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October 1991

Volume 26, Number 2

## ETHICS AND CREDIBILITY IN SCIENCE

Dear Colleagues:

Science was highly respected by the American people throughout the decades of the '50s, 60's and 70's. During the last ten years, significant changes have occurred in attitudes of citizens toward science and scientists. The actions of some scientists during the past decade have greatly contributed to the declining confidence that the public has in science.

There have been a series of recent science-related events that reflect poorly on U.S. research and development: failure of the Hubbell orbiting telescope, crash of the Challenger spacecraft, over estimation of the harmful health effects of dioxin leading to the evacuation of Times Beach, MO, cost overruns on constructing the Superconducting Supercolliding accelerator, falsification of data by biomedical researchers at leading universities, and improper assessment of indirect costs on federal research grants by Stanford and Harvard Universities. In addition, we have done a poor job of explaining the importance of broad-based research to the general public. Our lack of communications has been exploited by politicians through presentation of the "Golden Fleece Award" to a number of federally-funded esoteric projects that sound trivial to the public. All of these unfortunate developments have reduced the credibility of American science in the eyes of legislators and citizens. The funding difficulties currently being experienced by many universities are, in part, related to the declining credibility of science.

Fortunately, our clientele continue to value the research and development activities carried out by IANR faculty. We have maintained the Land Grant University traditions of serving people and conducting research that is relevant to the real world. Our collective efforts have been highly successful in increasing the productivity of farms and ranches, improving the competitiveness of agribusiness, and enhancing the quality of life for Nebraskans.

I believe that our credibility with clientele and peers can only be maintained through an ethical approach to research that has been traditional with Land Grant University scientists. First, we must be professional in all our

dealings with clientele and peers. In interactions with clientele, we must be able to provide useful and up-to-date information to aid in decision making and be willing to go-the-extra mile to find answers to questions posed by citizens. Our interactions with other scientists must be characterized by objectivity and intellectual honesty. It is axiomatic that we cannot afford to have any hint of falsified data or biased interpretation of results. Reviews of grant proposals and manuscripts must be conducted solely on the scientific merit of the document not on personalities of the authors. We should not attempt to publish the same findings in more than one journal. We must also be careful in citing the works to others so that appropriate credit is given for original authorship.

Second, our research must be relevant to important problems in agriculture, agribusiness, natural resources, or the quality of life. Clientele will value programs that meet their needs and/or improve their profitability and competitiveness.

Third, we must strive for excellence in our research programs. Clientele evaluate the quality of research based upon its impact on their farms, ranches, businesses, and lives. Peers ascertain the excellence of our research program by the quality of our science as demonstrated in presentations, journal articles, and books and the quality of our graduate students and post-doctoral research associates.

Fourth, we must be accountable for the public funds invested in our research programs. Federal and state taxpayers are providing more than \$138,000 per research FTE to the ARD during the current fiscal year. Citizens expect a return on their investment in the form of new knowledge and educated students. We have the responsibility to disseminate the results of research to clientele and peers and to provide the best possible education for graduate students and post-doctoral scientists.

ARD is fortunate to have highly motivated and dedicated faculty and staff. I am certain our programs will continue to receive support of Nebraskans, but we need to do our part in maintaining credibility as scientists through our programs that serve people and our professional approach to science.

*Darrell W. Nelson*



**REMINDER - RESEARCH PROPOSAL PROCEDURES**

Several recent difficulties with research grant proposals and agreements with research sponsors have emphasized the need to review some of the standard operating procedures in use by ARD and the UNL Office of Sponsored Programs.

Grants and contracts are a very important part of ARD research support and we want to encourage continued activity. However, unless the normal procedural requirements are observed, the end result is delays in processing the proposals, agreements, and contracts.

Informal early communication with potential funding sources, particularly with private sponsors, is often necessary and is encouraged. However, before any written proposal is presented to sponsors, it needs to be reviewed and approved with signature by the faculty member, the department head, and ARD administration. For most USDA programs, ARD has the final signature authority. For most other grant programs, and for private sponsors, formal proposals will also need signature by the Office of Sponsored Programs. On those proposals, the final university signature line can be generic such as "Signature of Authorized University Official".

Any waiver or modification of indirect costs can only be approved by the Vice Chancellor for Research as delegated by the Chancellor. This stipulation is part of the UNL Board of Regents bylaws. Full recovery of indirect costs at the current established rate is still a standard policy unless special permission or waiver is approved. Any early communications with sponsors should be accomplished with indirect costs clearly in mind and the UNL indirect cost policy should be communicated to the sponsor.

ARD has signature authority for USDA contracts and cooperative agreements. However, most other external contracts and research agreements require Sponsored Programs signatures. Again, these agreements should have signature line in addition to departmental and ARD signatures which would allow Sponsored Program signature over the signature title "Authorized University Official". Adding these signature lines when the agreements are being developed would save the effort to add them later.

ARD is trying to work closely with the Office of Sponsored Programs to ensure prompt and efficient handling of research proposals and agreements. Close adherence to the above guidelines will help ensure that this process goes smoothly. If you have any questions regarding these, please contact the ARD office.

**CHANGE IN CURRENT INDIRECT COST RATE FOR RESEARCH PROJECTS -**

Effective July 1, 1991, the indirect cost rate in effect for all ARD sponsored research projects is forty-two percent (42%) of total direct costs.

Effective immediately, please use the 42 percent rate for all ARD proposals, contracts and agreements. Total direct costs as defined for this rate, exclude capital expenditures (building, individual items of equipment, alterations and renovations), and that portion of each sub-award in excess of \$25,000. Please call the ARD office or Office of Sponsored Programs if you have questions regarding the new rate.

**RECOGNITION OF JUNIOR FACULTY FOR EXCELLENCE IN RESEARCH**

ARD established a new program in 1991 to recognize the research contributions made by junior faculty in IANR. No more than two junior faculty are recognized each year. The award includes \$2,500 for use in professional development or research-related activities.

Criteria used in evaluating nominees includes: publication record especially those publications resulting from research conducted at UNL, external funding activity, and recognition by peers.

Faculty receiving the award for 1991 are:

Dr. Martin Dickman, Department of Plant Pathology  
Dr. David Stanley-Samuelson, Department of Entomology

**FY 1990 ARD RESEARCH EFFORTS CLASSIFIED BY PROGRAM ELEMENT<sup>1</sup>**

Program Element	Expenditures <sup>2</sup>	Scientist-Years	Support-Years
	----- % of total -----		
Natural resources	14.1	14.9	12.2
Crops	40.3	41.1	39.1
Animals	32.6	27.4	39.3
People, communities & institutions	2.7	4.8	2.2
Competition, trade, & price and income policy	3.4	4.9	2.5
Other technology	3.4	3.3	2.2
Food science & human nutrition	3.5	3.5	2.5

<sup>1</sup>Research programs at MARC are not included in totals.

<sup>2</sup>Revolving fund expenditures are not included in totals.

## FY 1990 ARD EXPENDITURES BY SOURCE

Funding Source	Including Revolving Funds	Without Revolving Funds
	----- % of total -----	
Federal formula	7.1	9.2
USDA grants & contracts	13.6	17.5
Other federal grants	5.5	7.1
State appropriations	44.6	57.5
Revolving funds	22.5	-
Industry grants & contracts	3.9	5.0
Other non-federal	2.9	3.7
<b>Total expenditures (millions)</b>	<b>40.107</b>	<b>31.099</b>

## SUSTAINABLE AGRICULTURE RESEARCH AND EDUCATION PROGRAM

A single Call for Preproposals for the Sustainable Agriculture Research and Education Program was used this year for both the LISA and ACE research and education projects. The North Central Region Administrative Council received 154 preproposals for 1992 LISA/ACE funds. The total funds requested were \$11,977,769.00. The Council will evaluate the preproposals based on suitability of objectives to NCR LISA priority issues, potential significance, feasibility of achieving stated objectives, and general components of technical design.

There were 117 submissions in LISA and 37 in ACE. The following data characterizes the types of projects and state distribution:

ACE:		LISA:	
Educational	12	Educational	19
Demonstration	5	Demonstration	16
Experimental Component	7	Experimental Component	35
Exploratory Component	3	Exploratory Component	6
Integrated Systems	7	Integrated Systems	32
Impact Assessment	3	Impact Assessment	9

### STATE DISTRIBUTION:

Illinois	16	Indiana	9	Iowa	18	Kansas	5
Michigan	14	Minnesota	14	Missouri	7	Nebraska	32
No. Dakota	3	Ohio	10	So. Dakota	10	Wisconsin	15
Other	1						

Fourteen LISA projects were funded in 1991, totaling \$1,080,960. Of those, 3 were continuations of previously funded projects. In addition, there were 9 Agriculture in Concert with the Environment projects funded in 1991 totaling \$397,050. Similar funding is anticipated for FY-92.

## NEW OR REVISED PROJECTS

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

### 12-207 (Agronomy) Maize Production Practice Influence on Grain and Stover Yield and Quality

*Investigator:* S. C. Mason

*Status:* New Hatch project effective July 5, 1991

### 13-104 (Animal Science) Optimizing the Utilization of Dietary Fiber by Dairy Cows

*Investigator:* R. J. Grant

*Status:* New Hatch project effective December 10, 1990

### 13-109 (Animal Science) Genetic Regulation of Pork Production

*Investigator:* R. K. Johnson

*Status:* New Hatch project effective December 1, 1990 that contributes to regional project NC-206

### 15-059 (Biochemistry) Structure & Chemistry of Compounds Involved in the Interactions between Wheat & Hessian Fly

*Investigator:* H. W. Knoche

*Status:* New Hatch project effective August 1, 1991

### 16-059 (Food Science & Technology) Identification, Purification and Characterization of Bacteriocins and Evaluation as Agents

*Investigator:* J. H. Rupnow

*Status:* New Hatch project effective July 1, 1991

### 26-017 (Forestry, Fisheries & Wildlife) Water Quality and Water Quantity Criteria for Nebraska Fishes

*Investigator:* E. J. Peters

*Status:* New Hatch project effective September 1, 1991

### 26-018 (Forestry, Fisheries & Wildlife) Avian Species in Diverted Farmland

*Investigator:* J. A. Savidge

*Status:* New Hatch project effective October 1, 1990 that contributes to NC-203

### 43-050 (West Central Research & Extension Center) Beef Nutrition and Production Systems for Sandhills Rangeland

*Investigator:* D. C. Adams

*Status:* New Hatch project effective December 1, 1990

### 48-017 (South Central Research & Extension Center) Investigations on the Epidemiology and Control of Maize Chlorotic Mottle Virus

*Investigator(s):* B. Doupnik, R. J. Wright, L. J. Meinke, S. G. Jensen, L. C. Lane, D. S. Wysong

*Status:* New State project effective July 1, 1991

### 93-027 (Human Development and the Family) Coping and Adaptation Among Nebraska's Farm/Ranch and Rural Families During Periods of Transitions

*Investigator:* C. W. Smith

*Status:* New Hatch project effective September 1, 1991

## FEDERAL COMPETITIVE GRANTS

Grants obtained from federal agencies are a major source of funding. It is our goal that this source of funding help us to effectively address high priority research problems. We are pleased that a number of proposals were submitted to federal agencies during the past fiscal year.

Although not all proposals will be funded, the research program of each faculty member who took the time to develop an innovative and sound proposal should benefit from this experience.

The Agricultural Research Division personally commends the following faculty for submitting proposals.

### Agricultural Economics

E. Wesley Peterson - National Science Foundation

### Agricultural Meteorology

Donald A. Wilhite - National Climate Office/NOAA

Shashi B. Verma - National Science Foundation

Shashi B. Verma - NASA

Blaine Blad - NASA

Shashi B. Verma and F. G. Ullman - Midwestern

Regional Center, National Institute Global Environment

Shashi B. Verma, F. G. Ullman - National Center Atmospheric

Elizabeth Walter-Shea, Blaine Blad - NASA

Elizabeth Walter-Shea, Ram M. Narayanan - NASA

Shashi B. Verma, F. G. Ullman - National Science Foundation

Donald A. Wilhite - Soil Conservation Society/USDA

### Agronomy

David T. Lewis - EPA

Robert Graybosch - EPA

P. Stephen Baenziger - USDA/BARD

Jerry Eastin - USDA/AID

Jerry Maranville - USDA/AID

Charles Sullivan - USDA/AID

David Andrews - USDA/AID

Max Clegg, Stephen C. Mason - USDA/AID

Robert C. Shearman - USDA/ARS

Jerry D. Eastin - OICD/USDA

Jerry D. Eastin - National Science Foundation

Daniel Walters - TVA

John Doran - EPA/Cornell University

David Mortensen - USDA/ARS

### Animal Science

H. Edward Grotjan - National Institute Health

H. Edward Grotjan - National Science Foundation

### Biochemistry

Robert Spreitzer - National Science Foundation

John Golbeck - National Science Foundation

Marion O'Leary - National Science Foundation

Raymond Chollet - National Science Foundation

Marion O'Leary - National Institute Health

Stephen W. Ragsdale - U.S. Department of Energy

### Biometry

Linda Young - National Science Foundation

### Biological Systems Engineering

Glenn Hoffman - USDA/AID

Derrell Martin, James Schepers - USDA Water Quality

Elbert Dickey, Dave Shelton - EPA

### Entomology

David Stanley-Samuels - National Institute of Health

Stephen M. Spomer, Leon Higley - U.S. Fish & Wildlife Service

David Stanley-Samuels - USDA/Forest Service

Blair Siegfried - U. S. Geological Survey

John E. Foster - USDA/ARS

### Food Science & Technology

Michael Meagher - National Science Foundation

Susan Cuppett - National Institute Health

Michael Meagher - Department of Energy

### Forestry, Fisheries & Wildlife

Julie Savidge - U.S. Fish & Wildlife

Kyle Hoagland - U.S. Office of Naval Research

Kyle Hoagland, Steve Ernst, Dean Dinico - U.S. Department of Energy

### Horticulture

Dermot P. Coyne - USDA/AID

### Human Nutrition and Food Service Management

Nancy Betts - National Institute of Health

Kaye Stanek - Health & Human Services

### Plant Pathology

James VanEtten - Office of Naval Research

Martin B. Dickman - National Science Foundation

Amit Mitra - National Science Foundation

James VanEtten - National Institute Health

Thomas Powers - National Institute Health

### South Central Research & Extension Center

Joel Cahoon - U.S. Geological Survey

Joel Cahoon, Dean Eisenhauer, Darrell Watts, Richard Ferguson - U.S. Geological Survey

### Veterinary Science

S. Srikumaran - National Institute Health

Alex Chen Swey-Shen - National Institute Health

Clinton Jones - National Institute Health

Clinton Jones - National Cancer Institute

### Water Resources Center

Joel Cahoon - USDA/Water Quality

Dean Eisenhauer, Richard Ferguson, Fred Roeth, Roy Spalding - USDA/Water Quality

Donald Rundquist, Lloyd Mielke - USDA/Water Quality

David C. Gosselin, Jerry F. Ayers - USDA/Water Quality

### West Central Research & Extension Center

Gary Hergert - Tennessee Valley Authority

**1989 FARM INCOME  
NORTH CENTRAL REGION\***

	Farm Income	Rank Nationally	% of National Total
Illinois	7,469,148	5	4.4
Indiana	4,671,003	10	2.7
Iowa	10,121,888	3	5.9
Kansas	6,930,628	7	4.1
Michigan	3,219,790	21	1.9
Minnesota	7,151,175	6	4.2
Missouri	4,282,560	13	2.5
Nebraska	9,075,076	4	5.3
North Dakota	2,595,356	27	1.5
Ohio	4,113,537	14	2.4
South Dakota	3,352,509	20	2.0
Wisconsin	5,820,715	9	3.4
<b>TOTAL</b>	<b>68,803,385</b>	<b>—</b>	<b>40.3</b>

\*Cash receipts from farming compiled by Office of the North Central Director-at-Large. 5/91. Source: USDA Agricultural Statistics 1990.

**RANKINGS OF UNL RESEARCH EXPENDITURES  
- FISCAL YEAR 1989 \*\***

Research Area	National Rank
<b>Total research expenditures:</b>	
All sources	74
Non-federal sources	42
Federally sponsored sources	96
Industry sponsored sources	105
<b>Engineering Research &amp; Development</b>	
All sources	73
Federally sponsored sources	> 100
<b>Physical Sciences Research:</b>	
All sources	80
Federally sponsored sources	80
<b>Life Sciences Research:</b>	
All sources	62
Federally sponsored sources	83
<b>Environmental Sciences Research:</b>	
All sources	76
Federally sponsored sources	79
<b>Social Sciences Research:</b>	
All sources	66
Federally sponsored sources	79
<b>Agricultural Sciences Research:</b>	
All sources	8

\*\*Fiscal year 1989 NSF survey of academic research and development expenditures.

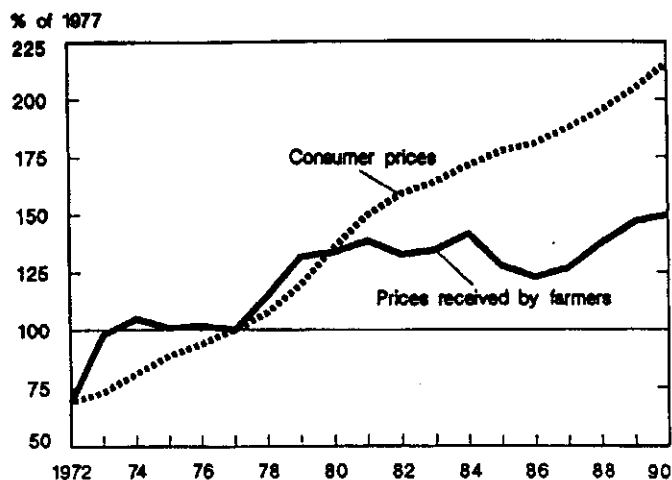


Figure 1. A comparison of consumer prices and prices received by farmers. From the "1990 Fact Book of Agriculture," USDA Miscellaneous Publication 1063.

Processing costs are the largest marketing function for food eaten at home.

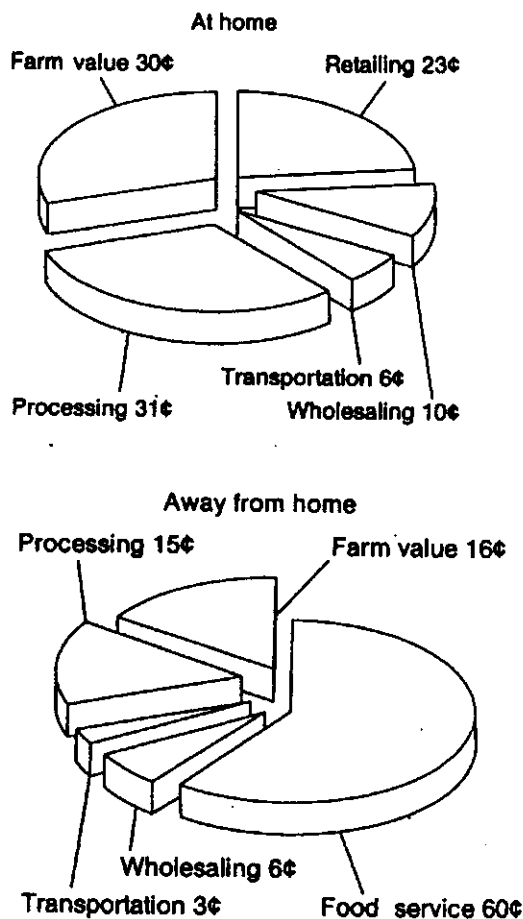


Figure 2. Marketing functions of the food dollar. From the USDA-ERS Report Number 651, June 1991.



**GRANTS AND CONTRACTS  
RECEIVED  
AUGUST & SEPTEMBER, 1991**

<b>Agricultural Economics</b>			<b>Food Science and Technology</b>	
Miscellaneous Grants Under \$5,000 each	3,798		Jackson, D. S. - Corn Refiner's Association	15,000
<b>Agricultural Meteorology</b>			Zeece, M. - National Livestock & Meat Board	28,625
Verma, S. B. & Ullman, F. G. - NIH	164,600		Miscellaneous Grants Under \$5,000 each	1,836
Miscellaneous Grants Under \$5,000 each	4,768		<b>Forestry, Fisheries &amp; Wildlife</b>	
<b>Agronomy</b>			Savidge, J., Seibert, T. - U.S. Fish & Wildlife Service	123,677
Andrews, D. J. - USDA/AID	113,400		Miscellaneous Grants Under \$5,000 each	1,300
Clegg, M. D. & Mason, S. C. - USDA/AID	69,395		<b>Horticulture</b>	
Johnson, B. - Pioneer Hi-Bred International	40,720		Miscellaneous Grants Under \$5,000 each	14,550
Maranville, J. W. - USDA/AID	44,550		<b>Northeast Research &amp; Extension Center</b>	
Mortensen, D. - USDA/ARS	40,000		Miscellaneous Grants Under \$5,000 each	31,630
Shea, P. - UN Foundation	14,000		<b>Nutritional Sciences &amp; Hospitality Management</b>	
Specht, J. E. - USDA/ARS	60,000		Kies, C. - National Pork Producers	10,000
Stubbendieck, J. - Midwest Region, National Park Service	5,370		Stanek, K. - UNMC	10,060
Sullivan, C. Y. - USDA/AID	15,537		<b>Panhandle Research &amp; Extension Center</b>	
Miscellaneous Grants Under \$5,000 each	46,710		Fritschen, R. D. - Nebr. Dept. of Ag.	8,000
<b>Animal Science</b>			Pavilsta, A. D. - Nebr. Potato Dev. Board	12,000
Grotjan, H. E. - NSF	76,400		Miscellaneous Grants Under \$5,000 each	26,045
Klopfenstein, T. J. - Nebraska Ethanol Authority	25,704		<b>Plant Pathology</b>	
Miller, P. S. - Ag Processing, Inc.	18,000		VanEtten, J. L. - NIH	174,836
Miscellaneous Grants Under \$5,000 each	28,237		Watkins, J. E. - UN Foundation	18,000
<b>Biochemistry</b>			Yuen, G. Y. - NTEP Grants Program	49,500
Goibeck, J. - NSF	80,000		Miscellaneous Grants Under \$5,000 each	15,250
Klucas, R. V. - USDA	80,000		<b>South Central Research &amp; Extension Center</b>	
O'Leary, M. H. - Rockefeller Foundation	35,400		Miscellaneous Grants Under \$5,000 each	19,840
Ragsdale, S. - U. S. Dept. of Energy	158,688		<b>Veterinary Science</b>	
Spreitzer, R. J. - NSF	85,000		Osorio, F. A. & Jones, C. - USDA	132,677
<b>Biological Systems Engineering</b>			Srikumaran, S. - NIH	46,500
Miscellaneous Grants Under \$5,000 each	1,160		Miscellaneous Grants Under \$5,000 each	32,360
<b>Center for Rural Community Revitalization &amp; Development</b>			<b>West Central Research &amp; Extension Center</b>	
Cordes, S. - USDA/CSRS	100,000		Miscellaneous Grants Under \$5,000 each	17,128
<b>Entomology</b>				
Miscellaneous Grants Under \$5,000 each	27,100			
<b>Environmental Programs</b>				
Miscellaneous Grants Under \$5,000 each	8,500			
<b>Food Processing Center</b>				
McAuliffe, T. - Nebr. Dept. of Ag.	10,000			
Miscellaneous Grants Under \$5,000 each	3,620			
			<b>Grand Total</b>	<b>2,149,561</b>