7-1988

Agricultural Experiment Station News July 1988

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GARDNER RECEIVES USDA DISTINGUISHED SERVICE AWARD

Dr. Charles O. Gardner, Foundation Professor (Agronomy), received the USDA Distinguished Service Award for Education and Information in Washington, D.C., on June 22, 1988. Dr. Gardner was cited for his 41 years of innovative work on quantitative genetics and plant breeding to effect the improvement of maize, sorghum, and other crops in the United States and internationally. Dr. Gardner is a Fellow in the Crop Science Society of America and has served as President of the organization.

Dr. Gardner became the Interim Head of the Biometrics and Information Systems Center on July 1, 1988. He will be serving in that capacity on a half-time basis for one year.

INTERDISCIPLINARY RESEARCH PROJECT FUNDED

One research project was selected from 15 proposals to be funded for $15,000 by the ARD Interdisciplinary Research Support Program. The selected project entitled “Utilization of Cereal Grains and Food Processing Wastes as Substrates for Mushroom Production” was submitted by Lloyd Bullerman and Susan Cuppett (Food Science and Technology), Wendell Gauger (Biological Sciences), Milford Hanna (Agricultural Engineering), Roger Uhlinger (Horticulture), and James Kordick (Prairie Marketing Corporation).

Projects are eligible for funding from this program for up to three years if suitable progress is demonstrated. The following two interdisciplinary projects received approval for second-year funding:

“Analysis of Genetic Recombination in Maize Populations Using Molecular Markers” with Bill Compton, Mary Thomas-Compton, Rosalind Morris, Paul Stawick, Charles Gardner (Agronomy), David Galbraith (Biological Sciences), and Mark Walton (Native Plants Inc., Salt Lake City, Utah) serving as investigators.

“Alternative Fertility Sources in Crop Rotations” with Chuck Francis, Mike Jawson, Steve Mason, Darrell Nelson, Jim Power, Dan Walters, Pat Shea (Agronomy), Tom Sullivan (Animal Science), Warren Suhls (ARD), and Glenn Helmers (Ag Economics) as investigators.

A committee consisting of Merlyn Nielsen (Animal Science), Tom Powers (Plant Pathology), Pat Shea (Agronomy), Dave Shelton (NEREC), and John Smith (PREC) screened the proposals and made funding recommendations.

GRADUATE STUDENT RECRUITMENT TRAVEL FUND

The Agricultural Research Division established a travel reimbursement program for prospective graduate students in 1987. The program was designed to help attract high quality students into ARD research programs.

A special account has been established in the Dean’s office to provide administrative units with funds to partially reimburse travel expenses for prospective graduate students who wish to visit the department/district center before making a decision. Only individuals who have been offered graduate research assistantships are eligible for reimbursement. Funding is limited to two graduate students per calendar year per administrative unit, although administrative units may also use internal resources to reimburse additional students. Maximum reimbursement is up to 50 percent of transportation, lodging, and meal expenses or $200, whichever is less.

Additional information may be obtained from the Agricultural Research Division office.

NEW PROFESSIONAL TRAVEL ACCOUNT NUMBER

The new Professional Travel Account Number is LGE/62-016-03. Please use this number in place of 62-016-014-01 after July 1, 1988.
ARD ADVISORY COUNCIL NOTES AND ELECTION RESULTS

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

**District 2** - Ag. Engineering, Northeast Research & Extension Center, South Central Research & Extension Center, Southeast Research & Extension Center - Fred Roeth

**District 3** - Agronomy - Steve Baenziger (1 year to complete Bill Compton's term)

**District 5** - Animal Science - Rodger Johnson

**District 8** - Ag. Education, Ag. Communications, Consumer Science & Education, Human Development & the Family, Human Nutrition & Food Service Management, Textiles, Clothing & Design - Rita Kean

Returning Advisory Council members are:

**District 1** - Ag. Economics, Food Science & Technology - John Yanagida

**District 4** - CAMaC, Entomology, Environmental Programs, Horticulture - Dermot Coyne

**District 6** - Biometrics and Information Systems Center, Forestry, Fisheries & Wildlife, Veterinary Science - S. Srikumaran

**District 7** - Ag. Biochemistry, Plant Pathology - Tom Powers

**District 9** - West Central Research & Extension Center, Panhandle Research & Extension Center - John Smith

The ARD appreciates all of the contributions to the Council by out-going members Bill Compton, Terry Meisenbach, Jim Kinder, and Dave Shelton.

Council members are revising the ARD Advisory Council Bylaws and have been addressing the alignment of ARD Districts. They recently evaluated and selected individuals for the Widaman, Hardin, and ARD International Travel Awards. They also evaluated the Interdisciplinary Research Proposals. The review process for ARD project proposals is current being evaluated.

This Council serves an important function in the Agricultural Research Division by providing counsel and maintaining liaison with the Dean's office and by surfacing issues and ideas pertaining to the agricultural research programs. Faculty are urged to contact their representatives on the Advisory Council relative to items them would like to see addressed by the Council. The 1988-89 Council officers are John Smith, Chairman, and Tom Powers, Secretary.

NEW FACULTY ORIENTATION

Plans are now being made for New Faculty Orientation to be held from 8:00 a.m. to approximately 3:00 p.m. on **Tuesday, August 23**, at the East Campus Union. In early August, Chancellor Massengale will send personal invitations to all new faculty. It is important that new faculty attend orientation. Evaluations from past orientations indicate that new faculty find the sessions very informative and helpful; they also appreciate the opportunity to meet other new faculty members from across the University.

INTERNATIONAL TRAVEL AWARDS

Three individuals were selected to receive awards from the ARD International Travel Program for the period of July 1, 1988 through December 31, 1988. The three proposals recommended by the ARD Advisory Council Selection Committee were:

**Martin B. Dickman** (Plant Pathology) to participate in the 5th International Congress of Plant Pathology and confer with scientists in Japan.

**Roger Uhlinger** (Horticulture) to conduct research on post harvest handling of horticultural commodities at the Horticultural Research Institute, Knoxfield, Victoria, Australia.

**John F. Yanagida** (Ag Economics) to participate in the 8th International Symposium on forecasting and confer with scientists in Amsterdam, The Netherlands.

HARDIN DISTINGUISHED GRADUATE FELLOWSHIP

Kevin D. Eichelberger has been named as the 1988-89 recipient of the Hardin Distinguished Graduate Fellowship in Plant Stress Physiology. Eichelberger, a student in the Department of Agronomy under C. O. Gardner, is combining research on breeding, quantitative genetics, and molecular biology into a comprehensive study of freeze and heat tolerance in maize. The fellowship includes a $2,000 addition to his graduate assistantship and $1,000 operational support. The fellowship was initiated by former UN-L Chancellor and former Secretary of Agriculture Clifford Hardin.

SCHNEIDER RECEIVES RESEARCH COUNCIL GRANT-IN-AID

The Research Council has awarded a grant-in-aid to **Norman R. Schneider** (Veterinary Science). The $2,500 grant will be used to study listeriosis in nitrate-exposed mice.
## WHERE DOES NEBRASKA RANK IN AGRICULTURE?

<table>
<thead>
<tr>
<th>Land in farms (acres in thousands)</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
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</thead>
<tbody>
<tr>
<td>TX</td>
<td>133,200</td>
<td>60,800</td>
<td>47,900</td>
<td>47,200</td>
<td>44,600</td>
<td>44,500</td>
<td>40,500</td>
<td>37,000</td>
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<tr>
<td>KS</td>
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<td>NE</td>
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<td>NM</td>
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<td>SD</td>
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<tr>
<td>AZ</td>
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<td></td>
</tr>
</tbody>
</table>

## Value of farm real estate (millions of $)

<table>
<thead>
<tr>
<th>TX</th>
<th>CA</th>
<th>IL</th>
<th>IA</th>
<th>FL</th>
<th>MO</th>
<th>KS</th>
<th>NE</th>
</tr>
</thead>
<tbody>
<tr>
<td>64,539</td>
<td>44,820</td>
<td>29,856</td>
<td>25,136</td>
<td>19,033</td>
<td>16,938</td>
<td>16,304</td>
<td>15,810</td>
</tr>
</tbody>
</table>

## Number of cattle and calves (thousand head)

<table>
<thead>
<tr>
<th>TX</th>
<th>KS</th>
<th>NE</th>
<th>OK</th>
<th>CA</th>
<th>IA</th>
<th>MO</th>
<th>WI</th>
</tr>
</thead>
<tbody>
<tr>
<td>13,500</td>
<td>5,860</td>
<td>5,450</td>
<td>5,050</td>
<td>4,600</td>
<td>4,600</td>
<td>4,250</td>
<td>4,230</td>
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</table>

## Number of hogs and pigs (thousand head)

<table>
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<tr>
<th>IA</th>
<th>IL</th>
<th>IN</th>
<th>MN</th>
<th>NE</th>
<th>MO</th>
<th>NC</th>
<th>OH</th>
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<tbody>
<tr>
<td>13,800</td>
<td>5,300</td>
<td>4,600</td>
<td>4,350</td>
<td>4,000</td>
<td>2,950</td>
<td>2,500</td>
<td>2,150</td>
</tr>
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</table>

## Cash receipts from crops (millions of $)

<table>
<thead>
<tr>
<th>CA</th>
<th>IL</th>
<th>IA</th>
<th>FL</th>
<th>TX</th>
<th>MN</th>
<th>NE</th>
<th>IN</th>
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<tbody>
<tr>
<td>9,602</td>
<td>4,737</td>
<td>4,124</td>
<td>3,688</td>
<td>2,928</td>
<td>2,679</td>
<td>2,669</td>
<td>2,258</td>
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</table>

## Cash receipts from livestock (millions of $)

<table>
<thead>
<tr>
<th>TX</th>
<th>IA</th>
<th>CA</th>
<th>NE</th>
<th>WI</th>
<th>KS</th>
<th>MN</th>
<th>PA</th>
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</thead>
<tbody>
<tr>
<td>5,516</td>
<td>4,982</td>
<td>4,556</td>
<td>4,260</td>
<td>4,164</td>
<td>3,447</td>
<td>3,395</td>
<td>2,239</td>
</tr>
</tbody>
</table>

## Direct government payments (millions of $)

<table>
<thead>
<tr>
<th>IA</th>
<th>TX</th>
<th>IL</th>
<th>KS</th>
<th>NE</th>
<th>MN</th>
<th>ND</th>
<th>IN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,161</td>
<td>978</td>
<td>883</td>
<td>871</td>
<td>868</td>
<td>802</td>
<td>700</td>
<td>411</td>
</tr>
</tbody>
</table>

## Net cash income from farming (millions of $)

<table>
<thead>
<tr>
<th>CA</th>
<th>IA</th>
<th>TX</th>
<th>IL</th>
<th>NE</th>
<th>MN</th>
<th>FL</th>
<th>WI</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,034</td>
<td>3,596</td>
<td>2,984</td>
<td>2,727</td>
<td>2,674</td>
<td>2,625</td>
<td>2,261</td>
<td>2,102</td>
</tr>
</tbody>
</table>

## SOYBEAN BOARD FUNDING

The Soybean Development, Utilization and Marketing Board recently approved the following two projects making the funding total $215,852 for FY 1988-89.

- **G. H. Pfeifer**: Evaluating Alternative Marketing Strategies for Nebraska Soybean Producers - $17,000
- **J. G. Kendrick**: A Study on the Film Forming Properties of Biopolymers - 5,000

## CORN BOARD FUNDING

The following project was recently added to the ten projects previously funded by the Nebraska Corn Development, Utilization and Marketing Board making the funding total $141,050 for FY 1988-89.

- **R. W. Elmore**: White Corn Hybrid Performance - $3,150

## WHEAT BOARD GRANTS

The Nebraska Wheat Board recently met in Ogallala and selected the following projects for funding during FY 1988-89.

- **P. S. Baenziger, C. J. Peterson**: Improving Wheat for Nebraska - $19,000
- **P. J. Mattern**: Selecting Nebraska Wheats for Processing Needs of Domestic and Foreign Markets - 17,900
- **F. P. Buxendahl, J. B. Campbell, J. E. Watkins**: Determine Factors Affecting the Economic Impact and Control of the Russian Wheat Aphid - 7,500

## NEBRASKA DRY BEAN COMMISSION

The following projects were approved by the Nebraska Dry Bean Commission for funding for FY 1988-89.

- **J. H. Rupnow**: The Effect of Infra-red Heat on Bean Plants - $10,150
- **E. R. Peo**: Treatment on the Nutritional Value and Functional Properties of Phaseolus vulgaris - 10,800
- **G. H. Pfeifer**: Evaluating Alternative Marketing Strategies for Nebraska Soybean Producers - $17,000
- **J. G. Kendrick**: A Study on the Film Forming Properties of Biopolymers - 5,000
- **M. A. Hanna**: A Study on the Film Forming Properties of Biopolymers - 5,000
- **R. Chinnaswamy**: A Study on the Film Forming Properties of Biopolymers - 5,000

- **E. D. Kerr**: New Production Systems for Dry Beans - $10,800
- **J. G. Robb**: Edible Beans to Improve Production Efficiency - 10,800
- **J. A. Smith**: Improved Seed Quality, Yield, and Egg Production - 10,800
- **R. G. Wilson**: Resource Library - 2,400
- **C. D. Yonts**: The Effect of Infra-red Heat on Bean Plants - $10,150

- **R. D. Fritschen**: Establish a Regional Dry Bean Program - 2,400
- **D. A. Martin**: Breeding Dry Beans with Multiple Disease Resistance Combined with Improved Seed Quality, Yield, and Plant Type - 2,400
- **A. J. Bateman**: Improved Seed Quality, Yield, and Egg Production - 10,800
- **J. C. Robb**: Edible Beans to Improve Production Efficiency - 10,800
- **D. S. Nuland**: Resource Library - 2,400

- **P. J. Mattern**: Selecting Nebraska Wheats for Processing Needs of Domestic and Foreign Markets - 17,900
- **P. S. Baenziger**: Improving Wheat for Nebraska - $19,000
- **C. J. Peterson**: A Study on the Film Forming Properties of Biopolymers - 5,000
- **F. P. Buxendahl**: Determine Factors Affecting the Economic Impact and Control of the Russian Wheat Aphid - 7,500
- **J. B. Campbell**: Economic Impact and Control of the Russian Wheat Aphid - 7,500
- **J. E. Watkins**: Economic Impact and Control of the Russian Wheat Aphid - 7,500

- **D. P. Coyne**: Breeding Dry Beans with Multiple Disease Resistance Combined with Improved Seed Quality, Yield, and Plant Type - 2,400
- **J. R. Steadman**: Economic Impact and Control of the Russian Wheat Aphid - 7,500
- **D. S. Nuland**: Resource Library - 2,400
- **J. R. Steadman**: Economic Impact and Control of the Russian Wheat Aphid - 7,500
- **D. P. Coyne**: Breeding Dry Beans with Multiple Disease Resistance Combined with Improved Seed Quality, Yield, and Plant Type - 2,400
- **D. S. Nuland**: Resource Library - 2,400
- **J. R. Steadman**: Economic Impact and Control of the Russian Wheat Aphid - 7,500
- **D. P. Coyne**: Breeding Dry Beans with Multiple Disease Resistance Combined with Improved Seed Quality, Yield, and Plant Type - 2,400
- **D. S. Nuland**: Resource Library - 2,400
- **J. R. Steadman**: Economic Impact and Control of the Russian Wheat Aphid - 7,500
WIDAMAN AWARDS

The Agricultural Research Division has approved 18 Widaman Trust Distinguished Graduate Assistantship Awards based on recommendations from the ARD Advisory Council. Each recipient will receive a $1,200 stipend supplement during the 1988-89 academic year. The graduate students receiving the awards are:

<table>
<thead>
<tr>
<th>Name/Department</th>
<th>Field of Study</th>
<th>Adviser(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bargman, Tracy J.</td>
<td>Food Allergens</td>
<td>John Rupnow</td>
</tr>
<tr>
<td>Byers, Matthew B.</td>
<td>Toxicology</td>
<td>S.T. Kamble</td>
</tr>
<tr>
<td>Chiba, Lee I.</td>
<td>Nonruminant Nutrition</td>
<td>A.J. Lewis</td>
</tr>
<tr>
<td>Christianson, Steven L.</td>
<td>Nonruminant Nutrition</td>
<td>E.R. Peo</td>
</tr>
<tr>
<td>Coleman, Gary D.</td>
<td>Forest Genetics</td>
<td>S.G. Ernst</td>
</tr>
<tr>
<td>Deffenbaugh, Lynn B.</td>
<td>Carbohydrate Chemistry</td>
<td>R. Wehling</td>
</tr>
<tr>
<td>Douglas, Jihad H.</td>
<td>Monogastric Nutrition</td>
<td>T.W. Sullivan</td>
</tr>
<tr>
<td>Etcheberger, Kevin D.</td>
<td>Plant Breeding &amp; Genetics</td>
<td>C.O. Gardner</td>
</tr>
<tr>
<td>El-Daas, Hisham</td>
<td>Production Economics</td>
<td>G.A. Helmers</td>
</tr>
<tr>
<td>Fellows, Gary M.</td>
<td>Weed Science</td>
<td>F. Roeth</td>
</tr>
<tr>
<td>Galetto, Alejandro</td>
<td>Farm Management and Production Economics</td>
<td>G.A. Helmers</td>
</tr>
<tr>
<td>Garcia, Richard L.</td>
<td>Agronomy/Ag Meteorology</td>
<td>S.B. Verma</td>
</tr>
<tr>
<td>Grahammer, Kathrin</td>
<td>Soil Science</td>
<td>M. Jawson</td>
</tr>
<tr>
<td>Haftley, Jenny Lynn</td>
<td>Range Management</td>
<td>B.E. Anderson</td>
</tr>
<tr>
<td>Hawkins, Lomas K.</td>
<td>Maize Breeding</td>
<td>W.A. Compton</td>
</tr>
<tr>
<td>Watson, David Wesley</td>
<td>Insect Pathology</td>
<td>J.J. Petersen</td>
</tr>
<tr>
<td>Wolfe, Michael W.</td>
<td>Physiology/Endocrinology</td>
<td>J.E. Kinder</td>
</tr>
</tbody>
</table>

PROMOTIONS EFFECTIVE JULY 1, 1988

To Associate Professor:
- Gary Anderson (Veterinary Science)
- Alice Jones (Agronomy)
- Derrel Martin (Agricultural Engineering)
- Dennis McCallister (Agronomy)
- Rick Stock (Animal Science)

To Professor:
- Richard Foster (Agricultural Education)
- Gary Hergert (Agronomy, WCREC)
- Bruce Johnson (Agricultural Economics)
- Paul Nordquist (Agronomy, WCREC)
- Anne Parkhurst (Biometrics)

TRANSFER

Lewis A. Nelson transferred from PREC to Agronomy to coordinate statewide variety testing programs and alternative crops research.

NEW AND REVISED CSRS PROJECTS

10-105 Economic Consequences of Alternative Food and Agricultural Policies
Investigator: W. L. Miller, Ag Economics
Status: New Hatch project effective May 9, 1988

11-079 Agricultural Tractor Testing Board: Policies and Procedures
Investigators: K. Von Bargen, R. D. Grisso, Ag Engineering
Status: New Hatch project effective April 1, 1988

12-001 Corn Breeding and Genetics
Investigator: W. A. Compton, Agronomy
Status: Revised Hatch project effective May 9, 1988

12-011 Properties of Nebraska Soils as Related to Soil Genesis, Classification, Survey, and Land Use
Investigator: D. T. Lewis, Agronomy
Status: Revised Hatch project effective June 1, 1988

12-125 Modeling Water Use and Growth of Plants
Investigator: J. M. Norman, Agronomy
Status: Revised Hatch project effective December 1, 1987

12-174 Market Quality of Hard Wheat for Domestic
and International Foods

Investigator: P. J. Mattern, Agronomy
Status: Revised Hatch project effective October 1, 1987, contributing to NC-188

12-175 Improving the Forage Quality of Grasses for Nebraska and the Central Great Plains
Investigator: B. C. Gabrielsen, Agronomy
Status: New State project effective April 1, 1988

12-176 Development of an Economic Threshold Decision Aid for Weed Control in Soybeans
Investigators: D. A. Mortensen, G. A. Wicks, Agronomy
Status: New Special Grant effective June 1, 1988

13-083 Improving Dairy Cattle Genetically
Investigator: J. F. Keown
Status: Revised Hatch project effective October 1, 1987, contributing to NC-2

13-090 Muscle Proteolysis and Meat Tenderness
Investigators: C. R. Calkins, S. J. Jones, Animal Science
Status: New Hatch project effective April 15, 1988

15-048 Molecular Control of Photosynthetic Energy Production
Investigator: J. P. Markwell, Ag Biochemistry
Status: New Hatch project effective May 9, 1988

21-040 DNA Replication and Gene Expression of Chlorella Viruses
Investigator: J. L. Van Etten, Plant Pathology
Status: New Hatch project effective October 1, 1987, contributing to IR-7

27-002 Chemistry of Atmospheric Deposition-Effects on Agriculture, Forestry, Surface Waters, and Materials
Investigators: S. B. Verma, Center for Ag Meteorology & Climatology
Status: Revised Hatch project effective October 1, 1987, contributing to IR-7

THE AMERICAN FARMER

- 2.2 million American farmers provide food and fiber for 251 million people—203 million in the U.S. and 48 million overseas;
- an American farmer provides food and fiber for 114 people—including 92 in the U.S. and 22 overseas. That figure is up from 73 in 1970 and 46 in 1960;
- a farmer spends $484 to produce the food for one person annually;
- farmers get 25 cents of the consumers' food dollar spent for food raised on U.S. farms—down from 32 cents 20 years ago.

RESEARCH GRANTS AND CONTRACTS RECEIVED MAY 1988

AGRICULTURAL ENGINEERING
Miscellaneous Grants under $5,000 each
$ 9,299

AGRICULTURAL RESEARCH DIVISION
Sahs, W. W. - USDA
15,000

AGRONOMY
Francis, C. A. - Nebr. Dept. of Agriculture
19,509
Mortensen, D. & Wicks, G. A. - USDA/CSRS
49,668
Nelson, D. W. - Pioneer Hi-Bred International
20,000
Miscellaneous Grants under $5,000 each
37,050

ANIMAL SCIENCE
Grootes, H. E. - U.S. Dept. of Health & Human Services
156,478
Peo, E. R. - Syntex Animal Health, Inc.
12,000
Miscellaneous Grants under $5,000 each
9,450

CENTER FOR AGRICULTURAL METEOROLOGY & CLIMATOLOGY
Brad, B. L. - NASA
88,099
Verma, S. B. - National Science Foundation
127,800
Verma, S. B. - NASA
73,000

ENTOMOLOGY
Miscellaneous Grants under $5,000 each
7,600

ENVIRONMENTAL PROGRAMS
Miscellaneous Grants under $5,000 each
500

FOOD PROCESSING CENTER
Miscellaneous Grants under $5,000 each
4,000

FOOD SCIENCE AND TECHNOLOGY
Shahani, K. M. - Roberts Research Foundation
10,000
Miscellaneous Grants under $5,000 each
4,680

HORTICULTURE
Miscellaneous Grants under $5,000 each
12,307

NORTHEAST RESEARCH & EXTENSION CENTER
Miscellaneous Grants under $5,000 each
5,695

PANHANDLE RESEARCH & EXTENSION CENTER
O'Keefe, R. B. - Nebr. Dept. of Agriculture
12,250
Miscellaneous Grants under $5,000 each
19,800

PLANT PATHOLOGY
Miscellaneous Grants under $5,000 each
5,000

SOUTH CENTRAL RESEARCH & EXTENSION CENTER
Elmore, R. W. - USDA
53,005
Elmore, R. W. - UN Foundation
10,000
Miscellaneous Grants under $5,000 each
14,650

VETERINARY SCIENCE
Anderson, G. A. - USDA
57,658
Rock, D. L. - National Science Foundation
7,396
Miscellaneous Grants under $5,000 each
15,659

WEST CENTRAL RESEARCH & EXTENSION CENTER
Miscellaneous Grants under $5,000 each
11,519
TOTAL
$899,272