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ARD News August 1991

Agricultural Research Division News

The Institute of Agriculture and Natural Resources

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MY VISION FOR THE FUTURE OF ARD

It is important for all organizations to define their vision for the future in terms of measurable and achievable goals and objectives. We can achieve almost anything if our collective energy and will are directed at a common purpose. I believe that during the past six years there has been tremendous progress in improving the depth and quality of our research program. This progress has been acknowledged by many administrators at other Land Grant Universities. We are on the verge of becoming one of the premier agricultural research organizations in the United States. The dedication to excellence by faculty, graduate students, and staff will provide the impetus to ensure our steady progress toward our long term goal.

Listed below is my vision for the future of the Agricultural Research Division. I hope that you share these goals and objectives. Working together we can meet our obligations to the citizens of Nebraska and advance the state of knowledge in all of our disciplines. I intend to work diligently to accomplish these objectives and I challenge each of you to accept these as a part of your overall research objectives.

GOAL:

To meet clientele needs and advance scientific knowledge with a degree of excellence that ensures that the organization is widely recognized as one of the nation's most outstanding state agricultural experiment stations.

INPUT OBJECTIVE:

To increase the resources available for conducting quality research, particularly in targeted areas of the IANR Strategic Plan. Reallocation will continue to be the principal method of addressing emerging needs.

- Recruit and hire the most qualified scientists available in the "pool".
- Increase grant and contract income to 40% of total research expenditures. Annually increase operating funds to at least the level of inflation. Appropriated and total resources per FTE should average $150,000 and $250,000, respectively, within three years on a Division basis.
- Target programmatic needs and obtain program enhancement resources from the Legislature and Congress.
- Develop improved methods for assessing research needs.

ORGANIZATIONAL OBJECTIVE:

To increase overall research program effectiveness through organizational and budgetary changes.

- Develop and implement focused research programs in units and centers that support the priority areas in the IANR Strategic Plan. Achieve an appropriate balance in efforts devoted to agriculture, post-harvest processing, natural resources, and quality of life research.
- Increase interdisciplinary research to at least 25% of the program in three years. Improve regional coordination of research to permit focus on our highest priority areas and on those Nebraska programs that have regional/national recognition for excellence.
- Increase discretionary funds in ARD to 5% of total budget to allow "risk taking" and investment in emerging opportunities.

HUMAN RESOURCE OBJECTIVE:

To improve professional development of faculty and to increase the number and quality of graduate students and post-doctoral scientists educated in agriculture, home economics, and natural resources.

- Highly encourage faculty to upgrade knowledge and skills through a variety of professional development programs.
- Increase the number and intellectual capability of domestic graduate students and post-doctoral scientists, while maintaining the benefits of cultural diversity provided by a strong international student commitment.

OUTPUT OBJECTIVE:

To increase the quality and quantity of information and publications resulting from research projects.

- Improve the rapidity at which research information is converted into extension publications and other educational media.
- Increase the refereed journal article output to an average of three per research FTE per year on a unit basis with concomitant improvement in output of other publications. Increase number of theses/ dissertations to an average of 1.5 per FTE per year.
- Increase the number and quality of research accomplishment reports to decision makers, targeted clientele groups and Nebraska citizens.
- Increase exposure of faculty, graduate students, and post-doctoral scientists by encouraging them to regularly present their research at national and international scientific meetings. Improve unit efforts to obtain recognition for outstanding faculty.

Darrell W. Nelson

WIDAMAN TRUST DISTINGUISHED GRADUATE ASSISTANT AWARD

The Widaman Trust was established in 1975 through a trust provided by Miss Blanch Widaman. Miss Widaman asked that the income from the trust be used by the University in basic research in agriculture and medicine and be used to support a person rather than supplies and/or equipment. She requested the money be used as scholarship or fellowship money for graduate students doing basic research in these areas.

DISTINGUISHED GRADUATE ASSISTANTS

JAY REMPE
International Agriculture
Agricultural Economics
Wes Peterson, Advisor

N. J. SHURPALI
Micrometerology
Agricultural Meteorology
Shashi Verma, Advisor

VICKI GUSTAFSON
Plant Breeding and Genetics
Agronomy
P.S. Baenziger, Advisors

RODERICK D. LEE
Plant Breeding
Agronomy
J.F. Pedersen, Advisor

MIRGHANI MOHAMED
Crop Physiology
Agronomy
Max Clegg, Advisor

MARK LIEBIG
Soils Physics & Management
Agronomy
Alice Jones, Advisor

GAYLENE COMFORT
Plant Breeding
Agronomy
G. Graef, Advisor

LAURA E. OBERTHUR
Plant Breeding
Agronomy
P.S. Baenziger, Advisors

T. DEAN PRINGLE
Meats & Muscle Biology
Animal Science
Chris Calkins, Advisor

RAFAEL NUNEZ-DOMINGUEZ
Animal Breeding
Animal Science
Dale Van Vleck, Advisor

JUAN CARULLA
Ruminant Nutrition
Animal Science
T. Klopfenstein & R. Britton, Advisors

GARY FRANCIS LOUIS
Non-Ruminant Nutrition
Animal Science
Austin Lewis, Advisor

JUN HYUNG-KYUN
Biochemistry
Biochemistry
Fred Wagner, Advisor

JUAN ENCISO
Soil and Water
Biological Systems Engineering
D. W. Martin, Advisor

ROBERT K.D.PETERSON
Entomology
Entomology
S. Danielson, Advisor

AZLIN MUSTAPHA
Food Science & Technology
Food Science & Technology
R. Hutkins, Advisor

G. MICHAEL GEBRE
Tree Physiology
Forestry, Fisheries & Wildlife
M. Kuhns & J. Brandle, Advisors

KYOUNG-NAM KIM
Turf Physiology
Horticulture
R. Shearman & G. Horst, Advisors

BRUCE BRODERSEN
Veterinary Pathology/MSIA
Veterinary Science
C. Kelling, Advisor

UNIVERSITY OF NEBRASKA FOUNDATION AWARDS

Dr. Patrick Shea
Department of Agronomy
Project: State-of-the-Art Gas Chromatography for Pesticide and Synthetic Organic Residue Research.

Dr. Chris Calkins
Department of Animal Science
Project: Electronic Evaluation of Lean Content in Beef Carcasses

ARD ADVISORY COUNCIL ELECTION RESULTS

As a result of recent elections, the following individuals were selected to serve on the Agricultural Research Division Advisory Council for a three-year period:

District 2: **Dean Eisenhauer (Biol Systems Engineering)** - Representing the faculty in the Departments of Biological Systems Engineering, Northeast Research and Extension Center and South Central Research & Extension Center.

District 5: **Chris Calkins (Animal Science)** - Representing the faculty in the Department of Animal Science.

District 8: **Julie Albrecht (Textiles, Clothing & Design)** - Representing the faculty in the Departments of Agricultural Communications, Agricultural Education, Consumer Science & Education, Human Development & the Family, Nutritional Science & Hospitality Management and Textiles, Clothing & Design.

Returning ARD Advisory Council Members

District 1: **John Rupnow (Food Sci & Technology)** - Representing the faculty in the Departments of Agricultural Economics and Food Science and Technology.

District 3: **Patrick J. Shea (Agronomy Department)** - Representing the faculty in the Agronomy Department.

District 4: **Shashi Verma (Agricultural Meteorology)** - Representing the faculty in the Departments of Agricultural Meteorology, Environmental Programs, Entomology and Horticulture.

District 6: **Edward J. Peters (Forestry, Fisheries & Wildlife)** - Representing the faculty in the Departments of Biometry; Forestry, Fisheries & Wildlife; and Veterinary Science.

District 7: **James Partridge (Plant Pathology)** - Representing the faculty in the Departments of Biochemistry and Plant Pathology.

District 9: **John B. Campbell (West Central R & E Center)** - Representing the faculty in the Departments of the Panhandle R & E Center and the West Central R & E Center.

The Agricultural Research Division appreciates the dedicated service and contributions to the Council by the out-going members - **Fred Roeth, Rodger Johnson, & Rita Kean.**

FY1992 CSRS BUDGET OUTLOOK

The Agriculture Subcommittees of the House and Senate Appropriations Committees have "marked up" the USDA budget for FY1992. Listed below are FY1991 appropriations and House and Senate proposed funding levels for CSRS research programs during the upcoming fiscal year. The differences between the House and Senate versions will be rationalized in the conference committee process. We expect that the USDA budget will be passed by Congress and signed by the President prior to September 30, 1991.

There will be a 4% increase in Hatch and McIntire-Stennis funds and the National Research Initiative will increase by about $27 million. The areas of "markets, trade and policy" and "value-added processing, sensors, and engineering" will be funded under the National Research Initiative in FY1992. We are hoping for modest increases in some regional /national special grants such as water quality and IPM. There is good possibility that a number of special grants will be directed specifically to problems in Nebraska.

PROGRAM	FY91 ACTUAL	FY92 HOUSE	FY92 SENATE
	----all numbers are thousands of dollars----		
Base Funds:			
Hatch Act	162,293	168,785	168,785
McIntire-Stennis	17,820	8,533	18,533
Animal Health	5,551	5,551	5,551
Nat. Research Initiative	73,000	99,000	102,000
Special Grants (Regional/Nat'l)			
Aquaculture	656	656	656
IPM	4,000	5,000	4,000
Pest. Clearance	3,000	4,000	3,000
Pest. Impact Assess.	2,968	2,968	2,968
Minor Use Drugs	450	500	429
Biol. Impact Assess.	300	300	300
Water Quality	8,000	10,000	8,000
Nebraska Specific Special Grants:			
Milkweed Production	80	80	80
Industrial Ag Products	110	0	110
Sandhills Grazing	99	99	0
Food Processing	0	0	80
Sustainable Ag Systems	0	0	120
Rural Policy Institute*	375	0	675
Other Programs:			
Rangeland Research	465	475	475
Aquaculture Centers	3,750	4,000	3,750
Sustainable Agriculture	6,725	6,725	6,725

*Joint program with The Universities of Arkansas and Missouri.

HARDIN DISTINGUISHED GRADUATE FELLOWSHIP 1991 - 1992

The recipient of the Hardin Distinguished Graduate Fellowship for 1991-92 is **Michael H. Leuthy** from the **School of Biological Sciences**. This fellowship is made possible by an endowment established at the University of Nebraska Foundation by former University of Nebraska Chancellor Clifford Hardin to support outstanding graduate students doing research in plant physiology.

Mike Luethy is completing his Ph.D. in Plant Physiology and his thesis deals with mitochondrial processes in stress physiology. His research project focuses specifically on the purification and characterization of the enzyme responsible for the increased capacity of "exogenous" NADH oxidation during stress in red beet root mitochondria. Mr. Luethy's advisor is Dr. Thomas Elthon of the Biological Sciences Department.

PROJECTS APPROVED BY THE NEBRASKA DRY BEAN COMMISSION

The following projects were approved by the Nebraska Dry Bean Commission for July 1, 1991-June 30, 1992 Funding:

David Nuland Dale Lindgren James Steadman Dermot Coyne	Evaluation of Dry Bean Cultivars for Adaptive Characteristics, Performance & Disease Reaction in Western Nebraska	4,950
Robert Wilson	Nightshade Control in Dry Edible Beans	5,000
Dermot Coyne James Steadman Anne Vidaver David Nuland Dale Lindgren	Breeding Dry Beans with Multiple Disease Resistance Combined with Improved Seed Quality, Yield and Plant Type	11,900
Gary Yuen James Steadman Eric Kerr	Evaluation of Biological Control for the Management of White Mold Disease of Dry Bean	8,100
Gary Hein	Utility of Pheromone Traps to Monitor Western Bean Cutworm Populations and Damage Potential	6,816

PROJECTS APPROVED BY THE NEBRASKA GRAIN SORGHUM DEVELOPMENT UTILIZATION AND MARKETING BOARD

The following projects were approved by the Nebraska Grain Sorghum Development, Utilization and Marketing Board for July 1, 1991-June 30, 1992 Funding:

Paul T. Nordquist David J. Andrews	Breeding and Evaluation of Improved Sorghum Germplasm	9,840
Paul T. Nordquist David J. Andrews	Sorghum Seed Production in the Columbia River Basin	15,000
Jerry D. Eastin	Development of Stress-Resistant, Water-Responsive Sorghum Germplasm	25,900
Robert Klein Paul T. Nordquist Fred W. Roeth Charles Francis	Hybrid Grain Sorghum Seed Grow-Out Study	7,500
Barbara P. Spike Robert J. Wright Stephen D. Danielson	Biology and Behavior of the Chinch Bug in Nebraska: Factors Leading to Crop Loss and Development of Improved Management Practices	21,071

PROJECTS APPROVED BY THE NEBRASKA SOYBEAN DEVELOPMENT UTILIZATION AND MARKETING BOARD

The following projects were approved by the Nebraska Soybean Development, Utilization and Marketing Board for July 1, 1991-June 30, 1992 Funding:

Donald J. Lee George L. Graef	Compositional Analysis of Seed Protein Fractions in Soybeans with High and Low Protein Content	5,790
George L. Graef James E. Specht	Development of Improved Soybean Varieties for Nebraska	71,353
George L. Graef James E. Specht	Protein and Oil Analysis of High Protein Soybean Lines	9,700
Gary L. Vacin	Research Nebraska! Agricultural Research Division Popular Research Publication	3,000
Gail A. Wicks Alex R. Martin	Control of Triazine Resistant Kochia in Soybeans	17,000
R. Chinna Swamy Milford Hanna	Soy Graft Copolymer Plastic Resins: Production and Characterization	15,800
Alex R. Martin	Low Rate Herbicide Application for Weed Management in Soybeans	17,600

PROJECTS APPROVED BY THE NEBRASKA CORN DEVELOPMENT, UTILIZATION & MARKETING BOARD

The following projects were approved by the Nebraska Corn Development, Utilization and Marketing Board for July 1, 1991-June 30, 1992 Funding:

Milford Hanna R. Chinna Swamy	Corn-Based Biodegradable Polymers (Bioplastics)	41,600
Ben Doupnik	Corn Lethal Necrosis Investigations 1) Develop PCR Probe for MCMV 2) Overwintering Mechanisms of MCMV	7,500
Michael Meagher Robert Hutkins David Jackson Milford Hanna	Liquefaction of Starch by Extrusion for Direct Utilization of High Starch Concentrations in Fermentors	21,849
Rick Stock Terry Klopfenstein Robert Britton	Evaluation of Hominy Feed for Finishing Cattle	15,185
David Jackson Blaine Johnson	Nebraska Corn Quality Evaluation and Improvement	17,990
Robert Hutkins Michael Meagher	Use of Corn as a Value-Added Substrate for the Acetone-Butanol Ethanol Fermentation	7,559
Milford Hanna	Commercialization Evaluation System for Industrial Corn Utilization Research	35,140
R. Chinna Swamy Milford Hanna	Preparation and Characterization of Starch-Xanthan Block Copolymer	15,300

PROJECTS APPROVED BY THE NEBRASKA WHEAT BOARD

The following projects were approved by the Nebraska Wheat Board for July 1, 1991-June 30, 1992 Funding:

David S. Jackson	Development of a Wheat Starch Based Bread Staling Inhibitor	13,800
David R. Shelton	Utilization of High-Quality Nebraska Wheats in the United Kingdom's Chorleywood Bread-Making Process	10,320
Robert D. Fritschen	Wheat Production and Marketing Resource Collection for the D. A. Murphy Library	585
John E. Watkins P. Stephen Baenziger C. James Peterson	Virulence Pattern and Distribution of the Natural Wheat Leaf Rust Population in Nebraska	20,000
John A. Smith Drew J. Lyon David D. Jones	Grade and Jointed Goatgrass Content of Winter Wheat Produced by Nebraska Growers	4,730
R. Chinna Swamy Milford A. Hanna	Gluten Graft Copolymer Plastic Resins: Production and Characterization	15,800
Drew J. Lyon Ivan Rush	Processing of Jointed Goatgrass Infested Wheat to Eliminate Jointed Goatgrass Seed Viability	2,280
P. Stephen Baenziger David R. Shelton	Improving Wheat Varieties for Nebraska	28,000
David R. Shelton P. Stephen Baenziger C. James Peterson Robert A. Graybosch	Selecting Nebraska Wheat for Processing	23,000
Gary L. Hein	Economic Impact and Management of Russian Wheat Aphid, *Diuraphis noxia* (Mordw.) on Wheat in Nebraska	11,688
Robert Graybosch	Antibodies as Diagnostic Tools for Improving the End-Use Quality of Nebraska Hard Red Winter Wheats	12,000
C. James Peterson	Need of Plot Tractor for Field Testing of USDA-ARS Wheat Germplasm and Genetics Research	14,000
Drew J. Lyon David D. Baltensperger	Control of Winter Annual Grasses in a Reduced Tillage Wheat System	11,840
Lenis A. Nelson	Variety Testing of Public Winter Wheat Wheat Varieties Developed Outside of Nebraska	10,000

USDA COMPETITIVE GRANTS

The competitive grants of the USDA are major sources of funding for agricultural research nationwide. It is our goal that this source of funding help us to effectively address high priority research problems. We are pleased with the number of proposals submitted to USDA this year by our faculty.

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:

Stephen G. Ernst (Forestry, Fisheries & Wildlife)
Investigation of natural hybridization in sympatric populations of *Juniperus virginiana* and *J. scopulorum*

James E. Kinder (Animal Science)
Uterine characteristics and function in the bovine with luteal phase deficiency

Michael Zeece (Food Science and Technology)
Characterization and localization of bovine muscle cystatin

Clayton L. Kelling and Subramaniam Srikumaran (Veterinary Science)
Bovine respiratory syncytial virus: pathogenesis and immunity

Sara Azzam (Animal Science)
Climatic effects on neonatal survival of calves

Subramaniam Srikumaran, Clayton Kelling & Rodney Moxley (Veterinary Science)
Molecular characterization of TGE virus - host cell receptor interactions

John P. Markwell (Biochemistry)
Biosynthesis of chlorophyll *b*

Marion O'Leary (Biochemistry)
Carbon isotope fractionation in photosynthesis

Stephen D. Danielson & Blair D. Siegfried (Entomology)
Characterization of resistance to insect herbivory in glandular *medicago* species

Robert W. Hutkins (Food Science & Technology)
Inhibition of *Listeria monocytogenes* in minimally processed foods by bacteriocin-producing lactic acid bacteria under non-growing, non-fermenting conditions

Susan S. Sumner & Susan L. Cuppett (Food Science & Technology)
Control of pathogens in refrigerated foods with antimicrobials in edible films

David W. Stanley-Samuelson & Kenneth W. Nickerson (Entomology)
Eicosanoids mediate insect immune responses

Amit Mitra, Roy C. French & W. G. Langenberg (Plant Pathology)
Fungal zoospore mediated transfer of foreign DNA into plants

Fernando A. Osorio & Clinton Jones (Veterinary Science)
Modulation of latent pseudorabies virus infections by vaccines: a quantitative analysis

Lance J. Meinke, Robert J. Wright & Larry D. Godfrey (Entomology) and Timothy J. Arkebauer (Agronomy)
Western corn rootworm: direct and interactive effects on corn plant physiology

Leon J. Higley (Entomology)
Photosynthetic responses to arthropod leaf injury and their mechanisms

Martin B. Dickman (Plant Pathology)
Phosphorylation in *Colletotrichum trifolii* during early stages of alfalfa anthracnose

Z B Mayo and Lisa L. Silberman (Entomology)
Augmentation of parasitoids and predators to manage greenbugs on grain sorghum

H. Edward Grotjan (Animal Science)
Ovine luteinizing hormone structure-function relationships

Raul G. Barletta (Veterinary Science)
Detection of *M. paratuberculosis* by diagnostic shuttle phasmids

Michael M. Meagher (Food Science and Technology)
Purification and characterization of an alpha-glucuronidase from *Trichoderma reesei*

Lowell E. Moser, Steven S. Waller & Mary S. Miller (Agronomy)
Growth and demographic analysis of whole *in situ* warm-season grass seedlings

Jerry D. Eastin (Agronomy) and James E. Partridge (Plant Pathology)
The biochemical nature of developmental stress resistance mechanisms in sorghum

Ruben O. Donis (Veterinary Science)
Site-directed mutagenesis of the p125 polypeptide of bovine viral diarrhea virus

Clinton Jones and Fernando A. Osorio (Veterinary Science)
Regulation of bovine herpesvirus 1 transcription during latent infections

Albert Weiss (Agricultural Meteorology)
Implications of global climate change on corn/weed interactions

William L. Powers and Patrick J. Shea (Agronomy) and David Marx (Biometrics)
A sampling strategy to better assess the vertical movement of agrichemicals

Blaine E. Johnson (Agronomy)
Mapping qualitative trait loci using molecular markers in maize

Barbara P. Spike, Robert J. Wright and Stephen D. Danielson (Entomology)
Preventive pest management tactics to minimize infestation and damage by chinch bugs

Albert Weiss (Ag Meteorology), David A. Mortensen (Agronomy) and Kent Eskridge (Biometrics)
An ecosystems approach to understanding corn/weed interactions for crop loss assessment

Alexander D. Pavlista, Eric Kerr (Panhandle Research & Extension Center) and Gary Y. Yuen (Plant Pathology)
Crop rotations on soil fungal and nematode populations in potato fields

Robert J. Spreitzer (Biochemistry)
Chloroplast heteroplasmic suppression

Dean E. Eisenhauer (Biological Systems Engineering), Richard B. Ferguson and Fred W. Roeth (South Central Research & Extension Center) and Roy F. Spalding (Agronomy)
Movement of agricultural chemicals beneath conservation tilled-furrow irrigated land

Milford A. Hanna (Industrial Agricultural Products Center)
Nonfood agricultural products

Milford A. Hanna (Industrial Agricultural Products Center)
Investigating milkweed as an alternative source of fiber

Delwyn D. Dearborn (West Central Research & Extension Center)
Beef/range systems — integrating management practices to improve efficiency

Gary Hergert and Norman Klocke (West Central Research & Extension Center)
Quantifying nitrate leaching under continuous corn versus a corn-soybean rotation

Scott Nissen, Robert Masters and Don Lee (Agronomy)
Establishing eurasian origin(s) of North American leafy spurge using DNA markers

Roy F. Spalding (Agronomy)
Measurements of injected herbicide mobility and persistence in groundwater

Shripat Kamble (Environmental Programs)
Participation in the national agricultural pesticide impact assessment program

Clayton Kelling, Louis J. Perino and Richard D. Oberst (Veterinary Science)
Enhancement of immunity to bovine respiratory syncytial virus infections

Gerald E. Duhamel (Veterinary Science) and Gerald Bodman (Biological Systems Engineering)
Integrated management practices for control of swine dysentery and salmonellosis

Sam Cordes, Jeffrey S. Royer, and Paul H. Gessaman (Ag Economics)
Impacts of federal agricultural policy on rural communities

Robert Klucas (Biochemistry)
Maintaining functional leghemoglobin in legume nodules

NEW OR REVISED PROJECTS

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

12-202 (Agronomy) Winter Wheat Germplasm Enhancement and Performance Evaluation
Investigator(s): C. J. Peterson and R. A. Graybosch
Status: New State project effective May 7, 1991

12-203 (Agronomy) Flow of Water and Particles in Soils and Porous Media
Investigator: D. Swartzendruber
Status: New Hatch project effective June 1, 1991

12-204 (Agronomy) Biological and Ecological Basis for a Weed Management Model to Reduce Herbicide Use in Corn
Investigator(s): D. A. Mortensen, R. G. Wilson, S. J. Nissen
Status: New Hatch project that contributes to regional project NC-202

12-205 (Agronomy) Establishing Eurasian Origin(s) of North American Leafy Spurge Using DNA Markers
Investigator(s): S. Nissen, R. Masters, and D. Lee
Status: New Special Grant effective June 1, 1991

12-206 (Agronomy) Water and Carbon Economy of Plants in Relation to Rhizospheric and Atmospheric Dynamics
Investigator: C. Y. Sullivan
Status: New Hatch project that contributes to regional project W-154

12-208 (Agronomy) Measurements of Injected Herbicide Mobility & Persistence in Groundwater
Investigator: R. F. Spalding
Status: New Special Grant effective May 1, 1991

13-108 (Animal Science) Enhancing Reproductive Efficiency of Boars
Investigator: D. G. Levis
Status: New Hatch project effective May 7, 1991

14-061 (Veterinary Science) Enhancement of Immunity to Bovine Respiratory Syncytial Virus Infections
Investigator(s): C. L. Kelling, L. J. Perino & R. D. Oberst
Status: New Special Grant effective June 1, 1991

15-058 (Biochemistry) Genetic Modification of Chloroplast Rubisco
Investigator: R. J. Spreitzer
Status: New Hatch project effective May 7, 1991

17-055 (Entomology) Physiological Consequences and Management of Arthropod Leaf Injury to Plants
Investigator: L. G. Higley
Status: New Hatch project effective June 1, 1991

20-040 (Horticulture) Genetic Improvement of Beans (Phaseolus Vulgaris L.) for Yield, Pest Resistance and Food Value
Investigator(s): D. P. Coyne and J. R. Steadman
Status: Revised Hatch project that contributes to Regional Project W-150

24-030 (Ag Education) Evaluation of Interventions in Leadership Development Programs
Investigator(s): R. D. Dillon & E. H. Miller
Status: New State project effective July 1, 1991

42-016 (Northeast Research & Extension Center) Management Practices to Enhance Performance of Weaned Pigs
Investigator(s): M. C. Brumm and D. P. Shelton
Status: New Hatch project effective June 3, 1991

91-037 (Nutritional Science and Hospitality Management) Behavioral and Health Factors that Influence the Food Consumption of Young Adults
Investigator: N. M. Betts
Status: New Hatch project that contributes to Regional Project NC-200

91-038 (Nutritional Science and Hospitality Management) The Use of Natural Antioxidants to Control Warmed-Over Flavor in Meats
Investigator: M. Schnepf
Status: New Hatch project effective July 1, 1991

91-039 (Nutritional Science and Hospitality Management) Nutrient Intake, Eating Behaviors, and Anthropometric Measurements of Young Children in Nebraska
Investigator: K. Stanek
Status: New Hatch project effective July 1, 1991

93-026 (Human Development and the Family) Assessing Change in Rural Head Start Families
Investigator: P. Zeece
Status: New Hatch project effective May 7, 1991

GRANTS AND CONTRACTS RECEIVED JUNE & JULY, 1991

Agronomy	
Baenziger, P. S. - Ciba-Geigy	80,468
Mortensen, D. - UN Foundation	9,700
Moser, L. - Sampson Range & Pasture Management Endowment via UN Foundation	10,000
Nissen, S., Masters, R., & Lee, D. - USDA/CSRS	75,000
Spalding, R. - USDA	190,352
Walters, D. - TVA	21,000
Miscellaneous Grants Under $5,000 each	71,298
Animal Science	
Grant, R. - Fats & Proteins Research	17,850
Johnson, R. - National Pork Producers Council	8,544
Klopfenstein, T. - Ag Processing, Inc.	12,000
Miscellaneous Grants Under $5,000 each	29,000
Biochemistry	
O'Leary, M. - National Institute of Health	127,242
Biological Systems Engineering	
Miscellaneous Grants Under $5,000 each	9,598
Entomology	
Foster, J. - USDA/ARS	20,000
Miscellaneous Grants Under $5,000 each	43,900
Environmental Programs	
Kamble, S. - USDA	14,787
Miscellaneous Grants Under $5,000 each	15,500
Food Processing Center	
Miscellaneous Grants Under $5,000 each	13,181
Food Science & Technology	
Hutkins, R. - National Dairy Promotion & Research	35,600
Miscellaneous Grants Under $5,000 each	18,726
Forestry, Fisheries & Wildlife	
Savidge, J. - U.S. Fish & Wildlife	21,000
Horticulture	
Miscellaneous Grants Under $5,000 each	25,290
Industrial Ag Products Center	
Hanna, M. - USDA/CSRS	75,840
Miscellaneous Grants Under $5,000 each	50
Northeast Research & Extension Center	
Miscellaneous Grants Under $5,000 each	34,100
Panhandle Research & Extension Center	
Miscellaneous Grants Under $5,000 each	53,729
Plant Pathology	
Miscellaneous Grants Under $5,000 each	14,500
South Central Research & Extension Center	
Miscellaneous Grants Under $5,000 each	28,900
Veterinary Science	
Duhamel, G. - National Pork Producers Council	13,920
Duhamel, G. & Bodman, G. - USDA	88,641
Jones, C. - National Cancer Institute	86,635
Jones, C. - Nebr. Dept. of Health	30,000
Jones, C. - National Institute of Health	15,930
Kelling, C. & Perino, L. - USDA/CSRS	64,884
Osorio, F. - National Pork Producers Council	13,920
Srikumaran, S. - National Pork Producers Council	13,440
Miscellaneous Grants Under $5,000 each	18,200
West Central Research & Extension Center	
Hergert, G. & Klocke, N. - USDA	116,000
Miscellaneous Grants Under $5,000 each	27,046
TOTAL	**1,565,771**