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Agricultural Experiment Station News March 1989

Agricultural Research Division News

The Institute of Agriculture and Natural Resources University of Nebraska-Lincoln

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Welcome To New Faculty

DR. JULIE ALBRECHT

Dr. Julie Albrecht is a Registered Dietitian in Human Nutrition and Food Service Management. Dr. Albrecht joins the faculty as an Assistant Professor and Extension Food and Nutrition Specialist. Dr. Albrecht received her B.S. in Home Economics Education from North Dakota State University; her M.S. and her Ph.D. in Food Science from the University of Minnesota. She has been an Extension Home Economist for approximately eight years in North Dakota. She taught Home Economics in high school for approximately three years in South Dakota.

DR. NANCY LEWIS

Dr. Nancy Lewis is a Registered Dietitian and joins the faculty in Human Nutrition and Food Service Management. Dr. Lewis has been an Assistant Professor for approximately 1 1/2 years at Kansas State University; prior to that she was an instructor in this department for three years; Director of the Iowa Women, Infant and Children Nutrition Program for two years and a Public Health Nutritionist for one year. She received her B.S. in Dietetics from New Mexico State University; her M.S. in Nutrition from Iowa State University and her Ph.D. in Nutrition from UNL. Nancy also was a Post-Doc in Nutrition Sciences at the University of Wisconsin.

DR. JEFFREY S. ROYER

Dr. Jeffrey S. Royer joined the Department of Agricultural Economics on January 1, 1990, as an Associate Professor. Dr. Royer received his B.S., M.S. and Ph.D. in Economics. All three degrees were from Iowa State University. He came to UNL after 10 years with the Agricultural Cooperative Service, USDA, in Washington, D.C. In this position, Dr. Royer directed research, technical assistance, and education as related to the financing of agricultural cooperatives. Prior to his work with USDA, he was on the faculty at North Carolina State University.

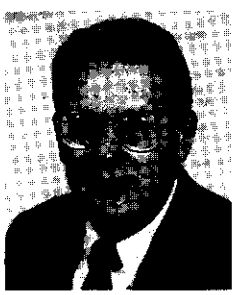
DR. LAURIE HODGES

Dr. Laurie Hodges joined the Department of Horticulture in December 1989 as Commercial Vegetable Crops specialist. Her responsibilities include development of production systems appropriate for the Great Plains and coordination of state-wide vegetable extension programs. Laurie received her Ph.D. from Auburn University under the direction of E. A. Curl, her M.S. from the University of Arkansas and her B.S. from the University of New Hampshire.

DR. DALE WEBB

Dr. Dale Webb joined the Veterinary Science Department in February 1990. He is a native of Ogden, Utah. Dale received his B.S. in Zoology from Weber State College and his Doctor of Veterinary Medicine in 1982 at Purdue University. He spent two years in private veterinary practice in Taylorsville, Utah. In 1984 he returned to Purdue University, College of Veterinary Medicine as a graduate student and pathology intern. He is now completing his Ph.D. in Veterinary Pathology. His research deals with characterization of the cardiotoxicity in ducklings caused by furazolidone.

DR. DONALD WEEKS



Dr. Donald Weeks joined the UNL as Director of the Center for Biotechnology and Professor of Biochemistry on October 1, 1989. Dr. Weeks is a native midwesterner, growing up on a small farm near Terre Haute, Indiana. He attended Purdue University as an undergraduate receiving a B.S. in

Agriculture in 1963. From there he moved to the University of Illinois where he did his graduate work in the Department of Agronomy. After receiving his Ph.D. in 1967, he moved to the Institute for Cancer Research at the Fox Chase Cancer Center in Philadelphia to do post-doctoral research with Dr. Aberham Marcus. At the Institute he was involved in the development of the wheat germ *in vito* translation systems in studying mechanisms of protein biosynthesis. In 1972 he became a full staff member of the Institute.

Dr. Weeks moved his research laboratory in 1982 to the Zoecon Research Institute in Palo Alto, California, where he began studies of gene regulations in higher plants and mechanisms for genetic engineering of crop plants. Soon after Zoecon Research Institute was purchased by Sandoz Inc., Dr. Weeks was appointed Principal Scientist at Zoecon and began studies related to mechanisms for plant transformation and for the incorporation of agronomically important traits into major crop plants produced by Northrup King and other seed companies owned by the Sandoz organization.

Dr. Week's research here at UNL will focus on studies of gene regulation and genetic engineering in two model plant systems - *Arabidopsis thaliana* and *Chlamydomonas reinhardtii.*

In addition, Dr. Weeks has plans to continue studies of herbicide resistance in plants with projects aimed at delivering herbicide resistance genes into crop species. The research in Dr. Weeks' lab has been supported for several years by the National Science Foundation and by funds by various commercial organizations.

DR. JOHN E. FOSTER

Dr. John E. Foster joined the Entomology Department on January 1, 1990. Dr. Foster was previously at Purdue University where he served as Professor of Entomology and the USDA-ARS Research Leader for the Insect and Weed Control Research unit. His administrative responsibilities at Purdue involved supervision of ARS scientists in the Agronomy, Botany, Plant Pathology and Entomology Departments. He received his B.S. in Biology from Central Methodist College in 1964; his M.S. in Entomology from University of Missouri in 1966; and his Ph.D. in Entomology - Plant Breeding and Genetics in 1971.

Dr. Foster's research accomplishments include pioneering research on autocidal control of Hessian fly; sampling methods for overwintering Hessian fly pupae, barley yellow dwarf virus and its vectors, and models of the population dynamics and growth of Hessian fly. He provided the entomological leadership for a team responsible for development and release of 8 cultivars and 9 germplasms of small grains since 1981. Dr. Foster has received numerous grants to support his research efforts. He has also taken a major role in graduate student training and participated in extension field days and training sessions at Purdue University.

THE STATE AGRICULTURAL EXPERIMENT STATION SYSTEM

The State Agricultural Experiment Station System traces its origin to actions by the U.S. Congress, which recognized over 100 years ago the need for research to benefit agriculture, rural life, and the environment. This federated system for research, which balances the needs of the states, regions, and nation, is part of the land grant university system, which began with passage of the Morrill Act of 1862. This Act provided for education by establishing land grant universities in every state and territory, but the provision for research was not included until 1887 when the Hatch Act was enacted and a State Agricultural Experiment Station was established in each state to provide research to undergird the educational mission of the universities.

Publicly supported agricultural research is conducted through agencies of the USDA and the Agricultural Experiment Stations (AES) in each state. The Hatch Act provided the basis for a state-federal partnership in funding the AESs. The Cooperative State Research Service (CSRS) of USDA coordinates the federal research programs of the Stations and interfaces with other federal agencies. The Stations have the flexibility to respond to specific local and regional needs as they contribute to solving problems related to agriculture, natural resources, and rural communities. There are now 54 State Agricultural Experiment Stations located in states, territories, and Washington, D.C. The Agricultural Research Division is the Nebraska Agricultural Experiment Station.

Distribution of Agricultural Research Efforts by Agency

Agency	% of Total Effort
State Agricultural Experiment Stations	60
Agricultural Research Service	23
Forest Service	6
Economic Research Service	4
Other (1890 Colleges; Schools of Forestry; Schools of Vet Medicine)	7

Distribution of Scientists in National AES Base Research Programs

Research Area	No. of Scientists	% of Total
Animals	1436	20.6
Communities and People	358	5.1
Crops	2831	40.7
Economics and Trade	431	6.2
Environment and Natural Resources	787	11.3
Food Science and Nutrition	327	4.7
Forest Resources	465	6.6
General Technology	323	4.6

PREPROPOSALS - LISA 1990 FUNDING

The North Central Region Administrative Council received 206 preproposals for 1990 funding. Twenty-four were submitted from Nebraska. The Council evaluated the preproposals based on 5 criteria: relevancy, functional integration, regionality, whole-farm systems, and potential impact. The Council selected 47 preproposals for further consideration including 8 from Nebraska. Approximately 20% of the selected preproposals are educational /demonstration with the remainder being primarily research oriented.

Twenty-one projects were funded in 1988 and 18 in 1989. Of the 18 projects funded in 1989, 13 were previously funded projects that were renewed for a second year. All 12 states in the North Central Region have had involvement in at least 2 projects and each state has at least one project coordinator. During the past two funding periods, approximately one-third of the projects were educational/demonstration.

ARD OUT-OF-STATE TRAVEL POLICY PROFESSIONAL SOCIETY MEETINGS

The current policy within the Agricultural Research Division is to not allow the use of state-appropriated funds (LGE/62-XXX-01) for travel support to attend professional society meetings out of state. This policy also applies to the use of revolving account funds, which in the eyes of the state financial offices are the same as state-appropriated funds.

This policy was adopted several years ago by ARD as a result of attempts by state government accountants to identify areas within the University budget that could be easily reduced or deleted without significant impact on the program. While we believe it is very important for faculty members to attend professional society meetings, it has been difficult to communicate the importance of this to state government. In order to reduce this vulnerability, a decision was made that travel to such meetings would have to be on other funding, primarily grant funds and Research Council funds. The ARD administration also feels that it is desirable to use appropriated funds to the greatest extent possible to support research programs, rather than for travel support. This policy was recently reviewed and reconfirmed as standard operating policy for ARD.

Exceptions to this policy have been made on a case-by-case basis. There are instances with new faulty and other situations whereby alternative sources of travel funds may not be available, but it is still highly desirable to have the faculty member attend the meeting with travel costs paid. However, our intent is to keep this strictly at a minimum.

FY 1991 PRESIDENT'S BUDGET REQUEST

On January 29, 1990, the President's budget for fiscal year 1991 was delivered to Congress. On the whole, the President's Budget represents some significant increases for CSRS programs that benefit you. The major news was inclusion of the first phase of the National Research Initiative at a level of $100 million. This new program is described in another article in this newsletter.

Funding Levels for CSRS Programs in Millions of Dollars

Program	FY 1990 Budget	FY 1991 Proposed
Hatch Act	155.1	158.5
McIntire-Stennis Forestry	17.3	13.0
Animal Health & Disease	5.4	0
Critical Agr. Materials	5.3	0
Rangeland Research	0.5	0
Special Grants (National & Regional Impact)	38.4	25.6
Special Grants (State Specific)	17.4	0
Competitive Grants	42.5	0
National Research Initiative		100.0
Aquaculture	3.7	0
International Trade Centers	3.1	0
Low Input Sustainable Agr.	4.4	4.4
Supp. & Alternative Crops	0.3	0.9

Congress always adds items to the President's Budget and we feel that most of the long standing programs such as Animal Health and Disease and state specific Special Grants will be back in the final version of the budget. The House and Senate Agricultural Appropriations Subcommittees will receive testimony on the CSRS budget during the next few weeks.

TEKTRAN DATA BASE

The Agricultural Research Service has developed a new data base consisting of easy-to-read summaries of the latest research results from ARS scientists. TEKTRAN (Technology Transfer Automated Retrieval System) offers notice of research results that have been peer-reviewed and cleared by ARS management but, in most cases, have not yet been published. About 300 new summaries are placed in the data base each month and the data base currently consists of 7000 brief summaries.

ARS is offering an opportunity for interested scientists or organizations with computers and telephone modems to have direct access to TEKTRAN. There is no cost for using the data base, but users are responsible for their telephone charges. Computer searches can be made in several categories including keyword, multiple keyword, scientist's name, and commodity. Additional information on the procedures necessary to obtain access to TEKTRAN can be obtained by telephoning:

James T. Hall
National Technology Transfer Coordinator
Agricultural Research Service
301-344-4045

ORGANIZATIONS THAT SUPPORT AGRICULTURAL RESEARCH IN LAND GRANT UNIVERSITIES

NASULGC (National Association of State Universities and Land Grant Colleges) - a higher education association whose membership comprises 149 major U.S. public research universities, including all U.S. Land Grant institutions. The Association has **four Divisions**: Agriculture, Marine, Urban Affairs, and International Affairs. In addition, there are **eight Councils** representing major areas of university life and service—Academic Affairs; Business Affairs; University Relations and Development; Extension, Continuing Education and Public Service; Student Affairs; Research Policy and Graduate Education; 1890 Presidents; and Presidents and Spouses— and **seven Commissions** dealing with specific areas of academic or professional education—Arts, Arts and Sciences, Education for the Engineering Professions, Forestry, Home Economics, Veterinary Medicine, and Education for the Teaching Professions.

NASULGC Division of Agriculture - a major component of NASULGC; its membership comprises all 1862 and 1890 Land Grant Colleges of Agriculture plus Tuskegee University, Texas Tech, and Southern Illinois University. The Division has the following units relating to research:

- **CAHA (Council of Administrative Heads of Agriculture)** - members are the chief administrators of the member colleges of agriculture.

- **ESS (Experiment Station Section)** - members are the administrators of the experiment stations of all the states and territories.

- **ESCOP (Experiment Station Committee on Organization and Policy)** -the representative governing body of the Experiment Station Section.

- **CARET(Council for Agricultural Research, Extension, and Teaching)** - a national grassroots organization of lay persons from the constituencies served by the Land Grant Colleges of Agriculture. Each state and territory has up to three CARET members designated by and working closely with their respective Land Grant College to offer guidance and support for programs in agricultural research, extension, and teaching.

- **ARD (The Association of Research Directors)** - the Agricultural Sciences Research Arm of the 1890 Land Grant institutions and Tuskegee University. This body coordinates research program planning and budgeting with ESCOP and USDA and cooperates with national bodies in developing and monitoring legislation affecting these institutions.

Commission on Home Economics - a free standing unit of NASULGC with represents the administrators of Colleges of Home Economics at NASULGC member institutions, and provides a link with the Association of Administrators of Home Economics (AAHE), a national professional association.

Commission on Forestry - a free standing unit of NASULGC which represents the administrators of Colleges of Forestry at NASULGC member institutions, and provides a link with the national Association of Professional Forestry Schools and Colleges (NAPFSC).

Commission on Veterinary Medicine - a free standing unit of NASULGC which represents the administrators of the colleges of Veterinary Medicine at NASULGC member institutions, and provides a link with the American Association of Veterinary Medical Colleges (AAVMC).

Federally Sponsored Organizations

The **Joint Council on Food and Agricultural Sciences** was established by Congress in 1977 to encourage and coordinate research, extension, and higher education activities in the food and agricultural sciences throughout the United States. Its members, who are from both the public and private sectors, represent producers, industry, and State and Federal agencies and institutions. The Council's role is to plan and coordinate research, extension, and higher education within both the public and private sectors and relate the Federal budgeting process to the overall functioning of the system. All major units of the NASULGC Division of Agriculture are represented through voting membership on the Council; Home Economics, Forestry, and Veterinary Medicine are represented as well. The Council is co-chaired by a representative of the Land Grant System and the Assistant Secretary of Agriculture for Science and Education.

UAB (National Agricultural Research and Extension Users Advisory Board) is a statutory committee established by Congress in the National Agricultural Research, Extension and Teaching Policy Act (Farm Bill) of 1977, as revised by the Agriculture and Food Act of 1981 and the Food Security Act of 1985. The Board represents only the private sector and its 25 members reflect the multiple interests of the users of the national agricultural science and education system. The Board has the general responsibility for preparing independent advisory opinions on the food and agricultural sciences. It reports annually to the President and Congress.

THE NATIONAL RESEARCH INITIATIVE

The National Research Initiative (NRI) is a new federal competitive grants program that is designed to provide a large increase in funds available for research in agriculture and natural resources. Major attempts are underway to start the process of adding $500 million to the CSRS budget that is currently at $340 million. The first phase ($100 million) of the NRI is included in the President's FY 1991 Budget. The President's Budget also has the commitment to increase the NRI by $50 million per year until a level of at least $300 million is achieved. A strong coalition of supporters (NASULGC, NAS-NRC, university presidents, ARI, and professional societies) is working hard to convince Congress to fund the first year at $150 million and reach the $500 million level within 5 years.

The NRI will provide competitives grants in the following program areas: Natural Resources and Environment; Nutrition, Food Quality, and Health; New Products, Processes, and Value-Added; Market, Trade and Policy; Plant Systems; and Animal Systems. Grants will be of the following types: Individual Investigator; Multi-disciplinary Investigator; Mission Linked (applied research); and Strengthening (fellowships, post-docs, equipment, etc).

It is essential that faculty with ARD appointments be proactive in preparing grant proposals for the NRI or we will not have a chance to obtain our "share" of these funds. When the program is fully funded, ARD scientists should receive at least $10 million per year in NRI funds.

Listed below is the proposed breakdown of funding by programmatic area for the first year of NRI scheduled to begin October 1, 1990 (all numbers are millions of $):

Program Area	President's Budget	NASULGC Recomm.
Natural Resources/Environ.	15	30
Nutrition, Food Qual., Health	5	19
Plant Systems	50	50
Animal Systems	30	30
New Products & Processes	0	11
Markets, Trade, & Policy	0	10
Total	100	150

1990 ESCOP RESEARCH INITIATIVE PRIORITIES

Each year State Agricultural Experiment Stations are asked to priority rank research initiatives as viewed from their perspective of state needs. In 1990 we were asked to rank 31 research initiatives grouped into: Environment and Natural Resources; Food, Nutrition, and Health; Processing and Value-Added; Economic and Social Issues; Animal Systems; and Plant Systems. Listed below are the top twelve research initiatives as viewed by the Agricultural Research Division and the average of rankings in the North Central Region AESs. The ARD rankings correspond to priorities in the IANR Action Plan.

Research Area	ARD Rank	NC Region Rank
Protecting Water Quality	1	1
Genetic Enhancement of Plants	2	5
Optimal Health Through Improved Nutrition	3	18
Develop New Processing Technologies	4	6
Expand Biomaterials Utilization and Devise Alternate Uses of Plants	5	17
Controlling Composition and Nutritional Quality of Animal Products	6	9
Animal Health and Well Being	7	10
Enhancing Rural Community and Economic Development	8	13
Ensure the Safety and Stability of Consumer Foods	9	2
Sustaining Natural Resource Productivity	10	11
Conservation and Efficient Use of Water	11	16
Improving Marketing Efficiency and Competitiveness of Agr. Products	12	15
Safe and Effective Management of Pests	13	3
Compatibility of Agriculture, Natural Resources, and Environment	21	4
Genome Enhancement of Animal Efficiency	18	7
International Markets and Trade	17	8

AGRICULTURAL RESEARCH DIVISION
207 AGRICULTURAL HALL 0704

NAME	OFFICE PHONE
Nelson, Darrell W. Dean and Director	2045
Vanderholm, Dale H. Assoc Dean & Director	2046
Sahs, Warren Assist Director/Operations Superintendent-ARDC	2973
Waller, Steve Assistant Dean & LISA Coordinator	7091
Staff	
Dill, Dora	7082
Lienemann, Nelvie	7080
Mohrhoff, Diane	7085
Westwood, Kathy	7081

RESEARCH GRANTS AND CONTRACTS RECEIVED DECEMBER - JANUARY - FEBRUARY

AGRICULTURAL ECONOMICS

Aiken, J.D. - USDA/ERS	9,500
Azzam, A.M. - Nebr Pork Producers Association	6,000
Miscellaneous Grants Under $5,000 each	3,990

AGRICULTURAL ENGINEERING

Miscellaneous Grants Under $5,000 each	1,625

AGRONOMY

Jones, A. - UN Foundation	10,000
Sander, D.H. & Walters, D.T. - UN Foundation	10,000
Walters, D.T. - USDA	14,000
Miscellaneous Grants Under $5,000 each	31,818

ANIMAL SCIENCE

Calkins, C. - USDA/ARS	25,000
Klopfenstein, T. - Fats & Proteins Research Found	15,000
Klopfenstein, T. - Southeastern Poultry & Egg Assn	43,000
Miscellaneous Grants Under $5,000 each	46,533

BIOCHEMISTRY

Wagner, F.W. - Nebr Dept of Economic Development	68,000

DEPARTMENT OF AGRICULTURAL METEOROLOGY

Blad, B. & Walter-Shea, E. - NASA	111,615
Hubbard, K.G. - Winrock International	22,887
Verma, S. - NASA	90,997
Wilhite, D.A. - US Department of Commerce	13,662
Wilhite, D.A. - NOAA	13,910

ENTOMOLOGY

Spike, B.P., Danielson, S.D. & Wright, R.J. - Nebraska Wheat Board	8,150
Miscellaneous Grants Under $5,000 each	2,590

ENVIRONMENTAL PROGRAMS

Miscellaneous Grants Under $5,000 each	3,169

FOOD PROCESSING CENTER

Miscellaneous Grants Under $5,000 each	13,309

FOOD SCIENCE & TECHNOLOGY

Shahani, K.M. - Dairy Bureau of Canada	17,500
Zeece, M.G. - National Life Stock & Meat Board	21,000
Miscellaneous Grants Under $5,000 each	50

FORESTRY, FISHERIES & WILDLIFE

Case, R.M. - Nebraska Game & Parks Commission	14,400
Kuhns, M.R. - USDA - Rocky Mountain Forest & Range Experiment Station	9,960
Miscellaneous Grants Under $5,000 each	5,000

HORTICULTURE

Riordan, T.P. - U.S. Golf Association	35,000
Miscellaneous Grants Under $5,000 each	23,218

HUMAN NUTRITION & FOOD SERVICE MANAGEMENT

Kies, C.V. - National Live Stock & Meat Board	56,954

NORTHEAST RESEARCH & EXTENSION CENTER

Miscellaneous Grants Under $5,000 each	27,178

PANHANDLE RESEARCH & EXTENSION CENTER

Miscellaneous Grants Under $5,000 each	45,297

SOUTH CENTRAL RESEARCH & EXTENSION CENTER

Miscellaneous Grants Under $5,000 each	3,500

VETERINARY SCIENCE

Fedorka-Cray, P.J. - Pfizer Animal Health	25,500
Schmitz, J.A. - USDA/ARS	66,780
Srikumaran, S. - National Pork Producers Association	12,000
Miscellaneous Grants Under $5,000 each	15,417

WEST CENTRAL RESEARCH & EXTENSION CENTER

Miscellaneous Grants Under $5,000 each	24,444

Total: $967,953

NEW OR REVISED PROJECTS

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

10-110 (Ag Economics) Water Management and Conservation in Western Irrigated Agriculture
Investigator: R. Supalla and D. Martin
Status: New Hatch project that contributes to W-178 effective October 1, 1989

11-081 (Ag Engineering) Electronic Image Measurement, Modeling, and Control of Plant Growth for Improved Ag Profitability
Investigator: G. E. Meyer
Status: New Hatch project effective November 1, 1989

12-185 (Agronomy) Methodology of Comparing Best Management Practices for Groundwater Quality Protection
Investigators: W. L. Powers
Status: New Hatch project effective September 1, 1989

12-186 (Agronomy) Popcorn Breeding for Yield and Expansion Volume (Quality)
Investigator: N. D'Croz-Mason and M. Thomas-Compton
Status: New Hatch project effective January 16, 1990

17-048 (Entomology) Ecology and Management of Legume Insects
Investigator: S. D. Danielson
Status: New Hatch project effective November 3, 1989

26-013 (Forestry, Fisheries & Wildlife) Ecology and Enhancement of Wildlife Populations in Nebraska
Investigator: J. A. Savidge
Status: New Hatch project effective November 16, 1989

27-007 (Department of Agricultural Meteorology) Drought and Climate Change: Response and Policy Implications
Investigator: D. A. Wilhite
Status: New Hatch project effective January 16, 1990

44-041 (Panhandle Research & Extension Center) Studies of Perennial Grass Tiller, Rhizome and Root Dynamics Designed to Dev. Grazing Management Strategies
Investigator: P. E. Reece
Status: New Hatch project effective January 16, 19902