University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Agricultural Research Division News & Annual Reports | Agricultural Research Division of IANR

4-1-1993

ARD News April 1993

Follow this and additional works at: http://digitalcommons.unl.edu/ardnews

Part of the Agriculture Commons

"ARD News April 1993" (1993). *Agricultural Research Division News & Annual Reports*. Paper 44.
http://digitalcommons.unl.edu/ardnews/44

This Article is brought to you for free and open access by the Agricultural Research Division of IANR at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Agricultural Research Division News & Annual Reports by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Agricultural Research Division News

The Institute of Agriculture and Natural Resources

Office of the Dean, 207 Ag Hall
Lincoln, NE 68583-0704
Phone (402) 472-2045

University of Nebraska-Lincoln

April 1993

Volume 27, Number 5

REMAIN POSITIVE

Recent newspaper articles about current and proposed budget reductions for UNL, controversies involving the Regents, and replacement of the President have led to a feeling of discouragement by some faculty and staff. Although these issues are worthy of our concern, we must keep a reasonable perspective. Nebraska's economy is in good condition in relation to some of our neighboring states. Each month, tax revenue is meeting or exceeding projections and unemployment remains low. The current budget crunch is brought on by entitlement programs mandated by the federal government but funded by the states. Most state legislatures are faced with the prospect of reducing support to agencies and higher education to fund entitlement programs. Many state-supported universities have experienced large budget reductions (>15%) and employees at some large universities are facing 5% salary decreases.

There are many positive aspects about our collective research efforts that should be noted. First, our grant and contract income continues to increase by 25% each year and, thus, the number of support staff working in our research programs is increasing. Second, we have record numbers of graduate students, post-doctoral research associates and visiting scientists conducting research in our labs. Third, the output of journal articles and other refereed publications, M.S. theses and Ph.D. dissertations, varieties and germplasms, computer programs, and presentations at national and international meetings continues to increase. Fourth, the number of persons with faculty rank is increasing although those on state-funded tenure track lines have decreased by about 5% during the past five years. Fifth, our salaries are highly competitive on a regional and national basis. Sixth, the Nebraska Research Initiative funding has markedly strengthened our research program in the areas of water science and biotechnology.

We must remain positive about our research programs and the University of Nebraska. We have a wonderful story of accomplishments to share with members of the Unicameral and the people of Nebraska. I call upon each of you to provide positive leadership for your research group and your unit taking into account the actual situation with which we are confronted. Take every opportunity to share the exciting things that you are researching with friends, neighbors, service clubs, decision makers, etc. Let's be positive and keep the situation in perspective.

Darrell W. Nelson
Dean and Director

GRANT AND CONTRACT INCOME OBTAINED BY UNITS DURING THE LAST THREE CALENDAR YEARS

Listed below is the grant and contract income obtained by faculty members in units during the last three calendar years. Grants obtained by interdisciplinary centers are not listed. Units not listed are either service-oriented or represent disciplines with very limited opportunities for grant funding. The listing is not an accurate representation of resources available to units since some faculty obtain much of their research funding from the interdisciplinary centers.

Unit	1990	1991	1992	Average 1990-1992
	$/faculty FTE			
Ag Economics	8,889	12,609	19,829	13,776
Ag Meteorology	201,807	148,341	46,710	132,286
Agronomy	43,230	51,022	45,265	46,506
Animal Science	62,670	48,404	49,784	53,619
Biochemistry	57,967	138,550	181,599	126,039
Biol Systems Eng	16,512	33,533	101,480	50,508
Entomology	29,915	47,024	67,785	48,241
Food Sci & Tech	67,233	50,442	60,718	59,464
Forestry, Fish & Wild	67,804	76,290	295,985	146,693
Horticulture	47,437	156,351	85,409	96,399
Family & Cons Sci	0	0	20,526	6,842
Northeast R & E Cen	27,737	33,885	54,772	38,798
Nutr Sci & Dietetics	19,630	3,817	30,196	17,881
Panhandle R & E Cen	40,588	61,340	46,024	49,317
Plant Pathology	79,714	111,623	105,847	99,061
South Central R & E	30,101	31,980	31,549	31,210
Tex, Clothing & Des	698	0	8,364	3,021
Vet & Biomed Sciences	97,114	95,469	96,370	96,318
West Central R & E	31,650	56,731	43,935	44,105
Simple average	48,907	60,919	73,270	61,032

ARD is pleased that the average grant and contract income per FTE increased by 20% during the past year. This increase is a tribute to the aggressiveness and competence of our faculty. The increased grant and contract income generated by the Departments of Biochemistry; Biological Systems Engineering; Entomology; Family & Consumer Science; Forestry, Fisheries and Wildlife; Nutritional Science and Dietetics and the Northeast R & E Center is particularly noteworthy.

The Agricultural Research Division provides information and educational programs to all people without regard to race, color, national origin, sex or handicap.

RESEARCH PROJECT MANAGEMENT WORKSHOP

The ARD Advisory Council is sponsoring a Research Project Management Workshop at the East Campus Union on May 12, 1993. All faculty members with ARD appointments are encouraged to attend. The purpose of the workshop is to provide project leaders with the knowledge to manage research grants/projects in a more effective and efficient manner. Topics to be covered include: (i) The role of the project manager, (ii) Budgeting and budget management, (iii) Management models for the scientist, (iv) Managing multi-investigator projects, (v) Personnel management, and (vi) Time/stress management.

You have or will soon receive an announcement for the workshop. If you are interested in participating, please complete the enrollment form and return it to the ARD Office. The ARD Advisory Council is to be commended for sponsoring this needed workshop.

NEBRASKA BANKERS ASSOCIATION AWARDS

The Nebraska Bankers Association annually funds projects that have some potential to stimulate economic activity in the state. Listed below are the ARD-affiliated research projects and principal investigators that will receive funding for 1993:

Luanne Lohr, Agricultural Economics, "Assessment of Factors that Influence Lenders' Risk of Liability for Groundwater Contamination from Agricultural Practices" $6,650.

C. Dean Yonts, Panhandle R & E Center, "Malting Barley, A New Crop for Western Nebraska" $6,000.

Mark Morrison, Animal Science "Automated X-ray Film Processing Unit" $10,000.

Norman Schneider, Veterinary and Biomedical Sciences, "Gas Chromatograph/Mass Spectrometer" $20,000 (IANR match required).

Congratulations to these faculty members for successfully competing for Nebraska Bankers Association grants.

Layman Awards

Six proposals for funding by the Layman Trust were received by ARD and forwarded to the Vice Chancellor for Research. The primary aim of the Layman Awards is to provide research support for various purposes: seed money to enhance the possibility of obtaining external support; funds for projects of high merit in areas of research unlikely to receive external support; mini-faculty development support for two to four weeks in length; and funds for research projects that have special importance to the teaching and public service mission of UNL. Three proposals submitted by ARD faculty were funded as follows:

David Stanley-Samuelson, Entomology
"Biochemistry of Prostalglandins & Related Eicosanoids in Insects"
Amount Funded: $18,000

Kyle Hoagland, Forestry, Fisheries & Wildlife
"Restoration of Nebraska Sand-pit Lakes: A New Chemical Approach"
Amount Funded: $14,620

Steve Comfort, Agronomy
"The Fate & Transport of Munitions Residues in Contaminated Soils"
Amount Funded: $ 5,800

High Risk Research Proposals

Four Innovative and High Risk Research proposals were received for the first quarter. This program is designed to fund very innovative research projects with the object of developing data that can be used to support requests for external grants. These proposals can be submitted at any time during the year. These proposals will be evaluated quarterly by a subcommittee of the ARD Advisory Council. The following projects were funded by the ARD "Innovative and High Risk Research" program starting July 1, 1993:

Mark Morrison, Animal Science
"The Evaluation of Yeast Fermentation End-products For Their Contribution to Improved Animal Performance via Changes in Rumen Microbiology and Metabolism"
Amount Funded: $20,000

Elizabeth Walter-Shea, Agricultural Meteorology
"Ultraviolet Radiation Interactions in a Vegetative Canopy"
Amount Funded: $14,980

REGIONAL RESEARCH COMMITTEES

The December 1992 issue of the Agricultural Research Division News included an article describing UNL faculty participation in North Central Research Committees of the NCR category. As noted in that article, NCR committees are primarily coordinating committees to allow scientists to meet, exchange information, and in some cases, coordinate research activities.

In addition to NCR committees, ARD faculty and administrators participate in several other types of regional research committees. Of these, the other most common committee is the "NC committee". NC committees are the technical committees which are established in conjunction with approved North Central regional research projects. These regional research projects are based on a formal cooperative plan of research and have gone through extensive peer review at the regional and national levels. For those NC projects where UNL is an official participant, the ARD designates one faculty member as the official representative to the NC committee. If other UNL scientists participate in the project, they may also attend annual NC committee meetings at departmental expense.

The purpose of the annual meetings of NC committees is to provide progress reports, enhance coordination, and coordinate project output such as regional research publications. Similar committees in the Northeast, Southern, and Western

Regions carry the prefix of NE, S, or W.

Another North Central committee is the NCA committee which is a coordinating committee for unit administrators. There are NCA committees for most of the disciplines included in Agricultural Experiment Stations at the institutions in the North Central Region. NCA committees meet annually and use this as an opportunity for information exchange, planning on matters of common concern, identification of priority areas for regional research, and critical review of regional research projects and committees. These annual meetings are normally attended by ARD department heads.

Other types of North Central committees include NCS and NCT committees. NCS committees are few in number and are established to deal with special topic areas such as seed practices, the regional IPM grant program, and water quality research strategy and coordination. NCT committees are established for a finite short term and are usually to investigate the possibilities of beginning new regional projects or committees.

The ARD considers regional research projects and committees to be valuable opportunities to improve the productivity of our research programs, enhancing coordination and reducing duplication with other institutions. Limited funding for regional research support makes it necessary to be selective in identifying committees and projects for authorized UNL participation. Through careful management, we expect to be able to maintain significant ARD involvement in these regional activities for the foreseeable future.

NATIONAL RESEARCH INITIATIVE ALLOCATIONS TO SAESs IN THE NORTH CENTRAL REGION DURING FY1992

ARD researchers had modest success in the National Research Initiative (NRI) competition during FY1992. Our faculty obtained 1.3, 1.7, and 6.5% of the funds awarded in the Animal Systems, Plant Systems, and Processing of Value-Added Products categories, respectively. No awards were received in the areas of Natural Resources and Environment; Nutrition, Food and Health; or Markets, Trade and Policy. A listing of NRI awards by state in the North Central Region is given below:

State	Awards, $	% of Total Land Grant University Awards
Illinois	3,627,485	4.9
Indiana	2,269,491	3.1
Iowa	1,915,926	2.6
Kansas	1,307,995	1.8
Michigan	2,368,040	3.2
Minnesota	1,844,350	2.5
Missouri	2,390,697	3.2
Nebraska	**1,180,414**	**1.6**
North Dakota	319,982	0.4
Ohio	1,585,984	2.1
South Dakota	310,000	0.4
Wisconsin	4,623,525	6.3
Total	23,743,899	32.1

The Land Grant Universities in the North Central Region continue to receive a disproportional share of the NRI funds. This reflects the high quality of research underway in our region. Land Grant Universities received 79.4% of the total NRI funding. States receiving the highest proportion of NRI funds in rank order are California, New York, Texas, Wisconsin, Illinois, Michigan and North Carolina.

During FY1991, ARD researchers received 1% of the funding provided to Land Grant Universities. The increased funding received during FY1992 (1.6%) reflects the submission of more grant proposals and improved quality of proposals. ARD encourages all faculty members to consider submission of a proposal to the NRI program during the next year.

DOD CONTAMINANT CLEANUP CONTINUES AT THE ARDC

The Interagency Agreement signed by the US Army Corps of Engineers, the Nebraska Department of Environmental Quality, and the Environmental Protection Agency split the investigation and remediation phase of the contaminant cleanup at the ARDC into three operable units (OU). OU-1 includes explosive contaminated soil, OU-2 contaminated groundwater, the OU-3 will include former disposal areas and items not included in OU-1 and OU-2.

The investigation stage of OU-1 is nearly complete. Remediation activities could begin within a year. Original estimates indicated 13,000 cu.yds. of soil would need remediation. Currently, remediation will involve excavation and incineration of the contaminated soil. OU-1 investigations failed to anticipate the extent of groundwater contamination. With solid data from OU-2 on groundwater contamination, the soil remediation required in OU-1 will be much higher than originally anticipated. Calculations are currently being performed to determine the exact quantity of soil which will need to be remediated to take contamination levels to non-detect. The non-detect level for soil remediation is driven by the groundwater data.

The data collection phase of OU-2 is nearing completion. Initial reports indicate that as much as 35 billion gallons of groundwater is contaminated. A good deal of the contaminated plume of groundwater is not on the ARDC, but on private land on the east borders of the ARDC.

Negotiations between the above mentioned agencies should begin in the near future to determine what will be addressed in OU-3. UNL is lobbying very hard to place contaminated buildings, PCB's, and asbestos on the list of items OU-3 will address.

NEW OR REVISED PROJECTS

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

NEB-11-096 (Biological Systems Engineering) Waste Management: Disposal Site Characterization and Hazard Assessment
Investigator: Wayne Woldt
Status: New Hatch project effective March 1, 1993

NEB-12-173 (Agronomy) Evaluating Plant Nutrient Needs and Product Quality
Investigator: Kenneth D. Frank
Status: Revised Hatch project effective May 1, 1993

NEB-12-228 (Agronomy) Increasing Fertilizer Efficiency for Grain Crops
Investigator: Donald H. Sander
Status: New Hatch project effective November 1, 1992

NEB-13-116 (Animal Science) Genetic Enhancement of Health and Survival for Dairy Cattle
Investigator: Jeffrey F. Keown
Status: New Hatch project effective October 1, 1992 that contributes to regional project S-251

NEB-14-069 (Veterinary Science) Regulation of Expression of the Receptor for Follicle-Stimulating Hormone (FSH) in Cattle
Investigator: Deborah L. Hamernik
Status: New Hatch project effective October 1, 1992

NEB-14-070 (Veterinary Science) Regulation of Bovine Herpes Virus 1 Transcription During Latent Infection
Investigator: Clinton Jones
Status: New Competitive Grant effective September 15, 1992

NEB-14-071 (Veterinary Science) Site-Directed Mutagenesis of the p125 Polypeptide of Bovine Viral Diarrhea Virus
Investigator: Ruben O. Donis
Status: New Competitive Grant effective September 1, 1992

NEB-14-072 (Veterinary Science) Reproductive Performance in Domestic Ruminants
Investigator: Deborah L. Hamernik
Status: New Hatch project effective October 1, 1991 that contributes to W-112

NEB-15-065 (Biochemistry) Ribonuclease P from the Chloroplast and Nucleus of Chlamydomonas reinhardtii
Investigator: Sylvia C. Darr
Status: New Competitive Grant effective September 1, 1992

NEB-15-066 (Biochemistry) Molecular-Genetic/ Biochemical Studies of C4 PEPC and PPDK Phosphorylation Cycles
Investigator: Raymond Chollet
Status: New Competitive Grant effective September 1, 1992

NEB-16-062 (Food Science & Technology) Characterization of Wheat Proteins and Their Relationship to Breadmaking Quality
Investigators: Randy L. Wehling, Michael G. Zeece and David R. Shelton
Status: New Competitive Grant effective September 15, 1992

NEB-26-021 (Forestry, Fisheries & Wildlife) Molecular Mechanisms Associated with Cellular Homeostasis and Differentiation in Plants
Investigator: Stephen G. Ernst
Status: New McIntire-Stennis project effective February 1, 1993

NEB-29-003 (Industrial Ag Products Center) Reactive Processing for Starch Grafts
Investigator: Milford A. Hanna
Status: New Competitive Grant effective September 15, 1992

NEB-43-053 (West Central Research & Extension Center) Beef/Range Systems--Integrating Management Practices to Improve Efficiency
Investigator: Delwyn D. Dearborn
Status: New Competitive Grant effective July 1, 1992

NEB-44-016 (Panhandle Research & Extension Center) Weed Control Systems for Western Nebraska Irrigated Crops and Rangeland
Investigator: Robert G. Wilson
Status: Revised Hatch project effective October 1, 1992

NEB-48-019 (South Central Research & Extension Center) Managing Weeds and Herbicides for Profitable Crop Production and Reduced Environmental Risks
Investigator: Fred W. Roeth
Status: New Hatch project effective January 5, 1993

NEB-91-041 (Nutritional Science & Hospitality Management) Meat Cookery and Quality Concepts for the Foodservice Industry
Investigator: Fayrene L. Hamouz
Status: New Hatch project effective March 1, 1993

PROPOSALS SUBMITTED FOR FEDERAL GRANTS

The following is a listing of proposals that were submitted after February 1, 1993 by faculty for federal grant programs. While not all grants will be funded, we applaud the faculty member's effort in submitting proposals to the various agencies.

Glenn Helmers and Charles Francis - National Research Initiative Competitive Grants Program - USDA - Economic and Biological Implications of Flexible Crop Rotation Patterns - $527,460

Raul Barletta - National Research Initiative Competitive Grants Program - USDA - Role of Iron Uptake in *Mycobacterium paratuberculosis* Pathogenesis - $265,903

Glenn Froning and Michael Zeece - National Research Initiative Competitive Grants Program - USDA - The Role of an Alkaline Proteinase in Surimi-Like Processed Mechanically Deboned Poultry Meat - $171,284

S. Madhavan, Gautam Sarath and Patricia Herman - National Research Initiative Competitive Grants Program - USDA - Biochemical and Molecular Analysis of Acetylcholine Metabolism in Guard Cells - $148,169

Lloyd Bullerman and Milford Hanna - National Research Initiative Competitive Grants Program - USDA - Incidence and Fate of *Fusarium* Species and Toxins in Corn Based Food Products - $198,036

Robert Hutkins and Tyrrell Conway - National Research Initiative Competitive Grants Program - USDA - Physiological Studies on *Listeria monocytogenes* - $95,436

Luanne Lohr and Timothy Park - National Research Initiative Competitive Grants Program - USDA - Feasibility of Producing and Marketing Soil Substitutes from Agricultural Wastes - $67,717

Phyllis M. Higley and Martin Dickman - Midwest Plant Biotechnology Consortium - A PCR Approach for the Detection of *Xanthomonas campestris* Pathovars in Seed - $107,325

Subramaniam Srikumaran and Michael Gross - National Research Initiative Competitive Grants Program - Mapping of BHV-1 CTL Epitopes Based on Bovine MHC Class I Allele-Specific Peptide Motifs - $242,834

Swey-Shen Alex Chen, Ruben Donis and Fernanado Osorio - National Research Initiative Competitive Grants Program - USDA - Molecular Mechanisms of T-cell Mediated Inflammation of the Bovine Mammary Gland - $409,535

Martin Dickman - National Research Initiative Competitive Grants Program - USDA - Genetic Basis for Pathogenicity in the Genus *Colletotrichum* - $50,000

Rodney Moxley - Cooperating with the University of Missouri-Columbia - National Research Initiative Competitive Grants Program - USDA - Pathogenesis and Immune Response to Attaching *E. coli* from Calves - $21,237

Clayton Kelling, Subramaniam Srikumaran and Gerald E. Duhamel - National Research Initiative Competitive Grants Program - USDA - BRSV gp F and G in Bovine Respiratory Disease: Homologous Attachment Protein and Cell Receptor - $220,090

Susan Sumner, Lloyd Bullerman and Julie Albrecht - National Research Initiative Competitive Grants Program - USDA - Control of Pathogenic Microorganisms on Fresh Fruits and Vegetables - $135,085

Donald Weeks and Patricia Herman - National Research Initiative Competitive Grants Program - USDA - Development of Dicamba-Tolerant Plants - $129,980

Robert Klucas - National Research Initiative Competitive Grants Program - USDA - Maintaining Functional Leghemoglobin in Legume Nodules - $184,572

Donald Wilhite - Climate Analysis Center/NOAA - Collaborative Program between the International Drought Information Center and the Western Regional Climate Center - $20,985

Shashi Verma, F. G. Ullman and Timothy Arkebauer - National Science Foundation - Field Micrometeorological Measurements, Process-Level Studies and Modeling of Methane and Carbon Dioxide Fluxes in a Boreal Wetland Ecosystem - $705,000

William Easterling - National Institute for Global Environmental Change - FY 94 Research and Administrative Budget for the Great Plains Regional Center for Global Environmental Change - $1,629,756

Garald Horst, Steve Comfort, Pat Shea and William Powers USEPA - EPSCOR - Soil Environment Simulation and Irrigation Management for Determining Chemical Fate in Plant-Soil System - $272,546

Thomas Powers and Ken Pruess - National Institute of Health - Molecular Diagnostics of Black Fly Species Complexes - $233,041

Robert Volk - USDA/ARS - Integrated Nitrogen, Water and Pesticide Management Systems to Protect Ground Water Quality - $55,000

Daniel Walters, Shawn Kaeppler, Donald Lee, Kenneth Vogel, Kenneth Moore and Dave Marx - U.S. Department of Energy - Management and Genetic Improvement of Switchgrass as a Biomass Fuel Crop - $407,798

Joe Skopp, Dave McCallister, Dale Swartzendruber and William Powers USEPA - EPSCOR - Development and Refinement of Techniques for Determining Conductivity and Retention of Hydrocarbons in Soils - $176,195

Dennis Diestler - National Science Foundation - Computer and Theoretical Studies of Molecular Mechanisms of Friction and Lubrication - $466,185

David Mortensen - USDA/ARS - Development of a Sensor-Driven Sprayer for Herbicide Application - $3,500

Wayne Woldt and David Jones - U.S. Geological Survey - A Non-Intrusive Landfill Hazard Ranking System: Application of Geoelectric and Soil Vapor Analysis Methods - $29,860

David Stanley-Samuelson - National Institute of Health - Eicosanoids Mediate Insect Immunity - $72,073

Marion O'Leary - National Institute of Health - Heavy-Atom Isotope Effects on Enzymatic Reactions - $548,860

John Golbeck - National Science Foundation - The Function of Metals in Natural Processes - $339,999

Michael Meagher and Martin Dickman - National Research Initiative Competitive Grants Program - Cloning and Characterization of Alfa-Glucuronidase from *Trichoderma reesei* - $169,151

Kyle Hoagland - U.S. Army Corps of Engineers - Analysis of Chemical and Chlorophyll Data for Pawnee Reservoir to Evaluate Reservoir Aging - $24,850

David Mortensen - USDA/ARS - Characterizing Weed Populations in Nebraska Soybean Fields for More Efficient Management - $15,900

GRANTS & CONTRACTS RECEIVED FEBRUARY & MARCH, 1993

Agricultural Economics	
Royer, J. & Azzam, A. - USDA/ACS	24,978
Miscellaneous Grants Under $5,000 each	11,505
Agronomy	
Comfort, S. - UN Foundation	5,800
Mason, S. - UN Foundation	15,000
Mortensen, D. - USDA/ARS	15,900
Thomas-Compton, M. - UN Foundation	15,000
Miscellaneous Grants Under $5,000 each	12,800
Animal Science	
Klopfenstein, T. - Fats & Proteins Research Foundation	30,000
Lewis, A. & Miller, P. - Lilly Research Laboratories	30,000
Stock, R. - Eli Lilly & Company	17,100
Miscellaneous Grants Under $5,000 each	14,341
Biochemistry	
Banerjee, R. - NIH	106,368
Biological Systems Engineering	
Hoffman, G. & Leviticus, L. - USDA	392,221
Miscellaneous Grants Under $5,000 each	7,860
Biometry	
Eskridge, K. - UNMC-DHHS	11,050
Entomology	
Stanley-Samuelson, D. - UN Foundation	18,000
Miscellaneous Grants Under $5,000 each	6,500
Food Processing Center	
Miscellaneous Grants Under $5,000 each	3,650
Food Science & Technology	
Miscellaneous Grants Under $5,000 each	5,818
Forestry, Fisheries & Wildlife	
Hoagland, K. - U.S. Army Corps of Engineers	24,850
Horticulture	
Miscellaneous Grants Under $5,000 each	9,752
Industrial Ag Products Center	
Hanna, M. - Nebraska Department of Agriculture	29,000
Northeast Research & Extension Center	
Miscellaneous Grants Under $5,000 each	9,500
Panhandle Research & Extension Center	
Binford, G. & Baltensperger, D. - UN Foundation	15,000
Binford, G. - Anna Elliott via UN Foundation	21,000
Hein, G. - Anna Elliott via UN Foundation	15,000
Lyon, D. - Anna Elliott via UN Foundation	15,000
Wilson, R. - Anna Elliott via UN Foundation	21,000
Wilson, R., Yonts, C., Smith, J., Hein, G., Kerr, E. & Ellis, D. - Western Sugar Company	32,100
Miscellaneous Grants Under $5,000 each	8,772
Plant Pathology	
Vidaver, A. - Crop Genetics International	45,247
South Central Research & Extension Center	
Miscellaneous Grants Under $5,000 each	1,520
Veterinary Science	
Duhamel, G. - National Pork Producers Council	10,000
Miscellaneous Grants Under $5,000 each	5,295
Water Center	
Miscellaneous Grants Under $5,000 each	5,000
West Central Research & Extension Center	
Miscellaneous Grants Under $5,000 each	3,000
Grand Total	**1,014,927**

FY 1991 CASH RECEIPTS AND EXPENDITURES BY FUND SOURCE NORTH CENTRAL STATE AGRICULTURAL EXPERIMENT STATION[1,2]

State	Ag Cash Receipts 1991	Rank	State Approp to SAES	Rank	State Approp + Product Sales	Rank	Federal Formula Funds[3]	Rank	Other Federal Funds[4]	Rank	Industry & Other	Rank	Total	Rank	State Approp & Product Sales Per $1,000 Cash Receipts	Rank
Illinois	7,509	3	14,066	10	17,775	10	4,963	3	4,387	9	7,430	6	34,556	10	2.36	12
Indiana	4,475	7	21,806	5	27,126	3	4,652	6	7,242	4	7,564	5	46,584	6	6.06	2
Iowa	10,179	1	22,921	3	24,112	7	5,324	2	13,343	3	12,141	1	54,920	4	2.37	11
Kansas	6,935	5	20,524	8	26,020	4	3,137	9	6,071	6	4,148	9	39,376	7	3.75	9
Michigan	3,081	11	21,608	6	24,214	6	4,575	7	19,104	2	7,575	4	55,468	2	7.86	1
Minnesota	6,936	4	33,500	1	36,758	1	4,806	5	4,519	8	9,148	3	55,219	3	5.30	5
Missouri	3,861	9	16,748	9	20,342	9	4,438	8	5,466	7	4,893	8	35,138	9	5.27	6
N. Dakota	2,556	12	12,118	11	14,333	11	2,169	12	3,501	11	2,501	11	22,504	11	5.61	4
Nebraska	8,821	2	22,770	4	33,851	2	3,056	10	6,445	5	3,361	10	46,712	5	3.84	8
Ohio	3,893	8	21,245	7	22,868	8	5,454	1	3,643	10	4,949	7	36,914	8	5.87	3
S. Dakota	3,264	10	6,552	12	10,072	12	2,251	11	687	12	302	12	13,311	12	3.09	10
Wisconsin	5,449	6	25,054	2	25,054	5	4,856	4	21,537	1	9,794	2	61,242	1	4.60	7

[1]Compiled by the Office of the North Central Executive Director (1/93).
[2]Cash receipts are in millions; expenditures are in thousands.
[3]Hatch and McIntire-Stennis.
[4]Includes special grants, competitive grants, animal health, other CSRS funds, USDA cooperative agreements and contracts, and other federal funds.

Sources:Rankings of States and Commodities by Cash Receipts, 1991, ERS Bulletin No. 848, 11;92, Inventory of Agricultural Research FY 1991, Current Research Information System, USDA, Page 123.

Diane Says -

Always listen to the opinions of others. It probably won't do you any good but it will them.