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## ARD News February 1994

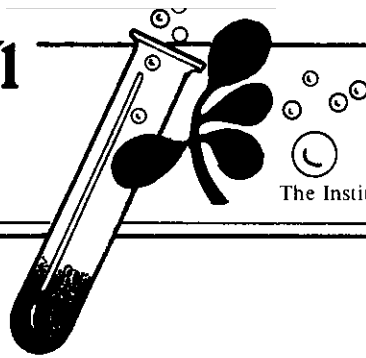
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February 1994

Volume 28, Number 4

## COMMENTS FROM THE DEAN

Dear Colleagues:

In mid-January the Deans began meeting with unit administrators to review faculty performance evaluations. This column will deal with the criteria used by ARD to evaluate faculty with research appointments. Individual performance evaluations have no relationship to the ARD Objectives published in the October 1993 issue of *ARD News*. The ARD Objectives reflect our hopes for units and for the average of all units. Many of the units have achieved one or more of the ARD quantitative objectives.

Almost every faculty member in IANR has a unique assignment, and, thus, evaluations are done in relation to the position description of each individual. All administrators attempt to take a holistic view of the contribution that each faculty member is making to their unit. In evaluating the research component of a faculty member's appointment, the following are considered:

### •Research project management:

Organization, management, and leadership provided to a research project are important criteria. Attempts are made to evaluate the creativity, relevance, and innovation present in the project.

### •Transfer of information to clientele:

Any "practical" information resulting from research projects should be disseminated through the project leader's extension program or provided to appropriate extension specialists for use in educational programs. We need to get the latest technology out to users as soon as possible.

### •Scientific publications:

Research data stored in file cabinets or used only in extension programs have limited long-term value. ARD expects that research data will be published in a form that is in the permanent collection of libraries and, thus, available for future reference. Publications can take the form of research bulletins, journal articles, books, book chapters, or proceedings of symposia or workshops. Publishing data in peer-reviewed outlets adds a "quality" factor to the publication. Authorship "credit" is given for any significant contribution to a publication. There is no special "credit" for first author or sole author publications.

### •Participation in professional society meetings and activities:

Presentation of scientific information at regional or national meetings of professional societies is encouraged. Invitations to present plenary or similar addresses are evidence of professional growth and developing stature. Service as an officer of a professional society and editing journals, books, or proceedings are significant contributions.

### •Grantsmanship:

Faculty members are not evaluated on their ability to obtain grant support. ARD expects that faculty members will be proactive in attempting to find grants to support their research project, but a lack of success will not be a negative factor during evaluation. In some disciplines, success in grantsmanship translates directly into research activity and output, whereas other disciplines require limited resources to have significant output and accomplishment.

### •Human resource development:

Providing guidance to graduate students, post-doctoral research associates, or visiting scientists is a plus for a faculty member. We realize that not every faculty member has the opportunity to work with graduate students or post-doctoral fellows, thus, involvement with human resource development is not a requirement.

### •Team effort:

Participation in team activities is not a requirement for faculty members, however, effective leadership or contributions to teams is a plus. Specific notice is made in the "Academic Performance Evaluation of Faculty" of involvement in team activities.

### •Other accomplishments:

ARD scientists are engaged in a variety of activities. There is a wide range of outputs from our research projects, i.e. cultivars and germplasm, inventions, computer programs, diagnostic techniques. Administrators recognize these contributions in the evaluation process.

### •Service:

All faculty are expected to devote a portion of their time to institutional, professional, and public service. In many



cases, these activities consist of serving on committees, reviewing manuscripts for journals, or making presentations to community or clientele groups. There is an expectation in the evaluation process for service activities.

Please contact Darrell Nelson or Dale Vanderholm if you have any questions about the evaluation of faculty members with research appointments. We believe that it is critical that all faculty understand this process and the criteria used in evaluation.

*Darrell W. Nelson  
Dean and Director*

## HOW ARE THINGS GOING?

Are your needs in research being met by the Agricultural Research Division? Do you have concerns you would like considered by a panel of your peers? The ARD Advisory Council is one body through which your questions, concerns, and ideas can be channeled. The Council provides feedback to the Deans on current topics and discusses faculty's concerns with them. We want to hear from you; what are your concerns, your ideas?

Last year, the Council coordinated a workshop on Program Management for Scientists. The program was well-received, providing tangible suggestions to aid in improving management skills. An evaluation survey conducted at the end of the workshop indicated an interest in further considering the issue of stress management in the workplace. In response to this feedback the Council, working with Dan Wheeler, organized a three-part series on stress management. The first workshop centered on characterizing the stresses in the workplace through a faculty panel discussion. The second workshop was led by Wes Sime, a stress physiologist. The third will occur in May when Dan Wheeler will summarize survey results on sources of stress and resources faculty currently use to address this persistent problem.

The Council has subcommittees that review proposals and applications for the following recurring programs.

*Junior Faculty for Excellence in Research Awards  
Widaman Trust Distinguished Graduate Assistant Awards  
UNL Foundation Grants  
Interdisciplinary Research Grant  
International Travel Grant  
Innovative and High Risk Research Grant*

Faculty can keep up with the Council's activities by reviewing the minutes of our meetings. They are sent to the Unit Administrators for distribution. The 1994 Council members are: Dave Mortensen (chairman), Ken Hubbard (secretary), Julie Albrecht, David Baltensperger, Chris Calkins, Ray Chollet, Susan Cuppett, Ruben Donis, and Dean Eisenhauer. Please contact us if you have something that you want us to discuss with the Deans.

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

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

### GRANT AND CONTRACT INCOME DURING THE LAST THREE CALENDAR YEARS EXPRESSED ON DOLLARS PER RESEARCH FTE BASIS

Unit	1991	1992	1993	Average 1990-93
	-----\$/RESEARCH FTE/YEAR-----			
Agricultural Economics	12,609	19,829	22,945	18,461
Agricultural Meteor	148,341	46,710	422,431	205,827
Agronomy	51,022	45,265	73,749	56,679
Animal Science	48,404	49,784	54,820	51,003
Biochemistry	138,550	181,599	166,383	162,177
Biol/Systems Engineer	33,533	101,480	98,040	77,684
Biometry	0	0	1,899	633
Entomology	47,024	67,785	82,907	65,905
Family & Cons Science	0	20,526	24,765	15,097
Food Sci & Technology	50,442	60,718	88,234	66,465
Forestry, Fish/Wildlife	76,290	295,985	255,458	209,244
Horticulture	156,351	85,409	139,163	126,974
Northeast R&E Ctr	33,885	54,772	52,738	47,132
Nutr Sci & Dietetics	3,317	30,196	5,456	12,990
Panhandle R&E Ctr	61,340	46,024	78,378	61,914
Plant Pathology	111,623	105,847	101,971	106,480
South Cent R&E Ctr	31,980	31,549	91,034	51,521
Text/Cloth & Design	0	8,364	0	2,788
Veterinary Science	95,469	96,370	76,137	89,326
West Cent R&E Ctr	56,731	43,935	20,146	40,271
<b>Average</b>	<b>64,301</b>	<b>73,270</b>	<b>92,833</b>	<b>73,429</b>

We are pleased that the average grant and contract income per FTE obtained by ARD units in 1993 increased by 26.7 percent over 1992 income and 44.4 percent over 1991 income. Many units have experienced increases in grant and contract income over the past two years. Keep up the good work.

## QUESTIONS TO CONSIDER WHEN PREPARING GRANT PROPOSALS

- Does the grantor accept solicited or unsolicited proposals?
- What is the best way to make contact with the grantor—letter/preproposal or full proposal?
- Does the project fit the grantor's interests?
- What competition is expected and what has it been in the past?
- Who has received grants for what projects from this grantor?
- Are there budget restrictions, e.g., no money for equipment?
- Are there budget requirements, e.g., cost sharing?
- Has the grantor set a deadline for the proposal?

- How much time will be involved in idea reviews?
- Where is the relevant literature for review?
- Will you have a central thesis or a vague plan?
- Should this be an interdisciplinary proposal?
- How long will it take to write the proposal?
- Will the co-investigators work collaboratively?
- What university approvals and endorsements are necessary?
- Will you have adequate time to conduct the proposed studies?
- How many people and how much of their time will be required?
- Is there sufficient expertise to compete in this area?
- Will funds be requested or cost shared for staff time?
- Are project participants available and willing to cooperate?
- What materials, supplies and equipment are needed?
- Are adequate space and facilities available?
- Will space need to be remodeled?
- Are necessary service, e.g., computer and custodial, available?
- What is the total time frame and does it fit your other needs?

From *Guidelines for Proposal Preparation and Application Procedures*, College of Veterinary Medicine, University of Illinois, 1989.

#### AVERAGE APPROPRIATED FUND SUPPORT PER FTE IN NORTH CENTRAL REGION SAESs

There is tremendous variation in the amount of appropriated funds provided per scientist FTE in North Central Region State Agricultural Experiment Stations. IANR scientists should feel fortunate to be well supported by appropriated funding (12th highest in the U.S.). Listed below is the amount of appropriated funds provided by taxpayers per research FTE for selected states in the North Central Region during FY 1994. Please keep in mind that these funds provide faculty and support staff salaries and fringe benefits, GRA stipends, student wages, and operating funds.

State	Research FTE	Approp. \$ per FTE
Iowa	158	179,323
Ohio	122	168,658
Minnesota	167	164,025
Nebraska	132	160,028
Missouri	88	130,174
Kansas	169	128,138
North Dakota	101	125,053
Indiana	130	115,282
Wisconsin	163	114,104
Illinois	116	104,045

#### TRENDS IN SCIENTIST AND SUPPORT STAFF FTE IN NORTH CENTRAL REGION SAESs

During the past five years, there has been a general downward trend in numbers of research faculty and support staff assigned to state agricultural experiment stations throughout the U.S. The decline in number of research personnel reflects the unfavorable budget climate that has

affected many public universities. Given below are data on the numbers of research and support staff FTEs in selected North Central Region SAESs for FY 1990 and FY 1994.

State	Faculty FTE			Support Staff FTE		
	FY 90	FY 94	% Change	FY 90	FY 94	% Change
Illinois	134	116	-13.5	166	168	1.2
Indiana	162	130	-19.8	303	292	-3.7
Iowa	136	146	7.4	222	229	3.2
Kansas	177	169	-4.5	143	155	8.4
Minnesota	176	163	-8.0	366	308	-15.8
Missouri	110	88	-20.0	222	198	-11.8
Nebraska	145	132	-9.0	359	370	3.1
North Dakota	101	101	0	331	326	-1.5
Ohio	143	122	-14.7	513	402	-21.6

#### NEW OR REVISED PROJECTS

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

##### NEB-11-097 (Biological Systems Engineering) Protein Film Production and Evaluation

Investigator: C. L. Weller

Status: New Hatch project effective Oct. 1, 1993

##### NEB-11-098 (Biological Systems Engineering) Integrated Systems for Improved Water and Nitrogen Management in Irrigation Environments

Investigator(s): D. L. Martin, D. G. Watts and N. L. Klocke

Status: New Hatch project that contributes to Regional Research Project NC-211 effective Oct. 1, 1993

##### NEB-12-232 (Agronomy) Influence of Genetic Variation in North American Leafy Spurge on *Aphthona nigricutis*

Investigator(s): S. N. Nissen, R. A. Masters, D. J. Lee and M. L. Rowe

Status: New Competitive Grant effective July 1, 1993

##### NEB-13-117 (Animal Science) Ovarian Follicular Development in Prepubertal Heifers: Role of LH, FSH and Estradiol

Investigator(s): J. E. Kinder and M. J. Garcia-Winder

Status: New Competitive Grant effective Sept. 1, 1993

##### NEB-14-075 (Veterinary and Biomedical Sciences) Regulated Expression of the GnRH Gene in Ruminants

Investigator: D. L. Hamernik

Status: New Competitive Grant effective Sept. 15, 1993

##### NEB-14-076 (Veterinary and Biomedical Sciences) Molecular Analysis of the Bovine Immune System: Dissection of Mammary Gland T Cell Repertoire

Investigator: S. S. A. Chen

Status: New Animal Health project effective Nov. 1, 1993

##### NEB-14-077 (Veterinary and Biomedical Sciences) Molecular Genetics Analysis of Mycobacterium Paratuberculosis and Related Mycobacterial Pathogens

Investigator: R. G. Barletta

Status: New Animal Health project effective Nov. 1, 1993

**NEB-16-063 (Food Science and Technology)**  
**Physiological Studies on *Listeria monocytogenes***  
*Investigator(s):* R. W. Hutkins and T. Conway  
*Status:* New Competitive Grant effective Sept. 1, 1993

**NEB-16-064 (Food Science and Technology) Control of Pathogenic Microorganisms of Fresh Fruits and Vegetables**  
*Investigator(s):* S. S. Sumner, L. B. Bullerman and J. A. Albrecht  
*Status:* New Competitive Grant effective Sept. 15, 1993

**NEB-17-059 (Entomology) Development of Sustainable IPM Strategies for Soybean Arthropod Pests**  
*Investigator:* L. G. Higley  
*Status:* New Hatch project that contributes to Regional Research Project S-255 effective Dec. 1, 1992

## PROPOSALS SUBMITTED FOR FEDERAL GRANTS

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

**Robert Wilson, Gary Hein and Eric Kerr** — National Research Initiative Competitive Grants Program — Integrated Systems for Control of Canada Thistle — \$127,040

**Dennis McCallister, Gary E. Varvel and Wallace Wilhelm** — National Research Initiative Competitive Grants Program — Organic Matter Quality, Aggregate Stability, and Long-Term Cropping Systems — \$92,592

**Garald Horst, William Powers, Patrick Shea and Steven Comfort** — National Research Initiative Competitive Grants Program — Irrigation Schedule Modification to Minimize Chemical Transport Below Turfgrass — \$149,619

**David Jackson and Randy Wehling** — National Research Initiative Competitive Grants Program — Prediction of Corn Wet Milling Yields: Analysis and Fundamental Chemistry — \$191,553

**Michael Zeece** — National Research Initiative Competitive Grants Program — Development of Objective Analytical Methods for Assessing Meat Functional Quality — \$129,310

**Glenn Froning and Michael Zeece** — National Research Initiative Competitive Grants Program — The Role of an Alkaline Proteinase in Surimi-Like Processed Mechanically Deboned Poultry Meat — \$174,687

**Leon Higley and Lance Meinke** — National Research Initiative Competitive Grants Program — Characterizing Canopy Gas Exchange Responses to Insect Herbivory in Two Systems — \$131,850

**Charles Francis** — United States Department of Agriculture/Cooperative State Research Service — Integrated Crop/Livestock Research for Sustainable Systems in Nebraska — \$66,093

**Gary Yuen and Garald Horst** — National Research Initiative Competitive Grants Program — Turfgrass Canopy Effects on Disease Biological Control Agents — \$128,455

**Viswas Ghorpade and Curtis Weller** — National Research Initiative Competitive Grants Program — Nonedible Wheat Gluten Films for Use as Mulch and Bags — \$199,320

**Milford Hanna** — United States Department of Agriculture/Cooperative State Research Service — Industrial Agricultural Products Center — \$103,861

**Curtis Weller, Susan Cuppett and Soumya Roy** — National Research Initiative Competitive Grants Program — Utilization of Sorghum Refining Co-Products in Foods — \$199,320

**John Gilley, John Doran and Thomas Franti** — National Research Initiative Competitive Grants Program — Soil Quality Assessment to Identify Soil Erosion Potential — \$225,011

**Norman Schneider** — National Research Initiative Competitive Grants Program — Endogenous Production of Nitrate and Nitrite in the Bovine — \$93,819

**Raul Barletta** — National Research Initiative Competitive Grants Program — Role of Iron Uptake in *Mycobacterium paratuberculosis* Pathogenesis — \$292,482

**Louis Perino, Dee Griffin and Julie Morrow-Tesch** — National Research Initiative Competitive Grants Program — Comparison of Surgical and Non-surgical Castration Techniques for Cattle — \$26,013

**Gerald Duhamel, David Benfield and Clayton Kelling** — National Research Initiative Competitive Grants Program — Role of Group A bovine Rotavirus P Protein in Induction of Heterotypic Immunity — \$212,268

**Ruben Donis** — National Research Initiative Competitive Grants Program — Cellular Molecules Mediating Bovine Viral Diarrhea Virus Infection — \$158,979

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

**Raul Barletta** — National Research Initiative Competitive Grants Program — Role of Iron Uptake in *Mycobacterium paratuberculosis* Pathogenesis — \$292,482

**Fernando Osorio, Andy Cheung and Clinton Jones** — National Research Initiative Competitive Grants Program — Prevention of Alpha herpesvirus Latency by Homologous Interference — \$242,394

**Swey-Shen Alex Chen, Ruben Donis and Fernando Osorio** — National Research Initiative Competitive Grants Program — T Cell-Mediated Inflammation of the Bovine Mammary Gland — \$255,580

**Clinton Jones** — National Research Initiative Competitive Grants Program — Analysis of the Bovine Herpes Virus 1 Latency Related Gene — \$219,627

**Stephen Danielson and Blair Siegfried** — National Research Initiative Competitive Grants Program — Glandular Trichome Exudate As An Insect Resistance Factor for Alfalfa — \$168,727

**Robert Spreitzer** — National Research Initiative Competitive Grants Program — Genetic Modification of Chloroplast Rubisco — \$263,358

**Sam Cordes and Charles Lamphear** — United States Department of Agriculture — A Changing Health Care System and the Rural Economy — \$29,000

**Albert Weiss and Kent Eskridge** — National Research Initiative Competitive Grants Program — A Simulation Approach to Quantifying Maize Adaptation to Different Environments — \$234,060

**James Kinder and Michael Day** — National Research Initiative Competitive Grants Program — Persistent Ovarian Follicles: Role of Progestins and LH in Cows — \$244,038

**Amit Mitra and Martin Dickman** — National Research Initiative Competitive Grants Program — Genetic Engineering of Crop Plants to *Sclerotinia* Resistance — \$186,299

**H. Edward Grotjan, Debora Hamernik and Yunannen Xia** — National Research Initiative Competitive Grants Program — Recombinant Bovine Gonadotropins — \$271,950

**Kyle Hoagland** — U.S. Environmental Protection Agency — Chronic Effects of Atrazine Background Levels on Platte River Algae — \$46,316

**Kyle Hoagland and Stephen Ernst** — NIGEC — Impacts of Global Climate Change on Phytoplankton Productivity in Lakes Along a Thermal Gradient — \$69,100

**James Brandle and William Easterling** — NIGEC — Assessment of Climate Change on a Mixed Agricultural Landscape on the North American Great Plains — \$136,000

**Lloyd Bullerman** — USDA/Food Safety and Health — Isolation, Identification and Production of Antifungal and Anti-aflatoxigenic Metabolites of *Bacillus* and *Lactobacillus* spp. — \$47,950

**Rose Marie Rosario** — National Science Foundation — Mediation of Immune Responses in Invertebrates — \$18,000

**Raymond Chollet** — National Science Foundation — Posttranslational Regulation of Pep-Carboxylase Activity in Higher Plants — \$406,000

**Stephen Ragsdale** — U.S. Department of Energy — Mechanistic Enzymology of CO Dehydrogenase from *Clostridium thermoaceticum* — \$97,000

**Stephen Ragsdale** — U.S. Department of Energy — Purchase of Large Fermentation System — \$220,440

**L. David Clements** — U.S. Environmental Protection Agency — Integrated Biomass Energy Production and Waste Minimization for the Animal Processing Industry — \$744,937

**Shashi Verma, Frank Ullman and Timothy Arkebauer** — National Science Foundation — Field Micrometeorological Measurements, Process-Level Studies and Modeling of Methane and Carbon Dioxide Fluxes in a Boreal Wetland Ecosystems — \$705,000

**H. Edward Grotjan and Ronald Cerny** — National Science Foundation — Ovine Luteinizing Hormone Structure-Function Relationships — \$250,687

**Donald Wilhite** — USDA/SCS — Planning of Western Drought Conference — \$10,000

**James Brandle** — USDA/FS — Efficacy of Alternative Single to Multi-Strata Riparian Buffer Designs for NPS Abatement in Agroecosystems Demonstration — \$22,000



## GRANTS AND CONTRACTS RECEIVED

DECEMBER 1993 AND JANUARY 1994

<b>Agricultural Meteorology</b>	
Easterling, W. and Blad, B. — University of California	\$1,610,185
Easterling, W. — DOE - NIGEC	16,223
Wilhite, D. — USDA	10,000
<b>Agronomy</b>	
Miscellaneous grants under \$5,000 each	35,900
<b>Animal Science</b>	
Klopfenstein, T. — USDA/OICD	12,000
Lewis, A. — A. L. Laboratories, Inc.	14,400
Miscellaneous grants under \$5,000 each	7,755
<b>Center for Rural Community Revitalization and Development</b>	
Cordes, S., Royer, J. and Allen, J. — USDA	157,537
Cordes, S. — USDA	25,000
<b>Entomology</b>	
Miscellaneous grants under \$5,000 each	30,500
<b>Food Processing</b>	
Miscellaneous grants under \$5,000 each	2,005
<b>Food Science and Technology</b>	
Bullerman, L. — Ohio State University	15,000
Jackson, D. and Taylor, S. — Nebraska Grain Sorghum Board	8,470
Meagher, M. and Noureddini, H. — Iowa State University	18,318
Miscellaneous grants under \$5,000 each	8,200
<b>Forestry, Fisheries and Wildlife</b>	
Brandle, J. — USDA/Forest Service	22,000
Brandle, J. — Iowa State University	82,443
<b>Horticulture</b>	
Miscellaneous grants under \$5,000 each	7,850
<b>Northeast Research and Extension Center</b>	
Miscellaneous grants under \$5,000 each	22,266
<b>Panhandle Research and Extension Center</b>	
Pavlista, A. — Nebraska Department of Agriculture	16,000
Miscellaneous grants under \$5,000 each	25,360
<b>Plant Pathology</b>	
Miscellaneous grants under \$5,000 each	2,500
<b>South Central Research and Extension Center</b>	
Miscellaneous grants under \$5,000 each	18,770
<b>Veterinary and Biomedical Sciences</b>	
Miscellaneous grants under \$5,000 each	6,470
<b>Water Center/Environmental Programs</b>	
Miscellaneous grants under \$5,000 each	3,200
<b>West Central Research and Extension Center</b>	
Miscellaneous grants under \$5,000 each	8,750
<b>GRAND TOTAL</b>	<b>2,187,102</b>

## COMPETITIVE RESEARCH BUDGETS FOR FY 1994

Most federal agencies that fund competitive research obtained budget increases for FY 1994. The big loser was the superconducting supercollider under construction in Texas. Many of the agencies that support research of IANR faculty members obtained significant budget increases. These increases should result in more projects being funded and greater funding for each grant. Listed below are the funding levels for programs of interest to our scientists.

Agency and Program	FY 1994 Budget, millions of \$	% Change from FY 1993
<b>NIH:</b>	10,668	6.1
Cancer	2,142	5.3
Allergy	1,065	7.8
<b>NSF:</b>	3,037	10.7
Research Directorates	1,998	7.5
Education	569	17.1
Academic Infrastructure	110	120.0
<b>DOE:</b>		
Biological, Environment	409	24.4
Solar, Renewal Energy	245	38.4
<b>NASA:</b>		
Research and Development	9,284	4.9
Space Station	1,946	8.3
<b>EPA:</b>		
Research and Development	339	5.0
<b>NOAA:</b>		
Oceanic and Atmospheric	226	11.9
<b>USDA:</b>		
National Research Init.	112	15.5

## CHARACTERISTICS OF NSF GRANTS

*Science* (262:1636-1638) has recently published information about grants awarded by the National Science Foundation. Although the amount varies by directorate, the average award is for \$125,000 over a two-year period. On average, the funds are budgeted as follows: PI salary, 12 percent; post-doc or technician salary, 16 percent; GRA stipend, 12 percent; equipment purchase, 16 percent; indirect costs, 28 percent; and operating, 16 percent. NSF would like to make three-year awards to minimize the paperwork for investigators, but this would affect the number of grants provided per year.

The Biology Directorate makes about 1,300 awards each year with an average award size of \$75,000 per year. The Earth Sciences (Geology) Directorate makes about 1,200 awards each year with an average award size of \$60,000 per year.

NSF is spending about 72 percent of the budget on grants to single or groups of investigators, 20 percent on facilities, and 8 percent on NSF Centers. These proportions have held steady during the past eight years.

## ETHNICITY OF DOCTORAL RECIPIENTS IN 1991

One of the IANR goals is to increase the cultural diversity of faculty, students and staff. Employment of under-represented minorities as faculty members in "Colleges of Agriculture" has been a significant challenge. Very few minority students obtain Ph.D. degrees in agricultural sciences. Other colleges at UNL and other universities are also experiencing difficulty in hiring minority faculty members. *Science* (262:1091-1095) has recently published data on the ethnicity of students obtaining Ph.D. degrees in 1991. This data is provided below.

	Life Science	Physical Science	Social Science	Engineering
Caucasian	4657	3593	4563	2218
Native American	19	14	21	6
Asian	324	306	154	401
Black	116	53	231	55
Hispanic	126	99	197	59
International	1686	2211	961	2473

These data clearly point out the need to aggressively recruit minority graduate students if we are to have an adequate pool of talented minority doctoral recipients to compete for faculty positions. It is likely that increasing minority graduate students will occur only if we interest primary and secondary students in science. Hopefully, we can convince these students to enroll in agricultural or biological sciences at the undergraduate level. A good base of undergraduate students across the U.S. would greatly enhance our ability to bring minority students into our graduate programs. We also must develop excellent relationships with 1890 Universities because these institutions have an excellent pool of talented undergraduates in agricultural sciences.

### *Diane Says*

In the words of Jack Herbert, "We all admire the wisdom of people who come to us for advice."