ARD News August 2002

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Dear Colleagues:

As this is being written, the Nebraska Legislature is meeting in special session to further reduce the state budget for the current fiscal year. It is likely that the University of Nebraska System will sustain another budget cut as an outcome from Unicameral decisions. IANR administrators are well aware that the uncertainty associated with the budget situation is resulting in much stress among faculty and staff. We are hopeful that the special session will end soon so that budget decisions can be made in a timely manner, thereby eliminating some of the ambiguity confronting IANR employees.

Budget reduction decisions within IANR will be based on preserving core programs that address essential state needs and on the quality of existing programs. In other words, we are proposing to maintain mission-critical and high-productivity programs. Whatever the size of the budget challenge facing IANR, we want to ensure that excellence is maintained in high priority programs that are critical for Nebraska’s future.

We all can become depressed by Nebraska’s current economic climate and funding for higher education. However, there are two mitigating circumstances that must be considered. First, many entities within and external to Nebraska are experiencing tremendous economic problems. Many farmers and ranchers in Nebraska and neighboring states are in financial difficulty due to the historic low commodity prices and the current drought. Likewise, higher education in many states, including Iowa and Missouri, is experiencing actual reductions in state funding coupled with increasing costs of medical insurance, utilities, and liability insurance.

Second, our faculty are increasingly successful in obtaining external funds to support their research programs. During FY 2001, ARD faculty obtained $25.2 million in grants and contracts, including $16.6 million from federal agencies. This represents more than 40 percent of all research grants and contracts obtained by UNL faculty during the fiscal year. Likewise, grant and contract expenditures during FY 2001 were the highest on record at $158,100 per research FTE. When expenditures associated with the Nebraska Research Initiative and product sales are included, the total non-appropriated expenditures for FY 2001 exceeded $250,000 per research FTE. Interestingly, appropriated funds represented only 48 percent of the total research expenditures. This clearly indicates that we can no longer count on increases in state-appropriated or federal-formula funds to address increased financial needs. Rather the focus must be on grants and contracts as the means to enhance programs. Every faculty member with an ARD appointment must be proactive in seeking external funds. The UNL Office of Research has programs to assist faculty members in upgrading their grant-writing skills. Please contact the Office of Research if you need assistance.

Darrell W. Nelson
Dean and Director

ARD Unit Resources and Performance Indicators for FY 2001

We are pleased to report that during FY 2001 the average resources provided to units and outputs from units continue to exceed the performance goals established by the ARD Advisory Council several years ago. The ARD goals and the unit averages for FY 2001 are:
On average, ARD units exceeded the goals by 4 to 37 percent during FY 2001. The only goal that was not achieved was the number of theses and dissertations completed per research FTE. In the past, this goal was routinely achieved by our units, but the decline in graduate enrollment has resulted in fewer graduate students completing their degree programs. More than one-half of our units exceeded most of the goals. Average outputs from our units during the past five years are:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>ARD Average</th>
<th>ARD Goal</th>
<th>% of Goal</th>
<th>% of Goal</th>
<th>Number of Units Exceeding Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriated $/FTE</td>
<td>200,587</td>
<td>150,000</td>
<td>134</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Grant/Contract $/FTE</td>
<td>127,133</td>
<td>100,000</td>
<td>127</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Grant $/Appropriated $</td>
<td>0.692</td>
<td>0.667</td>
<td>104</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Total Resources, $/FTE</td>
<td>327,720</td>
<td>250,000</td>
<td>131</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Refereed Pubs./FTE</td>
<td>4.10</td>
<td>3.00</td>
<td>137</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Theses and Diss./FTE</td>
<td>0.91</td>
<td>1.00</td>
<td>91</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

On average, ARD units are performing well. Total resources available per research FTE are now greater than $300,000, the standard used by USDA-ARS for support of their scientists. This level of support is the result of continued efforts by faculty to obtain external grants and contracts. Outputs of refereed publications continue to be strong as are the number of total grant proposals per FTE submitted by faculty. There has been a long-term decline in the number of theses and dissertations completed per research FTE because of declining numbers of graduate students. There appears to be considerable opportunity for growth in the number of federal agency grant proposals submitted per research FTE. Success in obtaining federal grants is essential given the declining level of state support available for our research programs.

### Status of FY 2003 CSREES Appropriations

Both the House and Senate Appropriations Committees have completed work on the FY 2003 CSREES appropriation. A summary of the appropriations is listed in the chart in the next column. We are pleased that the Appropriations Committees have proposed increases in formula funds, the National Research Initiative, the Sustainable Agriculture Research and Extension program, and a few other smaller research programs. It is regretful that both the House and Senate Appropriations Committees have eliminated IFAFS funding for FY 2003.

### FY 2003 CSREES Appropriations

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Formula Programs</td>
<td>Hatch Act</td>
<td>180.15</td>
<td>182.00</td>
</tr>
<tr>
<td>McIntire-Stennis Forestry</td>
<td>21.88</td>
<td>23.00</td>
<td>22.54</td>
</tr>
<tr>
<td>Evans-Allen</td>
<td>34.60</td>
<td>36.00</td>
<td>35.64</td>
</tr>
<tr>
<td>Animal Health and Disease</td>
<td>5.10</td>
<td>5.10</td>
<td>5.10</td>
</tr>
<tr>
<td>Special Research Grants</td>
<td>Expert IPM Decision Support</td>
<td>0.18</td>
<td>0.18</td>
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<tr>
<td>Global Change</td>
<td>1.40</td>
<td>2.00</td>
<td>2.50</td>
</tr>
<tr>
<td>IFM and Biological Control</td>
<td>2.73</td>
<td>2.73</td>
<td>2.73</td>
</tr>
<tr>
<td>Minor Crop Pest Mgmt. (IR-4)</td>
<td>10.49</td>
<td>11.00</td>
<td>10.49</td>
</tr>
<tr>
<td>Minor Use Animal Drugs</td>
<td>0.59</td>
<td>0.59</td>
<td>0.0</td>
</tr>
<tr>
<td>National Biol. Impact Assessment</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Pest Management Alternatives</td>
<td>1.62</td>
<td>1.62</td>
<td>1.62</td>
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<tr>
<td>State Specific Grants</td>
<td>94.21</td>
<td>99.91</td>
<td>101.48</td>
</tr>
<tr>
<td>National Research Initiative</td>
<td>120.45</td>
<td>130.00</td>
<td>163.99</td>
</tr>
</tbody>
</table>

Given below are the House and Senate FY 2003 Appropriations for the Integrated Activities programs. These grants must contain integrated research and extension activities. Some programs have been newly added to the Integrated Activities appropriation for FY 2003.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Section 406 Legislative Authority</td>
<td>Water Quality</td>
<td>12.97</td>
<td>12.97</td>
</tr>
<tr>
<td></td>
<td>Food Safety</td>
<td>14.97</td>
<td>14.97</td>
</tr>
<tr>
<td></td>
<td>Regional Pest Mgmt Centers</td>
<td>4.63</td>
<td>4.53</td>
</tr>
<tr>
<td></td>
<td>Crops at Risk from FQPA</td>
<td>1.50</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>FQPA Risk Mitigation for Food Crops</td>
<td>4.89</td>
<td>4.89</td>
</tr>
<tr>
<td></td>
<td>Methyl Bromide Transition</td>
<td>3.50</td>
<td>3.50</td>
</tr>
<tr>
<td></td>
<td>Organic Transition</td>
<td>1.50</td>
<td>2.50</td>
</tr>
<tr>
<td></td>
<td>Agriculture Technologies</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Other Legislative Authorities</td>
<td>International Science and Edu.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Critical Issues</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>Regional Rural Dev. Centers</td>
<td>1.51</td>
<td>1.51</td>
</tr>
<tr>
<td></td>
<td>Section 401 Activities</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The differences in appropriation levels in the House and Senate versions of the CSREES appropriation will be rationalized in the Conference Committee. After final approval by the full House and Senate, the Conference Committee recommendation will be submitted to the President for signature. When signed, the appropriations bill will become effective October 1, 2002.
Nebraska Research Initiative Grants

Thirty-nine proposals were received from the four campuses for funding in the third phase of the Nebraska Research Initiative (NRI) reallocation project. IANR faculty receiving funding for the current fiscal years include:

New Grants for 2002-2003:

Dr. Patrick Shea (School of Natural Resource Sciences)
“Building Surface Analysis into a New University Infrastructure in Environmental Science”
Amount Received: $280,000

Dr. Tom Clemente (Agronomy and Horticulture Department)
“Production of Value Enhanced Soybean Oil Through Biotechnology”
Amount Received: $198,260

Dr. Milford Hanna (Biological Systems Engineering)
“Novel Research and Development Opportunities in the Field of Encapsulation of Chemicals and Biochemicals Via Utilization of Biodegradable and Glassy Polymers”
Amount Received: $150,000

Continuation of NRI allocation for 2002-2003:

Dr. Jim Van Etten (Plant Pathology)
“Gene Expression and Signaling in Plants”
AmountReceived: $386,752

Undergraduate Honors Research Program

Funds for the FY 2003 Undergraduate Honors Student Research Program have been allocated to units for support of student research projects. This program is open to junior and senior University Honors Program students proposing to work with a faculty research mentor who has an ARD appointment. Eight proposals were received and six were funded. The following students have received funding:

Paul Timm (Agricultural Leadership, Education and Communication) $2,492
Researcher: Dr. Susan Fritz
“A Study of the Human Capital Development Impact of Career and Technical Education on Rural Nebraska”

Shauna Bose (Biochemistry Department) $2,500
Researcher: Dr. Tiffany Heng-Moss
“An Investigation of Biochemical/Physiological Mechanisms”

Kimberly Ryland (Biological Systems Engineering) $2,500
Researcher: Dr. Curtis Weller
“Estimation of Convective Heat Transfer Coefficient of Various Meat Cuts Geometrics in Different Cooling Environments”

Elizabeth E. Shubert (Nutritional Science and Dietetics) $2,500
Researcher: Dr. Janos Jempleni
“Identification of Biotinylation Sites in Histone H4”

Aaron Pierce (Veterinary and Biomedical Sciences) $2,500
Researcher: Dr. Marjorie Lou
“Irreversible Oxidative-Damaged Protein Thiols in Aging and Cataractous Eye Lenses”

Karen J. Lee (Veterinary and Biomedical Sciences) $2,500
Researcher: Dr. Jeff Cirillo
“Role of the Legionella pneumophila Invasion Gene enhC in Pneumonia”

Research Authorizations in the 2002 Farm Bill

An analysis of the 2002 Farm Bill indicates there are a number of new authorizations for agricultural and natural resources research programs. Implementation of the programs is dependent upon action by the House and Senate Appropriations Committees; however, many efforts are being made to obtain appropriations based on the authorizations in the Research Title of the Farm Bill.

Some of the highlights of research authorizations in the Farm Bill include:

- The authorization for the National Research Initiative was continued.
- The Initiative for Future Agricultural and Food Systems (IFAFS) was increased. Funding provided in the mandatory account was $120 million for FY 2003, $140 million for FY 2004, $160 million for FY 2005 and $200 million for FY 2006 and beyond.
- High priority research and extension initiatives listed include: Environment and Private Land Research and Extension; Animal Infectious Disease Research; Water and Air Quality Research and Extension; Carbon Cycle Research, Plant Gene Expression and Biotechnology Risk Assessment Research.
- A new Biosecurity subtitle was included. The Biosecurity thrust addresses Biosecurity Planning and Response (detection methods, communications systems, etc.) and Facilities
grants to provide improved laboratories for biosecurity research and to enhance security of existing facilities.

- A new Energy Title that authorizes $450 million per year for research on bioenergy, biomass, and biofuel research and development. Included in this title is an authorization for carbon dioxide sequestration and greenhouse gas exchange research.
- The Research Title also contains an authorization for a Research Equipment Grant program. This is the first equipment grant program to be authorized in USDA.
- Included in the Farm Bill was a statement of Congressional intent to double agricultural research funding over the next five fiscal years. This intent is similar to that used to justify large increases in funding for NIH and NFS.

**New or Revised Projects**

The following station projects were approved recently by the USDA Current Research Information System (CRIS):

**NEB-10-148 (Agriculture Economics) Impact Analysis and Decision Strategies for Agricultural Research**
**Investigator:** Richard Perrin  
**Status:** New Hatch project that contributes to Multi-State project NC-1003 effective October 1, 2001

**NEB-12-260 (Agronomy and Horticulture) Resource-Efficient Management of Summer Annual Dryland Cereal Crops in Nebraska**
**Investigator:** S.C. Mason  
**Status:** Revised Hatch project effective June 1, 2002

**NEB-12-289 (Agronomy and Horticulture) Precise Nutrient Management in Corn-Based Systems**
**Investigator:** A.R. Dobermann  
**Status:** New Hatch project effective January 1, 2002

**NEB-13-153 (Animal Science) Measuring and Improving the Quality, Consistency, and Uniformity of Traits that Influence Meat Value**
**Investigator(s):** C.R. Calkins and R.W. Mandigo  
**Status:** New Hatch project effective March 2, 2002

**NEB-14-119 (Veterinary and Biomedical Sciences) Functional Genomic Analysis of Bovine Viral Diarrhea**
**Investigator:** R.O. Doris  
**Status:** New Competitive grant effective December 15, 2001

**NEB-14-121 (Veterinary and Biomedical Sciences) Evolving Pathogens, Targeted Sequences, and Strategies for Control of Bovine Respiratory Disease**
**Investigator:** S. Srikumaran  
**Status:** New Hatch project that contributes to Multi-State project NC-107 effective October 1, 2001

**NEE-15-098 (Biochemistry) Genetic Modification of Chloroplast Rubisco**
**Investigator:** R.J. Spreitzer  
**Status:** New Hatch project effective June 1, 2002

**NEB-16-093 (Food Science and Technology) Alliance for Food Protection**
**Investigator:** S. Hefle  
**Status:** New Special grant effective May 1, 2002

**NEB-17-062 (Entomology) Arthropods Associated with Buffalograss and Other Turfgrasses in Nebraska**
**Investigator:** F.P. Baxendale  
**Status:** Revised Hatch project effective January 1, 2002

**NEB-40-016 (School of Natural Resource Sciences) Developing Drought Mitigation and Preparedness Technologies for the U.S.**
**Investigator:** D.A. Wilhite  
**Status:** New Special grant effective July 1, 2002

**NEB-43-069 (South Central Research and Extension Center) Resource-Efficient Cropping Systems Research for South Central Nebraska’s Irrigated Agro-Ecological Zone**
**Investigator:** R.W. Elmore  
**Status:** New Hatch project effective February 12, 2002

**NEB-48-029 (South Central Research and Extension Center) Environmental Impact of Land Application of Animal Manure as Fertilizer for Irrigated Corn**
**Investigator(s):** J.O. Payero, S. Ensley and G.W. Hergert  
**Status:** New Hatch project effective September 15, 2001

**NEB-91-055 (Nutritional Science and Dietetics) Lead Status, Food Provision Competence and the Parenting of Iron Deficient Children Enrolled in WIC**
**Investigator:** K.L. Stanek Krogstrand  
**Status:** New State project effective July 1, 2002

**NEB-94-028 (Textiles, Clothing and Design) Process and Property Investigations of Fibers Synthesized from Nebraska’s Agricultural Products and By-Products**
**Investigator:** Y. Yang  
**Status:** New Hatch project effective April 1, 2002

**Proposals Submitted for Federal Grants**

The following is a listing of proposals that were submitted the past few months by faculty for federal grant programs. While not all grants will be funded, we are appreciative of faculty members’ outstanding efforts in submitting proposals to the various agencies.

- **Sally Mackenzie — NSF — Components of the Plant Mitochondrial DNA Metabolism Apparatus and their Functional Analysis — $866,261**
- **Thomas Powers — USDA through Texas Department of Agriculture — Nematode Survey #2 — $42,500**
Qi "Steve" Hu — NOAA — Diagnostic and Modeling Study of Land Memory Effects on Summer Monsoon Rainfall in the Southwestern U.S. — $296,933

Robert J. Spreitzer — USDOE — Role of the Rubisco Small Subunit — $445,876

Ruma Banerjee — Department of Health and Human Services — Gene Nutrient Interactions in Hyperhomocysteinemia — $72,500

Janos Zempleni — NIH — Regulation of biotinidase-dependent pathways — $105,893

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Grants and Contracts Received
June and July, 2002

-Agronomy/Horticulture-

Brian Beecher — Layman Fund via UN Foundation $10,000
George Graef — University of Illinois 25,333
Paul Read — Small Fruit Research Fund via UN Foundation 20,868
Paul Read — Anna Elliott Fund via UN Foundation 14,580
Roy Spalding — Nebraska Department of Environmental Quality 50,000
James Specht — USDA/ARS 31,500
Paul Staswick — National Science Foundation 119,752
Miscellaneous grants under $10,000 each 85,190

-Animal Science-

Mary Beck — Roche Animal Nutrition and Health 48,250
Chris Calkins — Hormel Foods 48,213
Chris Calkins — National Cattlemen's Beef Association 23,729
Roger Johnson — Monsanto 103,320
Steve Jones and Chris Calkins — National Cattlemen's Beef Association 34,200
Steve Jones — National Pork Board 28,000
Terry Klopfenstein — Nutrition Physiology Corporation 50,000
Roger Mandigo — Nebraska Beef Council 18,916
Sheila Scheideler — University of Kentucky 57,369
Sheila Scheideler — Pioneer Hybrid International, Inc. 29,425
Miscellaneous grants under $10,000 each 24,508

-Agricultural Research Development Center-

Dan Duncan — Barta Brothers via UN Foundation 25,000
Miscellaneous grants under $10,000 each 3,000

-Biochemistry-

Ruma Banerjee — NIH 267,972
Raymond Chollet — NSF 145,000
Vadin Gladyszhev — NIH 668,333
Vadin Gladyszhev — University of Illinois 15,000
Stephen Ragsdale — NIH 262,369
Stephen Ragsdale — USDOE 111,000
Robert Spreitzer — USDOE 97,000
Don Weeks — NSF 120,000
Don Weeks — ConAgra 225,000
Miscellaneous grants under $10,000 each 16,250

-Biological Systems Engineering-

Miscellaneous grants under $10,000 each 337

-Entomology-

Blair Siegfried — Monsanto Company 12,000
Miscellaneous grants under $10,000 each 71,195

-Food Science and Technology-

Susan Hefle — USDA/CSREES 137,035
Miscellaneous grants under $10,000 each 34,294

-Northeast Research and Extension Center-

Miscellaneous grants under $10,000 each 28,800

-Panhandle Research and Extension Center-

Gary Hein — Anna Elliott Fund via UN Foundation 11,040
John Smith — Unrestricted Gift 12,500
Robert Wilson — Anna Elliott Fund via UN Foundation 14,000
Miscellaneous grants under $10,000 each 46,090

-Plant Pathology-

Miscellaneous grants under $10,000 each 1,500

-School of Natural Resource Sciences-

Xun-Hong Chen and James Goeke — USGS 34,294
Anatoly Gitelson — NASA 89,949
Kyle Hoagland — Nebraska Game and Parks 33,000
Kyle Hoagland — National Park Service 20,900

-South Central Research and Extension Center-

Miscellaneous grants under $10,000 each 24,000

-Veterinary and Biomedical Sciences-

Jeff Cirillo — California Pacific Medical Center 69,185
Gerald Duhamel — University of Minnesota 98,928
Marjorie Lou — NIH 326,526
Fernando Osorio — Pig Improvement Company 44,955
Fernando Osorio — National Pork Board 25,000
Miscellaneous grants under $10,000 each 12,220

-West Central Research and Extension Center-

Miscellaneous grants under $10,000 each 19,000

Grand Total $3,917,507

-Hardin Distinguished Graduate Fellowship for 2002-2003-

The recipient of the Hardin Distinguished Graduate Fellowship for 2002-2003 is Tulio Macedo. The 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. He will receive a $2,000 supplement to his graduate assistantship and the Entomology Department will receive $1,000 of operational support for his research program.

Macedo is completing his Ph.D. in the Department of Entomology. His dissertation deals with "addressing the physiological mechanisms of plant resistance to aphids and abiotic plant stress." Tulio's work will provide important information on the interactions of biotic and abiotic stress on plants' physiology and the results have major implications for basic and applied research on plant resistance to aphids, and possibly...
other pests. His Ph.D. research deals with findings on two levels — (a) plant breeding for aphid resistance (in many species) increasingly is based on indices of chlorophyll content; (b) aphids have long been an important group for modeling the evolution of plant resistance in response to herbivory.

Tulio has been very active in youth outreach education, department activities, and undergraduate teaching. He has an excellent future as a scientist and educator and a remarkable record of accomplishments well beyond that of what is expected from a graduate student. He has worked with his advisor and students within the Lincoln Public Schools and Folsom Children’s Zoo developing educational programs about insects as well as working with students to motivate learning in children with serious emotional and behavioral problems. Leon Higley is his advisor.

Widaman Trust Distinguished Graduate Assistant Award

The Widaman Trust was established in 1975 through a generous gift provided to the University of Nebraska Foundation by Ms. Blanch Widaman. Ms. Widaman asked that the income from the trust be used by UNL for basic research in agriculture and that the funds support people rather than purchase supplies and/or equipment. She suggested that the money be used for scholarships or fellowships for graduate students conducting basic research in agriculture.

The criteria established for the Widaman Trust Distinguished Graduate Assistant Award specifies that only 5 percent of the graduate students in a department can receive the recognition and that the awardees must demonstrate outstanding scholarship and excellence in research. We congratulate the following graduate students for receiving the Widaman Trust Distinguished Graduate  Student Award for 2002-2003:

Name: Fufu Hundera Birru
Thesis area: Plant Breeding/Genetics
Department: Agronomy/Horticulture
Advisor: P. Stephen Baenziger

Name: Muharrem Dilbirligi
Thesis area: Plant Breeding/Genetics
Department: Agronomy/Horticulture
Advisor: Kulvinder S. Gill

Name: Deepak Sidhu
Thesis area: Molecular Genetics
Department: Agronomy/Horticulture
Advisor: Kulvinder S. Gill

Name: Federico A. Vartorelli
Thesis area: Plant Breeding/Genetics
Department: Agronomy/Horticulture
Advisor: George Graef

Name: Deepak Sidhu
Thesis area: Molecular Genetics
Department: Agronomy/Horticulture
Advisor: Kulvinder S. Gill

Name: Federico A. Vartorelli
Thesis area: Plant Breeding/Genetics
Department: Agronomy/Horticulture
Advisor: George Graef

Name: Hushton C. Block
Thesis area: Ruminant Nutrition
Department: Animal Science
Advisor: Terry Klopfenstein

Name: Mohammad A. Jalal
Thesis area: Poultry Nutrition
Department: Animal Science
Advisor: Sheila E. Scheideler

Name: Wanda M. Kreikemeier
Thesis area: Ruminant Nutrition
Department: Animal Science
Advisor: Terry Mader

Name: Raymond A. McDonald
Thesis area: Ruminant Nutrition
Department: Animal Science
Advisor: Terry Klopfenstein

Name: Yih-Chern Horng
Thesis area: Biochemistry
Department: Biochemistry
Advisor: Ruma Banerjee

Name: Monica Vlasie
Thesis area: Biochemistry
Department: Biochemistry
Advisor: Stephen W. Ragsdale

Name: Sandun D. Fernando
Thesis area: Biological Engineering
Department: Biological Systems Engineering
Advisor: Milford Hanna

Name: Girish Ganjyal
Thesis area: Food Engineering
Department: Biological Systems Engineering
Advisor: Milford Hanna

Name: Marcos Sanchez
Thesis area: Food Science
Department: Food Science and Technology
Advisor: Shelly McKee

Name: Changbin Chen
Thesis area: Plant Pathology
Department: Plant Pathology
Advisor: Marty Dickman

Name: Andres Vina
Thesis area: Natural Resource Sciences
Department: School of Natural Resource Sciences
Advisor: Anatoly Gitelson

Diane says

You draw nothing out of the bank of life except what you deposit in it.