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## ARD News February 1997

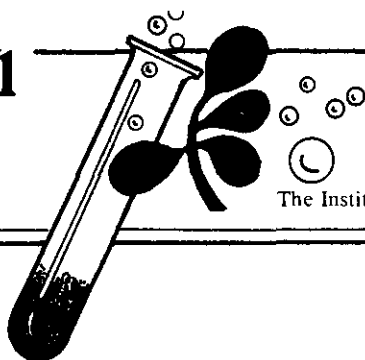
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February 1997

Volume 31, Number 4

## COMMENTS FROM THE DEAN

Dear Colleagues:

This column is written to bring you up-to-date on several important activities underway at the University of Nebraska that will affect the Agricultural Research Division. Although many of you have a general understanding of these activities, I will attempt to detail the potential effects of these changes on our research program.

**Budget Reallocation Proposal:** All UNL colleges and divisions were required to identify 4 percent of their state-funded budget for reallocation. ARD's target for reallocation was \$772,038. Based on input from unit administrators, ARD forwarded to the Chancellor's Budget Committee the following: 5.86 FTE of faculty positions, 1.9 FTE of managerial/professional positions, 17.81 FTE of office/service positions, and GRA stipends and operating funds totaling \$29,201. Adoption of the ARD proposal would result in termination of 24 support staff positions about 18 months from now. We truly regret affecting support staff positions to this extent, but the UNL guidelines severely restricted the resources available for reallocation.

In our proposal, we argued that these resources should not be reallocated from ARD because: (i) agriculture and agribusiness are the basis for Nebraska's economy; (ii) agricultural research keeps agriculture and agribusiness profitable and competitive; (iii) there is a high rate of return on investment in agricultural research (>50 percent annual return); (iv) ARD faculty obtained 51 percent of all research grant funds received by UNL in 1996 and reducing our program scope will result in reduced grant income and indirect cost recovery; (v) many of our programs are among the most productive in the U.S. and the reductions will hinder our ability to add to the knowledge base and solve problems of people; (vi) IANR redirection over the last eight years has eliminated weak programs, so the current reallocation will have a negative impact on excellent programs; and (vii) 24 long-term employees will lose their jobs.

We were given the opportunity to identify program areas to be enhanced if reallocated funds were provided to the college or division. ARD was permitted to identify programs for enhancement that totaled 4 percent and 8 percent of our

current state-funded budget base. Reallocated resources were requested for the following programs: School of Natural Resources (offset reductions taken in units making up the School), assumption of faculty salaries currently paid by the Nebraska Research Initiative, Plant Science Initiative, one-third of lease cost for the new Northeast Lifelong Learning Center, Integrated Beef Production Systems Initiative, agribusiness program, animal molecular biology, comparative pathobiology of plants and animals, honors student research experience, family life program, leadership education, and Western Nebraska visiting scholars program. Hopefully, several of these initiatives will be funded by the reallocation program.

**Nebraska Research Initiative:** President Smith has mandated that the Nebraska Research Initiative (NRI) be converted to a competitive grants program over the next six years. Since initiation, the NRI program has provided funding to research centers on a continuing basis. The centers provide research support to a range of faculty in many units through internal competitive programs. UNL receives about \$8 million in NRI funding each year and ARD faculty have received about \$2.6 million each year from the Water and Biotechnology Centers.

By July 1, 1997, each campus must identify 30 percent of their NRI funds for reallocation by Central Administration on July 1, 1998. We anticipate that essential core facilities will be exempt from the reallocation requirement and will continue to receive NRI support.

UNL is currently identifying potential targeted areas for the new competitive grants program. High priority targeted areas will be provided to President Smith through the Council of Academic Officers. The proposed targeted areas will be evaluated by the President's Research Advisory Board and a limited number of targeted areas will be identified in a request for proposals issued by the President's Office this summer. Faculty will have about three months to prepare proposals to obtain NRI funding for a four- to six-year period.

Key criteria for targeted areas include contribution to Nebraska's economy and potential to be sustained by external grants after NRI funds are removed.

**IANR Administrative Review:** The first review of IANR will be held on April 28-30, 1997. After 25 years in



existence, many felt that it was time to examine IANR's role, mission, vision, organizational structure, operating policies, strategic planning process, programs and program balance, budget allocations, priorities, and physical facilities. The review team will be composed of three senior administrators from other institutions and three Nebraska clientele. The areas of agriculture, human resources, and natural resources will be represented by expertise on the team. We are currently in the process of writing the self-study document. We are hopeful that the team will provide IANR with useful insights as we plan for the future.

**Chancellor's National Advisory Board:** Chancellor Moeser has appointed a National Advisory Board to provide him with guidance concerning the future role of IANR in UNL, development of closer relationships between IANR and other UNL colleges, and diffusion of the "land grant philosophy" to other parts of the campus. Members of the National Advisory Board are Peter McGrath, President of NASULGC; John Byrne, President Emeritus of Oregon State; Richard Gady, Vice President of ConAgra; John Klosterman, cattle feeder; Mark Gustafson, producer; and Ron Raikes, producer. The Advisory Board met on November and we anticipate a second meeting sometime in March. The National Advisory Board will use the self-study document and review team report from the IANR Administrative Review in their deliberations.

*Darrell W. Nelson  
Dean and Director*

### UNL RESEARCH GRANTS AND CONTRACTS FY 1996

The ARD recently received the 1995-1996 Annual Report from the Research Grants and Contracts office. This report summarizes the University of Nebraska-Lincoln's sponsored activities from external sources over the last fiscal year. Some of the information from that report is summarized below.

**Table I.**

| <i>Total Grant/Contract Awards by Sources of Funding</i> |                     |
|--|---------------------|
| Federal  | \$48,258,754        |
| State  | \$ 5,140,075        |
| UN Foundation  | \$ 6,248,057        |
| Industry   | \$ 4,011,365        |
| Other  | \$ 3,371,051        |
| Associations/Foundations                                 | \$ 4,084,778        |
| <b>Total</b>   | <b>\$71,114,080</b> |

**Table II.**

| <i>Total Grant/Contract Awards by Category Type</i> |                     |
|---|---------------------|
| Research  | \$33,378,314        |
| Public Service                                      | \$20,803,757        |
| Student Financial Aid                               | \$8,270,396         |
| Instruction   | \$7,247,860         |
| Administration                                      | \$1,123,150         |
| Student Services                                    | \$290,603           |
| <b>Total</b>  | <b>\$71,114,080</b> |

The University has more than doubled its grant/contract awards since 1986-87. Of the 1995-96 awards, over \$33 million, or about 47 percent of the awards, were in support of research. The remainder was in support of the categories of instruction, public service, administration, student services, and student financial aid.

The research grants/contract awards total for Agricultural Research Division units was \$17,048,750. **This was over 51 percent of the total research grants and contracts awarded to UNL in 1995-96.** We congratulate the faculty, staff and administrators of the ARD units who accomplished this. Keep up the good work.

### STEVE WALLER'S FIVE YEAR ADMINISTRATIVE REVIEW

During the fall semester, Dean Edwards and I conducted the five year administrative review of Steve Waller. We received very positive feedback regarding Steve's leadership and performance of duties from faculty, administrators, regional SARE leadership, and clientele. Accordingly, we have asked Dr. Waller to continue in his roles as Associate Dean of the College of Agricultural Sciences and Natural Resources, Assistant Dean of the Agricultural Research Division, and Coordinator of the North Central Region Sustainable Agriculture Research and Education Program. Steve has agreed to continue in these assignments.

Dean Edwards and I wish to express appreciation to faculty and administrators for providing us with input regarding Steve Waller's leadership and performance of duties. This feedback is essential for professional development of all administrators.

*Darrell W. Nelson  
Dean and Director*

### ARMY ALLOCATES FUNDING FOR CLEAN-UP PROJECTS AT ARDC

Funding has been allocated by the U.S. Army Corps of Engineers for a large scale environmental clean-up effort at the University of Nebraska Agricultural Research and Development Center. The University has been working with the state and federal government for years to clean up the site

situated at the former Nebraska Ordnance Plant near Mead. A variety of projects are planned with the total cleanup effort expected to total \$80-\$90 million in today's dollars.

In a project that is estimated to last two to three months and cost \$7 million, 11,000 tons of contaminated soil will be excavated and burned at the site. The construction of a mobile incinerator complex will begin this spring and the first test burning is scheduled to take place this summer. The incineration will begin once the stack emissions are deemed acceptable according to federal and state standards. The soil will be burned at very high temperatures to dispose of explosive RDX compounds and traces of TNT. Polychlorinated biphenyls (PCB) also has been found in some soil and was cleaned up in a separate project last year.

In order to purify 10 billion gallons of contaminated groundwater, 40 billion gallons of water will be pumped and treated. The Corps expects this long-range project to take more than 130 years and to cost approximately \$60-\$70 million. Extraction wells will be drilled and a filtration facility constructed where more than 4 million gallons of contaminated groundwater will be treated per day to rid the water of RDX and the solvent trichloroethene (TCE). Once treated, the water will meet drinking water standards and could be utilized by communities. The Lower Platte North Natural Resources District is spearheading an effort to distribute the water in the rural water district covering Saunders County. A feasibility study will be released in February.

The most recent development, led by the efforts of U.S. Senator Bob Kerrey, has resulted in the appropriation of \$13.5 million to the Corps for the removal of asbestos and demolition of dilapidated structures at the former ordnance plant. The site was placed on the Superfund National Priority List (NPL) in 1990, but did not advance until now due to a lack of funds. The project will begin later this year.

In addition, in April, Corps experts will search an old demolition ground in the southern part of the site for unexploded ordnance utilizing magnetic devices. No confirmed explosives have been located at this time, but metal fragments have been sighted.

### **CROP DIAGNOSTIC CLINIC ATTRIBUTES SUCCESS TO MANY**

An article concerning the Crop Diagnostic Clinic held at the ARDC appeared in a recent issue of the *Agricultural Research Division News*. While the management team was acknowledged, we also would like to recognize the contributions of the following presenters: Jane Christensen, Andy Christiansen, Kim Fleming, Ken Frank, DeLynn Hay, Paul Hay, Dave Holshouser, Keith Jarvi, Paul Jasa, Alice Jones, Dennis Kahl, Mark Liebig, John McNamara, Alex Martin, Steve Mason, Z B Mayo, Lenis Nelson, Jim Peterson, Rick Waldren, John Watkins, John Witkowski, Bob Wright, Dave Wysong, and Gary Zoubek. It is the collective efforts and expertise of many individuals that attributed to the success of the clinic.

### **PROPOSALS SUBMITTED FOR FEDERAL GRANTS**

The following is a listing of proposals that were submitted after December 1996 by faculty for federal grant programs. While not all grants will be funded, we are appreciative of the faculty member's effort in submitting proposals to the various agencies.

**Stephen L. Taylor** — USDA/CSREES — Midwest Advanced Food Manufacturing Alliance — \$395,338

**Sam Cordes and John Allen** — USDA/CSREES — Partnership for Rural Nebraska — \$236,437

**Charles A. Francis, Terry J. Klopfenstein and James R. Brandle** — USDA/CSREES — Integrated Crop/Livestock Research for Sustainable Systems in Nebraska — \$55,142

**Z B Mayo** — North Central Region/Pesticide Impact Assessment Program — Biological and Chemical Integration to Manage Insecticide Resistant Greenbugs — \$83,250

**Shripat Kamble** — North Central Region/Pesticide Impact Assessment Program — A Survey of Pesticide Use on Agricultural Crops — \$22,275

**Stephen L. Taylor** — USDA/CSREES — Development and Quality/Safety Enhancement of Specialty Food Products — \$39,253

**Ruma Banerjee and Sarbani Chakraborty** — NIH — Reaction Mechanisms of Cobalamin-Dependent Enzymes — Rentry Supplement — \$70,585

**Ruma Banerjee** — NIH — Reaction Mechanisms of Mammalian Cobalamin Dependent Enzymes — \$101,707

**Donald A. Wilhite** — USDA/CSREES — Developing Drought Mitigation and Preparedness Technologies for the U.S. — \$186,921

**Blair D. Siegfried** — North Central Biotechnical Program (NCBP) — Development of Diagnostic Techniques for Monitoring Bt Resistance in the European Corn Borer — \$56,890

**Curtis L. Weller and Susan L. Cuppett** — USDA/NRI — Sorghum Wax Quantity and Quality as Influenced by Solvent — \$126,734

**Kulvinder S. Gill** — USDA/NRI — Molecular Characterization of a Gene Cluster of Wheat — \$250,380

**Susan Cuppett** — USDA/NRI — Antioxidant Efficacies/Synergisms of Rosmarinic Acid, Carnosic Acid and Carnosol — \$449,760

**Lois E. Hamilton and Viswas Ghorpade** — USDA/NRI — Wheat Gluten Binders for Textile Print Pastes — \$159,299

**L. Davis Clements** — USDA/NRI — Production of Industrial Quality Saccharification Enzymes from Cattle Rumen Fluid — \$133,047

**John Markwell and Gautam Sarath** — USDA/NRI — Novel Chloroplast Protein Phosphatase — \$213,194

**Stephen L. Taylor** — USDA/CSREES — Alliance for Food Protection — \$140,191

**Robert J. Spreitzer** — USDA/NRI — Rubisco Phylogenetic Correlation — \$249,454

**Sam Cordes, John Allen, Evert Van der Sluis and Garth Taylor** — University of Missouri via USDA/NRI — Community Modeling — \$32,500

**Milford Hanna, Kevin Cole and David Jones** — USDA/NRI — Neutral Network Modeling of Extrusion Process — \$163,479

**Lilyan E. Fulginiti** — USDA/NRI — The Market Effects of Commodity Progress: Wheat, Corn and Soybeans in the U.S. — \$236,560

**Richard K. Perrin** — USDA/NRI — Evaluation of the Productivity-Environment Tradeoff: A Nebraska Case Study — \$108,256

**Randy L. Wehling** — USDA/NRI — Detecting Internal Insect Infestation in Wheat by Near-Infrared Spectroscopy — \$59,627

**P. Stephen Baenziger and Yang Yen** — USDA/NRI — Exploring the Interface of Qualitative and Quantitative Genetics — \$311,703

**Rochelle L. Dalla and Shirley Baugher** — USDA/NRI — Migration to Rural Meat Packing Communities: A Social, Economic, and Policy Study — \$314,967

**Lori A. Allison** — USDA/NRI — The Role of a Family of Nuclear-Encoded Sigma Factors in Plastid Transcription Regulation — \$235,915

**Thomas O. Powers and Allen L. Szalanski** — NSF — Nematodes of the Tallgrass Prairie — \$278,243

**K. Arumuganathan** — USDA/NRI — Flow-Sorted Chromosomes for Maize Genome Research — \$291,715

**James Kinder** — USDA/NRI (with Colorado State University) — Mechanisms Regulating the Mide-Luteal Phase Increase in Secretion of FSH in Cows — \$101,401

**W. E. Easterling** — NSF — A Hierarchical Approach to Integrated Assessment of Climate Change with an Application to the Central United States — \$85,619

**Raul G. Barletta, Nancy E. Caceres, and Feng Zhengyu** — NIH subcontract — Identification of Novel *M. avium* Drug Targets — \$568,409

**Robert Klucas and Gautam Sarath** — NSF — Understanding the Expression of Rice Hemoglobin Gene — \$338,312

**Lori A. Allison** — NSF — The Role of a Family of Nuclear-Encoded Sigma Factors in Plastid Transcription Regulation — \$270,167

**Bob Volk** — U. S. Dept. of Interior — Regional Water Resources Competitive Grants Program — \$20,000

**Bob Volk** — USGS — Evaluation of Constructed Wetlands and Information Transfer — \$20,000

**Michael F. Kocher, Robert D. Grisso, Kent Eskridge, Frederick Baxendale and David Jones** — USDA/NRI — Spray System Factors Damaging Nematodes as Biological Control of Pest Insects — \$218,528

**Donald P. Weeks** — NSF — Molecular and Genetic Analyses of the Carbon Concentrating Mechanism of *Chlamydomonas reinhardtii* — \$395,030

**Raul Barletta** — USDA/NRI (with Texas A and M University) — Identification of *M. bovis* Virulence Genes — \$68,613

**Kulvinder S. Gill** — NSF — Understanding the Mechanism of Chromosome Pairing in Polyploids — \$366,925

**Clinton Jones** — USDA/NRI — Functional Analysis of Bovine Herpesvirus 1 Latency Related Gene Products — \$248,452

**Lloyd Bullerman** — USDA/NRI — Influence and Fate of Moniliformin in Corn and Heat Processed Corn Products — \$137,338

**Carolyn Price** — NSF — Analysis of Vertebrate Telomere Proteins Using Gene Targeting — \$65,000

**S. Madhavan and John Markwell** — NSF — C4 Carbon Isotope Discrimination, Nitrogen vs. Water Stress — \$319,275

**Martin B. Dickman** — USDA/NRI — Signaling in *Colletotrichum trifolii*: Function Evaluation of RAS and Protein Kinase C — \$232,051

**Blair D. Siegfried, Kenneth W. Nickerson, Audrey L. Atkin and Anthony J. Zera** — USDA/NRI — Resistance of European Corn Borers to Bt Toxins: Mechanisms and Trade Offs — \$354,934

**Julia C. Torquati and Kathy Prochaska-Cue** — NSF — Psychosocial, Physical, and Economic Well-Being of Homeless Families: Mediators and Moderators of Adaptation — \$365,061

**Ruben O. Donis** — USDA/NRI — Cis-acting Elements in the Replication of the Bovine Viral Diarrhea Virus Genome — \$304,380

**David W. Stanley-Samuelson** — USDA/NRI — Impairing Eicosanoid Mediated Immune Responses in Moths — \$148,717

**Robert Hutkins and Andrew K. Benson** — USDA/NRI — Why *E. coli* 0157:H7 Does not Ferment Sorbitol-Physiological and Genetic Implications — \$104,696

**Andrew K. Benson** — USDA/NRI — Arrayed Near-Infrared Fluorescence Hybridization Assays for the Detection of Foodborne Pathogens — \$148,725

**Thomas O. Powers and Allen L. Szalanski** — USDA/NRI — Entomopathogenic Nematodes as Biological Control Agents of Filth Flies — \$94,379

**H. Edward Grotjan and James E. Kinder** — USDA/NRI — Recombinant Bovine Gonadotropins — \$247,428

**James E. Kinder** — USDA/NRI — Role of Pulsatile LH During the Perioovulatory Period on Luteal Development of Cattle — \$204,320

**Milford A. Hanna** — USDA/CSREES — Industrial Agricultural Products Center — \$59,815

|  |                  |
|--|------------------|
| <b>Veterinary and Biomedical Sciences</b>              |                  |
| Lou, M. — Alcon Laboratories                           | 15,000           |
| Osorio, F. A. and Doster, A. — USDA/NRI                | 175,087          |
| Miscellaneous grants under \$5,000 each                | 10,115           |
| <b>Water Center</b>                                    |                  |
| Spalding, R. F. — Nebr. Dept. of Environmental Quality | 13,310           |
| Spalding, R. F. — Nebr. Dept. of Agriculture           | 30,000           |
| <b>West Central Research and Extension Center</b>      |                  |
| Miscellaneous grants under \$5,000 each                | 18,750           |
| <b>Grand Total</b>                                     | <b>2,804,369</b> |

## NEW OR REVISED PROJECTS

The following station projects were approved recently by the USDA Cooperative State Research, Extension and Education Service:

**NEB-11-109 (Biological Systems Engineering) Whole Farm Nutrient Balance for Livestock Production Systems**

*Investigator:* R. K. Koelsch

*Status:* New Hatch project effective Oct. 10, 1996

**NEB-12-209 (Agronomy) Procedures for Assessing Impacts of Nonpoint Agrichemicals on Groundwater**

*Investigator:* R. F. Spalding

*Status:* Revised Hatch project effective Sept. 5, 1996

**NEB-20-057 (Horticulture) Application of Micropropagation and Biotechnology to Improvement and Multiplication Horticultural Crops**

*Investigator:* P. E. Read

*Status:* New Hatch project effective Oct. 16, 1996

**NEB-21-068 (Plant Pathology) Molecular Mechanism of Fumonisin Induced Pathogenesis in Chicken**

*Investigator:* M. B. Dickman

*Status:* New Competitive grant effective Oct. 1, 1996

**NEB-91-044 (Nutritional Science and Dietetics) Dietary Trans Fatty Acid Influence on Atherosclerosis and Sterol Metabolism**

*Investigator:* T. P. Carr

*Status:* New Competitive grant effective Oct. 10, 1996

**NEB-92-026 (Family and Consumer Science) Surviving and Transcending a Traumatic Childhood**

*Investigator:* J. DeFrain

*Status:* New Hatch project effective Aug. 14, 1996

## COPYRIGHT AND FAIR USE WORKSHOP

On April 8, 1997, University Libraries is coordinating a workshop on copyright and fair use. The primary speaker will be Kenneth D. Crews, Associate Professor in the Indiana University School of Law-Indianapolis and in the IU School of Library and Information Science. Professor Crews is a nationally-regarded expert on the subjects of copyright and fair use. An announcement and registration information will be distributed later this month through the Teaching and Learning Center. Questions about copyright, fair use, or the upcoming workshop can be addressed to Agnes Adams at 472-3628 or by e-mail at: [agnes@unllib.unl.edu](mailto:agnes@unllib.unl.edu).



## GRANTS AND CONTRACTS RECEIVED DECEMBER 1996 AND JANUARY 1997

|  |           |
|--|-----------|
| <b>Agricultural Meteorology</b>  |           |
| Easterling, E. A. and Blad, B. L. — USDOE                                  | 1,472,411 |
| <b>Agricultural Research Development Center</b>                            |           |
| Miscellaneous grants under \$5,000 each                                    | 18,700    |
| <b>Agronomy</b>  |           |
| Drijber, R. A. — USDA/NRI  | 61,225    |
| Miscellaneous grants under \$5,000 each                                    | 19,750    |
| <b>Animal Science</b>  |           |
| Klopfenstein, Terry — Southern Poultry and Egg Association                 | 18,500    |
| Morrison, M. and Grant, R. — USDA/NRI                                      | 209,109   |
| Miscellaneous grants under \$5,000 each                                    | 69,469    |
| <b>Entomology</b>  |           |
| Miscellaneous grants under \$5,000 each                                    | 5,000     |
| <b>Food Science and Technology</b>   |           |
| Miscellaneous grants under \$5,000 each                                    | 36,750    |
| <b>Forestry, Fisheries and Wildlife</b>                                    |           |
| Miscellaneous grants under \$5,000 each                                    | 1,100     |
| <b>Horticulture</b>  |           |
| Coyne, D. P. and Steadman, J. — US/AID — through Michigan State University | 78,705    |
| Coyne, D. P. — US/AID — through Michigan State University                  | 16,200    |
| Miscellaneous grants under \$5,000 each                                    | 29,504    |
| <b>Human Dietetics and Nutrition</b>                                       |           |
| Carr, T. — USDA/NRI  | 146,019   |
| <b>Industrial Agricultural Products Center</b>                             |           |
| Miscellaneous grants under \$5,000 each                                    | 350       |
| <b>Northeast Research and Extension Center</b>                             |           |
| Miscellaneous grants under \$5,000 each                                    | 65,533    |
| <b>Panhandle Research and Extension Center</b>                             |           |
| Lyon, D. J. — Washington State University                                  | 39,000    |
| Taylor, R. G. — Washington State University                                | 7,570     |
| Miscellaneous grants under \$5,000 each                                    | 91,547    |
| <b>Plant Pathology</b>   |           |
| Dickman, M. and Jones, C. — USDA/NRI                                       | 136,015   |
| Miscellaneous grants under \$5,000 each                                    | 7,200     |
| <b>South Central Research and Extension Center</b>                         |           |
| Miscellaneous grants under \$5,000 each                                    | 12,450    |

## FOOD AND FIBER SECTOR CONTRIBUTION TO THE U.S. ECONOMY

Producing, processing, transporting and retailing food and fiber is big business in the U.S. The table below shows that the food and fiber system employs about 18 percent of all workers and generates about 16 percent of the value added in the U.S. domestic economy. In Nebraska, the food and fiber system employs a higher proportion of workers and generates proportionally more wealth than in most other states or the nation as a whole.

| Parameter                                    | 1982         | 1992         |
|--|--------------|--------------|
| <b>Employment (millions):</b>                |              |              |
| Total food and fiber                         | 22.9 (19.6)  | 22.8 (18.0)  |
| Farm sector                                  | 2.4 ( 2.1)   | 2.0 ( 1.6)   |
| Nonfarm sector                               | 10.5 (17.5)  | 20.8 (16.4)  |
| Food processing                              | 1.7          | 1.5          |
| Manufacturing                                | 3.6          | 3.0          |
| Transportation and retailing                 | 7.2          | 7.8          |
| Food service                                 | 4.6          | 5.2          |
| All other                                    | 3.4          | 3.4          |
| <b>Value added by activity (\$ billions)</b> |              |              |
| Total food and fiber                         | 622.6 (19.8) | 950.2 (15.7) |
| Farm sector                                  | 57.8 ( 1.9)  | 67.0 ( 1.1)  |
| Nonfarm sector                               | 563.9 (17.9) | 883.2 (14.6) |
| Food processing                              | 72.6         | 106.2        |
| Manufacturing                                | 105.0        | 135.7        |
| Transportation and retailing                 | 187.2        | 277.5        |
| Food service                                 | 57.4         | 90.9         |
| All other                                    | 141.8        | 272.9        |

Values in parentheses are percent of U.S. domestic workers employed in the food and fiber system and percent of the domestic economy generated by the food and fiber system, respectively. Data taken from NRC report entitled, "Colleges of Agriculture at the Land Grant Universities: A Profile."

## TOTAL CASH RECEIPTS FROM FARMING — 1990

Listed below is information regarding total cash receipts from farming for selected states. This data indicates the relative dependence that these states have on production agriculture

| State                      | Cash Receipts from Marketing | Government Payments | Cash Receipts from Farming |
|----------------------------|------------------------------|---------------------|----------------------------|
| ----- \$ in millions ----- |                              |                     |                            |
| California                 | 19,206 ( 3)                  | 252                 | 19,458 ( 3)                |
| Texas                      | 11,827 ( 3)                  | 975                 | 12,801 ( 3)                |
| Iowa                       | 10,273 (18)                  | 754                 | 11,027 (20)                |
| Nebraska                   | 8,715 (26)                   | 625                 | 9,340 (28)                 |
| Illinois                   | 7,767 ( 3)                   | 507                 | 8,274 ( 3)                 |
| Kansas                     | 7,019 (14)                   | 835                 | 7,854 (15)                 |
| South Dakota               | 3,261 (25)                   | 333                 | 3,594 (28)                 |
| North Dakota               | 2,531 (21)                   | 545                 | 3,077 (26)                 |

Values in parentheses are percent of gross state product. Data taken from the NRC report entitled "Colleges of Agriculture at Land Grant Universities: A Profile."

## EMPLOYMENT ON FARMS AND FARM-RELATED INDUSTRIES, 1990

Presented below are data for employment on farms and farm-related industries for 1990 in selected states. Nebraska has a high dependence on the food and fiber sector for jobs.

| State   | Total ag employment | On Farms | Inputs/ Services | Process-Retail | Indirect | Total |
|---|---------------------|----------|------------------|----------------|----------|-------|
| ----- thousands ----- % of total state jobs ----- |                     |          |                  |                |          |       |
| California  | 2,277               | 1.6      | 0.6              | 11.6           | 0.3      | 14.0  |
| Texas   | 1,325               | 2.5      | 0.5              | 12.0           | 0.4      | 14.6  |
| Iowa  | 400                 | 8.3      | 2.3              | 13.9           | 0.5      | 25.0  |
| Nebraska  | 220                 | 7.3      | 2.0              | 13.5           | 0.3      | 23.0  |
| Illinois  | 911                 | 1.7      | 0.8              | 11.4           | 0.6      | 14.4  |
| Kansas  | 283                 | 5.8      | 1.1              | 12.0           | 0.5      | 19.3  |
| South Dakota                                      | 97                  | 11.0     | 1.2              | 12.8           | 0.2      | 25.2  |
| North Dakota                                      | 94                  | 11.7     | 1.7              | 12.3           | 0.1      | 25.7  |

Data taken from NRC report entitled "Colleges of Agriculture at Land Grant Universities: A Profile."

### Diane Says

I am not afraid of tomorrow, for I have seen yesterday and I love today. — Contributed by William Allen White