

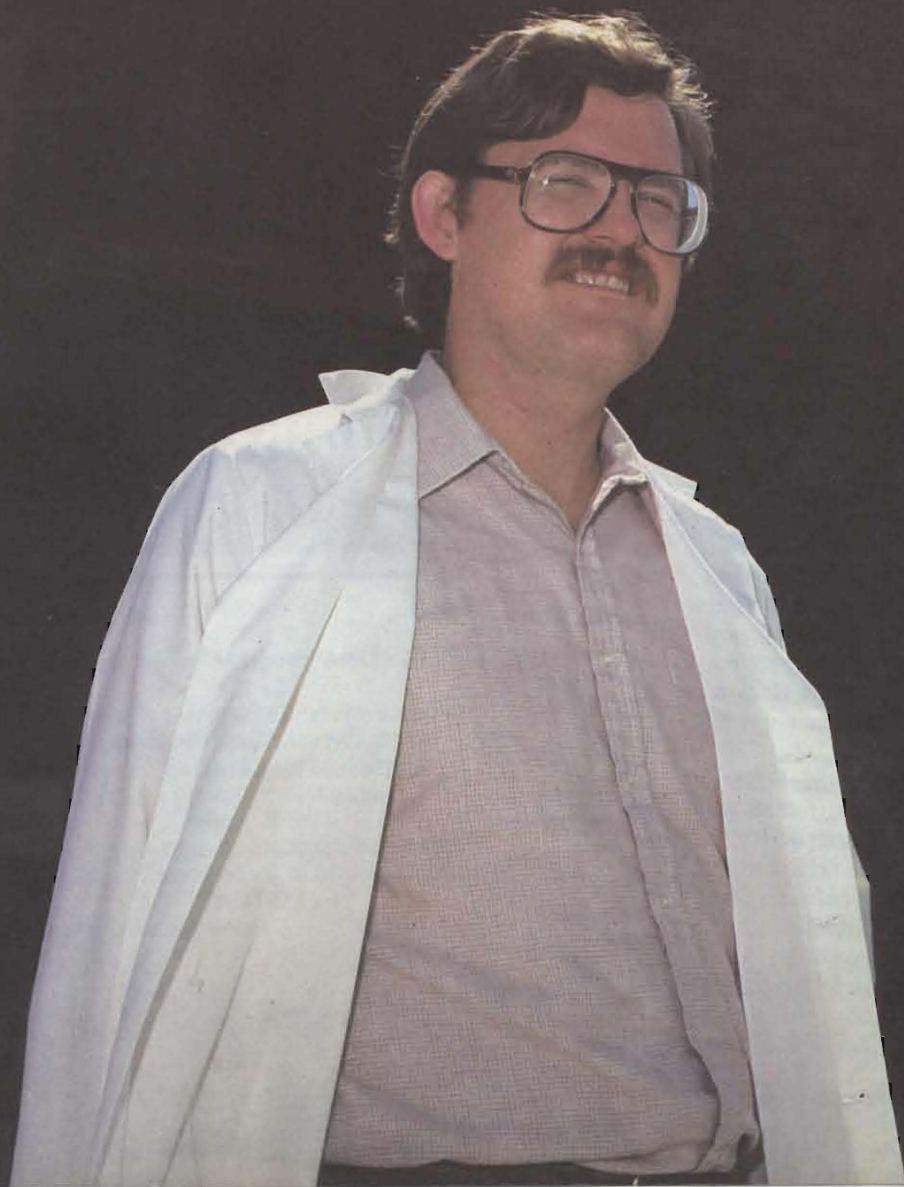


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Guest Column

Jacqueline Voss, Dean
College of
Home Economics



When I received the invitation to write this guest editorial, I accepted with pleasure for two reasons. First, it gives me the opportunity to acknowledge the growing and expanding relationship between the College of Home Economics and the Agricultural Experiment Station. Secondly, it gives me the opportunity to describe and discuss the research activities that are taking place in the College of Home Economics as these relate to the Experiment Station and to talk about our plans for the future.

The over-all mission or goal of Home Economics has always been to improve the quality of life for individuals and families in the environments in which they live and work. That basic commitment to people also forms the philosophical basis for the research efforts undertaken by faculty in the various departments in the College.

In 1977, Congress expanded the definition of "food and agricultural sciences" to include "home economics, human nutrition, and family life; rural and community development." These definitions were pertinent to the Food and Agricultural Act in which Congress called for new Federal initiatives to improve and expand research and extension programs in these areas. In 1979, with advice and input from several national agricultural, extension and home economics committees, a National Steering Committee was appointed to identify the specific areas in home economics that would be targeted for these new initiatives or efforts. Four thrust-areas were identified for research-oriented activity, and 2-, 5-, and 10-year implementation plans were developed. Those general thrust-areas—or New Initiatives, as they were called—were organized under the headings: food, nutrition and health; family strengths and social environment; energy and environment; and family economic stability and security. These same areas will also serve as a framework for colleges and universities to use as they direct resources, research, and program efforts toward high-priority problems. At the local level, the goal for NDSU is improved coordination, cooperation and integration of activities among research, extension, and teaching.

In addition to this new emphasis from the Federal level, two important developments have occurred on the local level that will have impact on the research activities in the College of Home Economics and the relationship between Home Economics and the Agricultural Experiment Station. In 1979, the North Dakota legislature approved the first full-time Home Economics Food Science research position in the Experiment Station. Dr. Mark Dreher, whose picture appears on the cover of this issue, joined the faculty of the College of Home

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On the Cover: Dr. Mark Droehner, foods and nutrition researcher, is the first faculty member of the College of Home Economics to have an Experiment Station appointment. In this issue's Guest Column, Dean Jacqueline Voss tells about research activities in home economics. *Photo by Harold Caldwell.*



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Economics in April, with specific responsibilities to expand the food science research program in Home Economics as it relates to North Dakota food commodities. The second event of significance is the appointment of Dr. Charlotte Bennett, new Associate Dean in the College of Home Economics, as an Assistant Director of the Agricultural Experiment Station, with specific responsibilities for developing home economics research efforts in the Station. These two new appointments document and formalize the role that the College of Home Economics will play in the Experiment Station to improve the quality of life for individuals and families in North Dakota.

With that look-to-the-future as a stimulus for our planning, the College of Home Economics has developed a research program that integrates with Extension Home Economics as well as with other researchers in the Experiment Station.

Edna Holm, food science researcher in the Department of Food and Nutrition, has been working for several years on a joint project with researchers in Cereal Chemistry and Technology to investigate the possibilities of sunflower seed products for human foods. With the arrival of Dr. Dreher, expanded efforts in sunflower research are now possible. Dr. Dreher, in cooperation with Mrs. Holm and researchers from Animal Science and Cereal Chemistry and Technology, is now investigating the biochemical and nutritional properties and human food uses of sunflower. The major objective of these researchers is to determine the nutritive value and food uses of sunflower flour and hulls.

Dr. Mavis Nymon from the Department of Food and Nutrition is evaluating the possibilities of dry edible beans as a substitute for other protein sources in food uses. Her results show promise for this North Dakota commodity as a rich nutritional source of protein in a variety of surprising food uses.

When we think of research efforts in home economics that relate to agriculture and the state of North Dakota, we are apt to think principally in terms of food, nutrition and health, for these areas form the most obvious connection between Home Economics and Agriculture. But I would be remiss if I did not point out other areas in which researchers in the College of Home Economics cooperate with researchers in the Agricultural Experiment Station and with Cooperative Extension in order to contribute to quality life for the people of North Dakota.

Consistent with the New Initiatives identified in 1979, researchers in the Department of Child Development/Family Relations have initiated a state-wide research effort to investigate patterns of child rearing and parent-child relationships. Dr. Ann Mullis and Dr. Ron Mullis have visited with families in different parts of North Dakota, videotaping these families as they interact with one another, gathering data that will contribute to our knowledge-base of family life in North Dakota. This research project is consistent with the Federal guidelines related to family strengths and social environments, and is also a direct response to a need

identified by Extension Home Economists as they reported overwhelming requests from their clientele for more programs in this area. Knowledge generated via research efforts, shared with Cooperative Extension and used by these agents in their programs is just one of the ways in which a land-grant university fulfills its obligation of integrated programs in research, extension, and teaching. As a charter member of the land-grant system, the College of Home Economics takes this obligation seriously, and uses it as the basis for the development of research efforts.

Joint efforts by Dr. Sheila Mammen from the Department of Home Management/Family Economics and Dr. Richard Hanson from the Department of Child Development/Family Relations resulted in a proposed project that would investigate the quality of life of North Dakotans living in the western part of the state. Energy development, particularly coal and oil development, has impacted upon these residents in numerous ways, both positive and negative. Systematic data regarding the effect of this energy development upon the lives of individuals and families are badly needed. The Food and Agricultural Act that identifies "rural and community development" as a legitimate part of Station research and the New Initiatives that call for research in areas of "energy, environment, and family stability" underscore the significance of this research project for the people of North Dakota.

A project conducted by researchers from the Departments of Textiles and Clothing and Agricultural Engineering is related to the area of "energy and environment" and "family economic stability." During the past 2 to 3 years, much attention has been given to energy conservation, especially conservation techniques that relate to households. The public has been bombarded by commercial firms with promises of heat-energy conservation if certain types of commercial products are used, especially products that provide insulation in areas of maximum heat loss during the winter months. Helen Lunde, Department of Textiles and Clothing, and Dr. James Lyndley, Department of Agricultural Engineering, are conducting a study developed to gather systematic data on a variety of window-treatment products. Hopefully, these data will make it possible for families to evaluate the contribution of various energy-saving products and make their choices on the basis of sound and reliable information.

Coila Janecek, Department of Textiles and Clothing, has been involved for several years in a joint project with the Departments of Agricultural Engineering and Bacteriology and the North Dakota Water Resources Research Institute to study farm water treatments using reverse osmosis systems. The ultimate objective of this study is to remove color and objectionable minerals from the water so that it meets Public Health Drinking Water Standards, and at the same time consider factors such as installation costs, maintenance problems, operating costs, bacterial contamination, water quality and water quantity. A second project directed by Coila Janecek focuses on the characteristics of clothing-related and interior product-related burn injuries. High

ciency was essentially the same for all cultivars.

DISCUSSION

Seed yield during the two-year study was positively correlated with water use and water use efficiency. The correlation between seed yield and water use efficiency was better than that for seed yield and water use (Figure 1). The lower correlation of seed yield with water use is partially due to the inconsistency in cultivar performance from site to site and from year to year. The relationship of seed yield to water use and water use efficiency for all cultivars during the two-year study are shown in Figure 1. As water use and water use efficiency increase, seed yield increases.

Figure 1. Sunflower cultivar seed yield (10% moisture) as a function of seasonal plant water use and water use efficiency; observations are from 1977 and 1978 studies, all sites.

SEED YIELD, lb/a						
0	500	1000	1500	2000	2500	3000
YIELD = -4665 + 935.14*SWU						
- 30.83*(SWU**2)						
R**2 = 0.54						
8	10	12	14	16	18	20
SEASONAL WATER USE, inches						
SEED YIELD, lb/a						
0	500	1000	1500	2000	2500	3000
YIELD = -2255 + 41.91*WUE						
- .0892*(WUE**2)						
R**2 = 0.58						
100	130	160	190	220	250	280
WATER USE EFFICIENCY, lb/a/inch						

continued from page 8

risk occupations and vulnerable groups who are injured most often are the target groups for dissemination of data gathered from this project for purposes of avoiding burn injuries and death. Both of these projects relate closely to the areas of family stability, environment and health as highlighted by the New Initiatives.

And this is just the beginning! A series of new research proposals have crossed my desk in the last six weeks—research proposed by faculty in the College of Home Economics designed to meet the needs of people in North Dakota. These projects include such proposals as: Utilization of Triticale for Human Food, Level and Bioavailability of Vitamins and Minerals, Child Abuse and Maltreatment, Needs of Rural North Dakota Elderly with Reference to Living Arrangements and Health Services, Family Violence and Abuse, Financial Counseling for Families, Buying Skills of School-Age Rural Childre, Household Expenditure Patterns in North Dakota, Effects of Past Financial Management on Economic Well-Being of the Elderly, Removal of Pesticides from Work-Clothing Fabric, Protective Clothing to Minimize Injuries to North Dakota Oil

SUMMARY

In this study, water use was not significantly different among eight sunflower cultivars during 1977, nor among five sunflower cultivars in 1978. In 1977, seed yield varied significantly among cultivars. During 1978, seed yields were significantly different among cultivars at only one site. Water use efficiency of sunflower reflected yield performance; high yielding cultivars exhibited highest water use efficiency. By pooling data from various sites for the two-year study, it was possible to demonstrate that seed yield and water use efficiency increase as water use increases. The relationship between seed yield and water use can be described by a second order quadratic equation. Crop growers interested in selecting water use efficient cultivars should use yield performance data as an index of efficiency. Variability in water use among cultivars is small and non-significantly different.

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Field Employees. As you can see, there is no dearth of research ideas, and all of them are specific to improving the quality of life for individuals and families in North Dakota in their home and work environments. It is obvious that home economics, human nutrition, and family living form an integral part of food and agriculture.

The next 10 years promise to be exciting and challenging ones as NDSU prepares to celebrate its first 100 years. The College of Home Economics is proud of its past contribution to the development of NDSU as it moved from an agricultural college to a high-quality university, wide in scope. We are also committed as a college to the development of new knowledge-bases that will contribute substantively to decision-making in those areas that affect people most directly—in their homes and in their work. We are also please and gratified by the continued support of the Agricultural Experiment Station for research efforts in the many areas of Home Economics. This cooperative effort should result in continuing development and expansion as we look forward to the future.

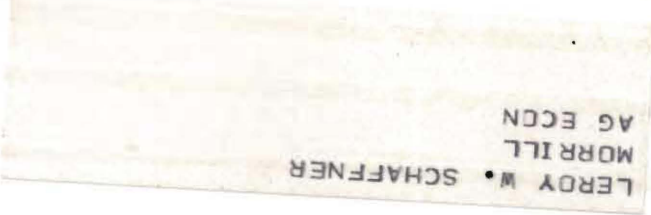
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