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ARD

Agricultural Research Division News

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June 2000

Volume 34, Number 5

Comments from the Dean

Dear Colleagues:

I have spent the last few days analyzing accomplishments data used to prepare the Unit Performance Characteristics report. After 10 years of increasing unit accomplishments, the data indicate that our grant income and research outputs have leveled off and some parameters declined. This is not to suggest that our units are performing badly because, on average, units are exceeding the goals established several years ago by the ARD Advisory Council. For a variety of reasons, the outputs from our units are not growing either in aggregate or in the average of units expressed on a "per research FTE basis". For example, total external grant and contract funds obtained has been about \$21 million each of the last two fiscal years. Likewise, total output of refereed publications has been about 340 in fiscal years 1998 and 1999. However, the number of theses and dissertations published increased by 12 from FY 98 to FY 99 and the number of cultivars and germplasms released doubled from FY 98 to FY 99.

When the data are calculated on a "per research FTE basis" for each of our 20 units and averages for all units are obtained, we find that the grant and contract dollars per FTE, total resources available per FTE, refereed publications per FTE and theses/dissertations published per FTE all declined from FY 98 to FY 99. In fact, the averages for some of these parameters approach the values for FY 94 and 95. There are several explanations for these changes. First, the formation of the School of Natural Resource Sciences (SNRS) necessitated the elimination of the Department of Agricultural Meteorology and Department of Forestry, Fisheries and Wildlife from the listing and the addition of SNRS. To maintain a total of 20 units, we also added AgLEC to the listing at that time. Second, retirements and resignations have created considerable faculty turnover during the past two years. There is a startup period before

new faculty begin to publish their data and obtain research grants. Third, four years of reallocation has reduced the resources available to faculty and, as a consequence, our overall productivity has not increased.

Given the UNL priority being placed on excellence in research and the need to generate much larger amounts of external funds, it is important for each faculty member with an ARD appointment to be very aggressive in preparing grant proposals and in documenting research accomplishments. We need to publish our research results in high quality, peer-reviewed outlets, prepare patent disclosure forms to protect potential intellectual property, release new cultivars and germplasms through specified procedures, and be effective mentors of M.S. and Ph.D. students. I encourage each faculty member to give a renewed commitment to excellence in their research programs. Through collective efforts, ARD faculty address the knowledge needs of Nebraska while playing a major role in enhancing the national stature of UNL in research and graduate education.

*Darrell W. Nelson
Dean and Director*

Special Federal Formula Funds for Support of Research

Federal formula funding to State Agricultural Experimental Stations for the support of agricultural research was initiated through the Hatch Act, which was signed into law in March 1887. The Hatch Act provided funds, provided suggestions for organizational structure and gave discretionary authority to the states for designing research programs around local needs. Matching state funding to support the research was also a requirement. Hatch Act funding has continued to



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support the State Agricultural Experiment Stations (SAES) up to the present time. Along the way, there have been additions and changes to the Act, and some funding categories with conditions on use of the funds have been established. Such special categories include regional research funds, which have been recently renamed the Multi-State research funds. Other special categories include the Animal Health and Disease funds and the McIntire-Stennis Cooperative Forestry Act funds. All of the above-mentioned funds are allocated on an annual basis through the U.S. Department of Agriculture to the State Agricultural Experiment Stations. The distribution formulas vary somewhat between each of the programs.

The Regional Research Fund was established by the Federal Research and Marketing Act of 1946. This Act specifies that 25% of the Hatch allocations for each year should be reserved for a "Regional Research Fund" to sustain investigations undertaken cooperatively by two or more states on a problem of regional significance. This requirement led to the establishment and organization of the highly structured Regional Research System of cooperative regional research that still exists and is now called Multi-State Research. The Regional Research System was developed to stimulate and facilitate interstate cooperation on research of regional and national character both among the State Agricultural Experiment Stations and with the USDA and to plan and coordinate research to avoid duplication research effort. Cooperative Regional Research was expected to:

- bring together competent scientific talent from the SAES, USDA, and other institutions and government agencies to work on a problem;
- resolve, by team effort, problems too labor intense and/or otherwise too costly for a single SAES to undertake;
- facilitate the interpretation and application of research results for the solution of a problem;
- stimulate an exchange of ideas and research approaches by scientists consulting and working together.

The Regional Research program proved to be a very efficient and productive way of approaching many research needs and continues today in much same manner as originally established.

Each year, the Nebraska Agricultural Experiment Station receives an allocation of funds from USDA specifically earmarked for support of multi-state research. The Nebraska funds are used to support participation by faculty in multi-state committees and projects that have been organized and approved under the guidelines of one of the four regional associations of State Agricultural Experiment Station Directors. For Fiscal Year 1999-2000, the Agricultural Research Division

received \$893,051 earmarked for support of multi-state research.

The McIntire-Stennis Act of 1962 was designed to encourage forestry research at the land-grant colleges, SAES, and other qualified schools of forestry by providing federal money through the Department of Agriculture to each state on a dollar-for-dollar matching basis. The formula for distribution of these to states includes such factors as acreage of non-federal commercial forest land and the volume of timber annually cut in each state, as well as other considerations. In FY 1999-2000 the Agricultural Research Division received \$174,034, which is used to support forestry research conducted by faculty in the School of Natural Resource Sciences.

The Animal Health and Disease formula funds were established more recently, having been started in the Food and Agricultural Act of 1977. Animal Health and Disease funds are distributed to accredited Colleges of Veterinary Medicine and SAESs annually through USDA. The Animal Health research funds received by ARD for FY 1998-1999 were \$147,736. Animal Health funds are used to support research by faculty members in the Departments of Veterinary and Biomedical Sciences and Animal Science.

Formula funds received through each of the programs described above can only be used to support research activity as defined in the legislation. All faculty members receiving support from these programs must have an approved ARD project identifying their research, with the project recorded in the Current Research Information System (CRIS).

Grant and Contract Income Obtained by ARD Units During the Last Four Calendar Years

On the next page is a table listing the grant and contract income obtained by ARD units during the last four calendar years, expressed on a \$/research FTE/year basis. Also listed are the averages for each unit for the four-year period. Grants obtained by interdisciplinary centers and the ARD office are not listed. Therefore, the listing is not a complete representation of all of the grant and contract funds available to faculty in a given unit since some faculty obtain significant research funding from team efforts coordinated by centers. Units not listed are either service-oriented or do not have a research mission.

Research Grant and Contract Income During the Last Four Calendar Years Expressed on Dollars Per Research FTE Basis

UNIT	1996*	1997*	1998	1999	Average 1996-99
Agricultural Economics	3,111	2,639	24,409	24,511	13,668
Ag Leadership, Education and Communication**	—	—	-0-	-0-	-0-
Agronomy	102,631	63,403	142,844	104,545	103,356
Animal Science	77,981	79,949	58,342	61,589	69,465
Biochemistry	184,299	226,515	414,194	344,416	292,356
Biological Systems Engineering	58,619	54,266	22,902	41,638	44,356
Biometry	-0-	-0-	14,970	36,569	12,885
Entomology	131,234	147,483	134,446	125,557	134,680
Family and Consumer Sciences	-0-	-0-	-0-	602	151
Food Science and Technology	200,032	362,253	495,135	355,539	353,240
Horticulture	104,240	63,841	101,157	78,760	87,000
Northeast R&E Center	76,140	80,861	243,917	45,018	111,484
Nutritional Science and Dietetics	3,226	7,722	1,003	9,766	5,429
Parhandle R&E Center	142,273	97,986	103,847	134,992	119,775
Plant Pathology	138,274	86,465	124,770	126,765	119,069
School of Natural Resource Sciences**	—	—	218,217*	266,917	242,567
South Central R&E Center	64,918	85,862	115,893	67,085	83,440
Textiles, Clothing and Design	13,075	18,174	-0-	-0-	7,812
Veterinary and Biomedical Sciences	168,937	173,260	221,454	161,627	181,312
West Central R&E Center	29,177	37,342	44,914	34,583	37,254
AVERAGE	104,231	109,461	124,121	106,232	100,965

* Averages included Agricultural Meteorology and Forestry, Fisheries and Wildlife data which are not presented in the table.

** Included in list for the first time in CY 1998.

The overall average grant and contract income obtained by units decreased by about 14% in FY 99 as compared to FY 98, although the average was similar to those in FY 96 and 97. The average grant and contract income in FY 98 was at an all-time high. Unfortunately, on average our units were not able to sustain that level of income during FY 99.

Average Unit Outputs Exceed ARD Goals for FY 99

We are pleased to report that during FY 99 the average outputs from ARD units again exceeded the performance goals established by the ARD Advisory Council. The ARD goals and the unit averages for FY 99 are:

Indicator	ARD Average	ARD Goal	% Goal	No. Units Exceeding Goal
Appr. \$/FTE	166,315	150,000	111	13
Grant \$/FTE	103,401	100,000	103	9
Grant \$/Appr. \$	0.612	0.667	92	9
Tot. Resources, \$	269,719	250,000	108	12
Ref. Pubs./FTE	3.39	3.00	113	10
Theses/FTE	1.16	1.00	116	10

On average, ARD units exceeded the goals by 3% to 16%. The only goal that was not achieved was the ratio of grant and contract dollars per FTE to appropriated dollars per FTE. More than half of our units exceed most of the goals. Average outputs during the past five years are:

ARD Average for 20 Units

Indicator	FY 95	FY 96	FY 97	FY 98	FY 99
Appr. \$/FTE	158,572	166,925	181,847	176,916	166,315
Grant \$/FTE	104,152	167,960	115,902	130,881	103,401
Grant \$/Appr. \$	0.664	0.985	0.612	0.703	0.612
Tot. Resources, \$	262,723	334,884	296,702	307,797	269,719
Ref. Pubs./FTE	3.47	3.85	3.56	3.54	3.39
Theses/FTE	1.43	1.17	1.45	1.29	1.16
Comp. Grant					
Prop./FTE	1.18	1.49	1.32	1.00	0.94
Grant Prop./FTE	7.54	7.48	6.94	5.81	6.43

There was a significant decline in appropriated dollars per FTE during the past two years because two new units were incorporated in the 20 units that are a part of the study and because many junior faculty positions are being filled. Grant and contract dollars per research FTE declined by 20% from FY 98 to FY 99. Total resources available per FTE declined by 12% from the previous year as a result of reduced grant and contract income. There were also modest decreases in refereed publications per FTE and theses/dissertations per FTE compared to the previous year. Total grant proposals written per FTE increased significantly in FY 99 compared to FY 98, although proposals written to federal competitive grant proposals remained essentially constant at about 1 proposal per FTE. These data point out the need to increase our collective efforts to obtain increased grant support and to better document our research accomplishments.

Foundation Seed Division Hires New Director

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On January 1, 2000, the Agronomy Department transferred administrative responsibility for the Foundation Seed Division (FSD) to the Agricultural Research Division. On January 7, 2000, the Director of the FSD, Ron Helsing, retired after a long career with the University. A national search was conducted for a new Director.

We are pleased to announce that Gary Cross became the new FSD Director on June 1, 2000. His most recent position was Fayette County Extension Director for Purdue University. Gary had extensive experience in the seed industry prior to his Extension career. We are very excited to have Gary join our staff.

Gary will have a permanent office in the Research and Education Building at the Agricultural Research and Development Center near Mead, Nebraska. The current office location at 70th and Adams Streets closed May 31, 2000. The new address for the FSD is:

University of Nebraska — Foundation Seed Division
1071 County Road G, Rm C
Ithaca, NE 68033
Phone: 402-624-8038 (from campus: 4-8038)

ARD Interdisciplinary Research Grants Program

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Nine proposals were submitted to the ARD Interdisciplinary Research Grants Program and three proposals were selected for 2000-2001 funding. We were, however, able to fund two continuation projects. New ARD Interdisciplinary Research Grants were awarded as follows:

**B. Siegfried, D. Gosselin, L. Meinke, E. Harvey,
T. Hunt (Entomology, SNRS and NEREC)**

Using Trace Elements for Labeling Corn Tissues
and Insect Pests for Mark-Recapture Experiments
Amount Funded: \$19,860

**D. Eisenhauer, T. Franti, D. Marx, M. Dosskey,
K. Hoagland (BSE and SNRS)**

Development and Testing of Field Techniques for
Estimating the Effectiveness of Vegetative Buffer
Strips
Amount Funded: \$20,000

**S. Ragsdale, J. Takacs, J. Minor (Biochemistry,
Animal Science, Chemistry)**

Inhibition of Methane Synthesis in Ruminants
Amount Funded: \$20,000

The following continuing projects have been evaluated and will continue for 2000-2001:

**T. Heng-Moss, G. Sarath, F. Baxendale, R. Klucas,
T. Riordan (Entomology and Horticulture)**

Characterization of Protein Changes in Plants
Challenged by Sap-Feeding Insects
Amount Funded: \$19,930

**J. Markwell, S. Madavan, S. Swartzbach, R. Cerney,
G. Sarath, M. Zeece (Biochemistry, Chemistry, FS&T,
Biological Sciences)**

Plant Proteomics: A New Collaborative Venture by
UNL Scientists
Amount Funded: \$20,000

Innovative and High Risk Research Program

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Four proposals were submitted for the Innovative and High Risk Research Program during the past six months. This program is designed to provide seed money for very innovative research projects. The objective is to obtain preliminary data that can be used to support requests for grants from federal agencies or companies. Funding will not be provided for projects that are a continuation of a faculty member's current research program. The proposals may be submitted anytime during the year. The proposals are evaluated quarterly or on an as-needed basis by a subcommittee of the ARD Advisory Council.

The following three proposals were funded by the Innovative and High Risk Research Program, effective July 1, 2000.

Lori A. Allison, Department of Biochemistry
"Chloroplast Transformation in Soybean"
Amount Funded: \$15,000

Shirley Niemeyer, Textiles, Clothing and Design
"The Impacts of Environmental Disclosure Policies
on Housing Transaction Practices"
Amount Funded: \$13,741

Robert Wilson, Panhandle R&E Center
"Integration of Fructan Metabolism in Control
Strategies for Invasive Weeds in Range, Forest and
Cropland Ecosystems"
Amount Funded: \$13,000

Layman Awards

IANR faculty submitted 12 proposals for funding by the Layman Trust. A subcommittee of the ARD Advisory Council carefully evaluated each proposal and ranked the submissions in relation to quality of science and the potential impact of the proposed research. All proposals were forwarded to the Vice Chancellor for Research.

The primary aim of the Layman Awards is to provide seed money to enhance the possibility of obtaining external support for the research project. Only untenured faculty or tenured faculty who have not yet received an external grant are eligible for the program.

Nine of the 12 proposals submitted by ARD faculty were funded:

John E. Barbuto, Jr. Agricultural Leadership, Education and Communication "Examining the Antecedents of Leaders' Behaviors"	\$7,500
Stevan Knezevic Agronomy Department and NEREC "Determining Competitive Indices of Selected Weed Species in Corn and Soybean"	\$7,500
Ismail Dweikat Agronomy Department "Development of SSR Markers for Pearl Millet Improvement"	\$7,500
Ken Russell Agronomy Department "Use of a Haploid Inducer Stock to Improve a Sub-tropical Population of Maize"	\$7,500
Rhae A. Drijber Agronomy Department "Significance of a Mycorrhizal Lipid Biomarker in Dryland Cropping Systems"	\$6,240
Thomas E. Hunt Entomology Department and NEREC "Developing Economic Thresholds for Conventional and Added Value Soybeans Experiencing Multiple Insect Stress"	\$6,940
Loren J. Giesler Plant Pathology Department "Incidence of Bean Pod Mottle Virus and Soybean Mosaic Virus in Nebraska Soybean Production"	\$7,500
Robert M. Harveson Plant Pathology Department "Identification and Evaluation of Mycoparasites as Biological Control Agents for Fusarium Pathogens of Sugar Beets and Dry Beans"	\$6,500

Richard J. Bischoff \$7,422

Family and Consumer Sciences
"The Influence of Patient and Caregiver Variables on the Patient-Physician Relationship with Conditions Typically Associated with Frequent Use of Medical Services"

New or Revised Projects

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

NEB-12-278 (Agronomy) Dynamic Nitrogen Management Strategies for Optimizing Maize Yield and N Use Efficiency

Investigator: Daniel T. Walters

Status: New Hatch project effective April 1, 2000

NEB-13-151 (Animal Science) Estrogen-Calcium Relationships During Onset of Metabolic Bone Disease in the Aging Hen

Investigator: Mary M. Beck

Status: New Animal Health project effective Oct. 1, 1999

NEB-14-109 (Veterinary and Biomedical Sciences) Epidemiology of *Escherichia coli* 0157:H7 and *Salmonella* in Feedlot Beef Cattle

Investigators: David Smith, Laura Hungerford, Jeff Gray, Rod Moxley, Terry Klopfenstein, Todd Milton
Status: New Hatch project effective April 1, 2000

NEB-16-051 (Food Science and Technology) Starch Technology: Production, Characterization, and Utilization

Investigator: David S. Jackson

Status: Revised Hatch project effective Jan. 1, 2000

NEB-16-085 (Food Science and Technology) CCP Identification and Validation During Poultry Production and Processing

Investigators: Mindy M. Brashears, Shelly R. McKee, Eva A. Wallner-Pendleton

Status: New Special Grant effective Sept. 15, 1999

NEB-20-063 (Horticulture) Grow-In and Cultural Practice Impacts on USGA Putting Greens and Their Microbial Communities

Investigator: Roch Gaussoin

Status: New Hatch project effective April 1, 2000

NEB-40-026 (South Central Research and Extension Center) Site-Specific Nutrient Management Strategies for Irrigated and Non-Irrigated Maize

Investigator: Richard B. Ferguson

Status: New Hatch project effective Feb. 1, 2000



Grants and Contracts Received April and May 2000

Agricultural Economics	
Peterson, E. Wesley F. — USDA/CSRES through Iowa State	\$14,484
Agronomy	
Cassman, Kenneth G. — Pioneer Hi-Bred International Inc.	25,000
Cassman, Kenneth G. — Foundation for Agronomic Research	40,000
Miscellaneous grants under \$10,000 each	36,565
Animal Science	
Calkins, Chris — Hormel Foods, LLC	38,894
Miscellaneous grants under \$10,000 each	6,500
Biochemistry	
Ragsdale, Stephen W. — NIH	292,194
Dean's Office	
Nelson, Darrell W. — Ella M. Miller Endowment — via UN Foundation	65,000
Entomology	
Miscellaneous grants under \$10,000 each	12,000
Food Science and Technology	
Miscellaneous grants under \$10,000 each	33,697
Horticulture	
Miscellaneous grants under \$10,000 each	19,717
Northeast Research and Extension Center	
Miscellaneous grants under \$10,000 each	29,840
Panhandle Research and Extension Center	
Miscellaneous grants under \$10,000 each	31,200
Plant Pathology	
Miscellaneous grants under \$10,000 each	12,750
School of Natural Resource Sciences	
Hubbard, Kenneth and Hu, Steve — ASHRAE	119,666
Walter-Shea, Elizabeth and Verma, Shashi — NASA	117,000
Miscellaneous grants under \$10,000 each	25,690
South Central Research and Extension Center	
Miscellaneous grants under \$10,000 each	11,262
Veterinary and Biomedical Sciences	
Gray, Jeffrey and Wills, Robert — National Pork Producers Council	28,600
Miscellaneous grants under \$10,000 each	50
West Central Research and Extension Center	
Miscellaneous grants under \$10,000 each	6,000
Grand Total	\$966,109

Proposals Submitted for Federal Grants

The following is a listing of proposals that were submitted after April 2000 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.

David Wedin — NSF via University of Minnesota — Biocomplexity at the Woodland-Grassland Ecotone — \$391,900

Roy F. Spalding, Dean E. Eisenhauer, Thomas G. Franti, and Daniel D. Snow — USGS — National Site for Evaluation of the Impact of Vegetative Buffer Strips on Agrichemical Loading to a Great Plains Watershed — \$193,674

George E. Meyer and Gerald L. Horst — USGS — Fuzzy Logic Management System to Reduce Pesticide Input and Improve Water Quality — \$93,140

Jeffrey D. Cirillo — NIH — Role of Invasion Genes in Virulence of *Legionella* — \$497,759

Sally Mackenzie — U.S. Department of Energy — Regulation of Nuclear Response to Mitochondrial Dysfunction — \$286,001

John Holz, James Merchant, Anatoly Gitelson, Sherilyn Fritz, Kyle Hoagland, Istvan Bogardi, and Donald Rundquist — USEPA — Development and Implementation of a Comprehensive Lake and Reservoir Strategy for Nebraska as a Model for Agriculturally Dominated Ecosystem — \$1,224,706

Diane says

The best thing about the future is that it comes only one day at a time.

1999 Graduate Student Numbers

Graduate student data represents students enrolled on the sixth-day census (fall 1999) and non-enrolled students actively pursuing graduate degrees. CASNR graduate students increased 3.7% from fall 1998 to fall 1999. Forty-seven percent of all students are in Ph.D. programs. Thirty-six percent of all graduate students (enrolled and non-enrolled) are female, which is similar to 1998. Twelve percent of our students are advised by CASNR faculty but receive their degrees through graduate programs outside of the College.

College of Agricultural Sciences and Natural Resources								
Major/Unit	M.S.		Ph.D.		Total			
	Men	Women	Men	Women	1996	1997	1998	1999
Agricultural Economics	8	1	13	4	35	35	33	26
Agricultural Leadership, Education and Communication ¹	13	18	2	2	33	30	34	35
Agricultural Meteorology ²	—	—	—	—	12	12	N/A	N/A
Agronomy	37	24	42	16	138	134	134	119
Animal Science	25	20	31	12	92	99	86	88
Biochemistry	2	3	17	9	20	22	26	31
Biological Systems Engineering ³	14	1	9	2	41	46	27	26
Biometry	8	7	—	—	21	19	12	15
Entomology	26	15	16	7	27	33	39	64
Food Science and Technology	9	5	14	16	65	44	46	44
Forestry, Fisheries and Wildlife ²	—	—	—	—	23	23	N/A	N/A
Horticulture ⁴	3	5	7	0	10	12	20	15
Horticulture and Forestry	—	—	—	—	19	14	N/A	N/A
Mechanized Systems Management	7	0	—	—	8	7	8	7
Plant Pathology ⁵	2	0	3	3	16	15	14	8
School of Natural Resource Sciences ⁶	16	12	14	2	N/A	N/A	23	44
Veterinary and Biomedical Sciences ⁷	6	8	11	11	38	31	36	36
Total	176	119	179	84	598	576	538	558

¹Ph.D. students obtain degrees in Teachers College.

²The Departments of Agricultural Meteorology and Forestry, Fisheries and Wildlife formed the School of Natural Resource Sciences in August 1997.

³Engineering degrees are offered through the College of Engineering and Technology.

⁴The Ph.D. program is in the Horticulture and Forestry major.

⁵Degrees obtained through the School of Biological Sciences.

⁶The Ph.D. program is in the Horticulture and Forestry major or other departments.

⁷Ph.D. degrees are offered through UNMC.

1999 Graduate Student Survey

Student data represents enrolled and non-enrolled students for the fall 1999 semester. Only non-enrolled students actively pursuing graduate degrees within the time limit for granting degrees established by the Office of Graduate Studies are considered. The graduate program in the Agricultural Research Division (College of Agricultural Sciences and Natural Resources and the College of Human Resources and Family Sciences) increased 5.2% from the fall semester 1998 to the fall semester 1999. Sixty-five percent of the graduate students in CASNR majors are supported by assistantships (state-appropriated GRA's and GTA's; grants; fellowships; and international agency or foreign country support). Fifty-three percent of the students in the College of Human Resources and Family Sciences are supported.

Major/Unit	M.S.				Ph.D.				Total			
	GRA	GTA	Other ¹	Self	GRA	GTA	Other	Self	96	97	98	99
College of Agricultural Sciences and Natural Resources												
Agricultural Economics	4	0	1	4	5	0	4	8	35	35	33	26
Agricultural Leadership, Education and Communication ²	2	0	2	27	1	0	0	3	33	30	34	35
Agricultural Meteorology ³	—	—	—	—	—	—	—	—	12	12	N/A	N/A
Agronomy	8	0	19	34	6	1	36	15	138	134	134	119
Animal Science	13	2	21	9	9	0	25	9	92	99	86	88
Biochemistry	2	0	1	2	7	4	15	0	20	22	26	31
Biological Systems Engineering ⁴	0	0	7	8	0	0	7	4	41	46	27	26
Biometry	3	6	5	1	—	—	—	—	21	19	12	15
Entomology	1	0	12	28	4.5	0	17.5	1	27	33	39	64
Food Science and Technology	3	0	8	3	15	0	9	9	65	44	46	44
Forestry, Fisheries and Wildlife ³	—	—	—	—	—	—	—	—	23	23	N/A	N/A
Horticulture ⁵	3	1	1	3	2	0	3	2	10	12	20	15
Horticulture and Forestry	—	—	—	—	—	—	—	—	19	14	N/A	N/A
Mechanized Systems Management	2	1	1	3	—	—	—	—	8	7	8	7
Plant Pathology ⁶	0	0	0	2	4	0	0	2	16	15	14	8
School of Natural Resource Sciences ⁷	8	0	10	10	6	0	6	4	N/A	N/A	23	44
Veterinary and Biomedical Sciences ⁸	5	0	5	4	7	0	14	1	38	31	36	36
Total	54	10	93	138	66.5	5	136.5	55	598	576	538	558
College of Human Resources and Family Sciences												
Family and Consumer Sciences	7	13 ⁹	4	11	—	—	—	—	25	26	36	35
Nutritional Science and Dietetics	8	10	4	19	—	—	—	—	42	32	24	41
Textiles, Clothing and Design												
—MS	1	2	0	2	—	—	—	—	6	3	8	5
—MA	0	2	0	3	—	—	—	—	2	4	0	5
Interdepartmental Nutrition	0	0	1	0	4	0	2	2	11	10	20	9
Interdepartmental Human Resources and Family Sciences	0	0	0	18	5	4 ⁹	3	6	78	48	29	36
Total	16	27	9	53	9	4	5	8	164	123	117	131
Grand Total	70	37	102	191	75.5	9	141.5	63	762	699	655	689

¹Other — grant support, international agency or foreign country support, fellowships.

²Ph.D. students obtain degrees in Teachers College.

³The Departments of Agricultural Meteorology and Forestry, Fisheries and Wildlife formed the School of Natural Resource Sciences in August 1997.

⁴Engineering degrees are offered through the College of Engineering and Technology.

⁵The Ph.D. program is in the Horticulture and Forestry major.

⁶Degrees obtained through the School of Biological Sciences.

⁷Ph.D. program is in the Horticulture and Forestry major or other departments.

⁸Ph.D. degrees are offered through UNMC.

⁹GTA's in the College of Human Resources and Family Sciences are funded through Academic Affairs.

NOTES:

* BSE: Shared students (5) are reported in FST (4) and AGRO (1). Four M.S. students are included in the BSE data from other units (3 ENVR ENG and 1 CHEM ENG).

* SNRS: Assumed 9 Ph.D.'s in HFOR since Horticulture reported on 7 of 16 students included in the census data for the joint HFOR Ph.D. program. The number of male and female students for the M.S. program was based on a proportion of those on the census data since the information was not available. The distribution of sources of funding support was based on the proportion of those reported since the data was not available for all students. Seven students were included in the SNRS data (3 GEOG, 2 GEOS, 1 CRPL, 1 ENGR). Approximately 12 students are shared and listed in other departments.

* Seventy-four students are considered outside of CASNR (4 ALEC-Ph.D.; 26 BSE-M.S./Ph.D.; 8 PPTH-M.S./Ph.D.; 22 VBMS-Ph.D.; 7 SNRS-Ph.D.) 67/558=12%.

HRFS=25 Males and 92 females