

Summary of the Research Program in the Agricultural Experiment Station

H. R. Lund
Associate Director
Agricultural Experiment Station

The research program in the Agricultural Experiment Station for North Dakota is physically located at the main station on the NDSU campus and at seven branch stations that are strategically located throughout the state at Carrington, Casselton, Dickinson, Hettinger, Langdon, Minot and Williston. Fourteen department chairmen at the main station and a superintendent at each of the branch stations administer the research effort under the leadership of the Director of the Agricultural Experiment Station at Fargo.

This administrative alignment allows maximum attention to the local and immediate needs of each department or station. The coordination of the entire research program is accomplished by use of formal research project outlines, each with a project leader. At present there are 144 projects supported in part by federal funds appropriated by the Hatch Acts of 1887, 1890 and 1955, an additional 104 projects supported entirely by nonfederal funds, six special authority Public Law 89-106 projects, and one project supported by McIntire-Stennis forestry funds for a total of 255 projects.

The sources of funds to support these research projects in Fiscal Year 1977 (FY77) are shown graphically in Figure 1. Traditionally, the bulk of the agricultural research funding has come from the

FTE STAFF ASSIGNMENTS	COLLEGE AGRIC.	EXPER. STATION	TOTAL
Administration	.8	1.2	2.0
Ag Economics	5.4	24.6	30.0
Ag Education	3.0	0	3.0
Ag Engineering	3.9	6.1	10.0
Agronomy	5.0	23.2	28.2
Animal Science	6.9	14.1	21.0
Bacteriology	3.1	4.7	7.8
Biochemistry	0	3.9	3.9
Botany	0	3.8	3.8
Cereal Chem. & Tech.	.6	5.4	6.0
Entomology	2.2	5.8	8.0
Horticulture & For.	2.5	4.5	7.0
Plant Pathology	.9	8.1	9.0
Soils	2.3	24.0	26.3
Veterinary Science	3.0	7.0	10.0
Branch Stations	0	14.0	14.0
TOTAL	39.6	150.4	190.0

Table 1. Professional staff assignments between College of Agriculture and Agricultural Experiment Station partitioned on an FTE (full-time equivalent) basis in FY 77.

Table 2. State and National Goals for Agricultural Research showing funding support for each in Fiscal Year 1977.

GOAL	TITLE	1977	
		Funds	%
1	Insure a stable and productive agriculture for the future through wise management of the nation's natural resources (RPA's 100-112).	\$1,651,843	18.9
2	Protect forests, crops and livestock from insects, diseases and other hazards (RPA's 201-213)	1,721,504	19.7
3	Produce an adequate supply of agricultural products (RPA's 301-318).	3,553,342	40.6
4	Expand the demand for agricultural products by developing new and improved products with better quality (RPA's 401-409).	771,631	8.8
5	Improve efficiency in the marketing system (RPA's 501-511).	237,389	2.7
6	Expand export markets (RPA 601).	35,440	.4
7	Improve the health, nutrition and well-being of the American Consumer (RPA's 701-708).	97,551	1.1
8	Assist rural Americans to improve their levels of living (RPA's 801-808).	25,449	.3
9	Promote community improvement, including development of beauty, recreation, environment, economic opportunity and public services (RPA's 901-908).	485,917	5.6
TOTAL National Goals		\$8,580,066	98.1
Physical Plant Improvements		135,461	1.6
Not Classified		26,972	.3
GRAND TOTAL		<u>\$8,742,499</u>	<u>100.0</u>

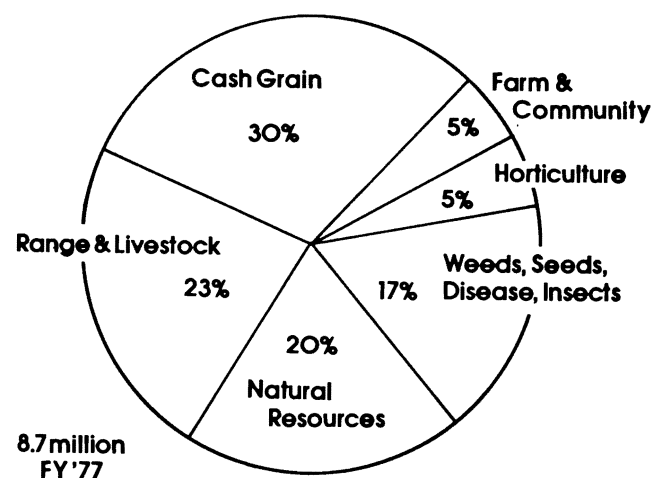
The Research Problem Areas are the basis for this research program analysis. The 98 RPA's were established by a joint federal-state task force in 1966 in order to develop a computerized information management and retrieval system known as CRIS (Current Research Information System). The RPA's can be aggregated into the goals as shown in Table 3. Major program or budget changes develop from careful study of the RPA's. There is a continuing evaluation and reassignment of research funds within the RPA's important to North Dakota. Elsewhere

in this publication are lists of projects completed, current, and started in FY 77.

This computerized information system may be both a bane and a blessing since it will allow detailed scrutiny of the research program by persons interested in how well their favorite enterprise is faring in comparison to others in the total program. CRIS has a three-dimensional capability in addition to RPA, i.e. COMMODITY, ACTIVITY and SCIENCE. The "yardstick" most commonly asked for is the COMMODITY classification. Figure 4 presents a compilation of the many resources benefited by the agricultural research program in the North Dakota Agricultural Experiment Station. Annual detailed analyses of the research program are regularly presented to the research managers, review boards, and advisory groups of all types.

The reader is encouraged to read this publication with the thought that this is your North Dakota Agricultural Experiment Station. Is the Station doing the research you believe should be done? We solicit your input to assure that we are getting the most public research benefit from the resources available.

Figure 4. Current research effort on a commodity basis for Fiscal Year 1977.



Continued from Page 2

mists, chemists, economists, soils specialists, animal scientists and range management specialists have been working on the problems of spoilbank reclamation, grass and beef production, irrigation and pest management, to cite but a few examples. I believe it is terribly important to recognize this type of thrust for the future, particularly because increasingly we are confronted with a preponderance of government regulations for which research and extension specialists must endeavor to find facts and solutions pertinent to farming and ranching activities of North Dakota.

In a sense, this issue of Farm Research presents a brief overview of some of the events which transpired in 1977. It highlights many of the agricultural programs at your land-grant university, NDSU.

As we look to the future, it becomes increasingly

apparent that the need for and quality of research at the highest level of available competence remains a primary goal for the Agricultural Experiment Station. Likewise, for the Cooperative Extension Service, the major goal remains to provide timely information interpreted for local use. The objective of the entire program is to promote a sound and prosperous agriculture and rural life for the people in North Dakota. As you peruse the publications that are available from the Cooperative Extension Service and Agricultural Experiment Station, we trust that you will become acutely aware of the many contributions that are being made for the farmers, ranchers and homemakers. Information imparted in these publications hopefully will be used by individuals to improve their agricultural, personal, and professional capabilities.

State of North Dakota general fund appropriations, e.g. 61.7 per cent. It is interesting to note the approximately \$600,000 increase in research funding in FY 77 over FY 76 came mostly from the federal sector (\$2,116,702 vs. \$1,634,233) and next from state public funds (\$5,397,767 vs. \$5,091,051). The contribution of proprietary gifts and grants dropped from 12.5 per cent (FY 76) to 9.6 per cent (FY77). Critics of the land-grant university research system sometimes indicate the public researcher is "bought out" by large contributions from private organizations. These figures do not support that allegation.

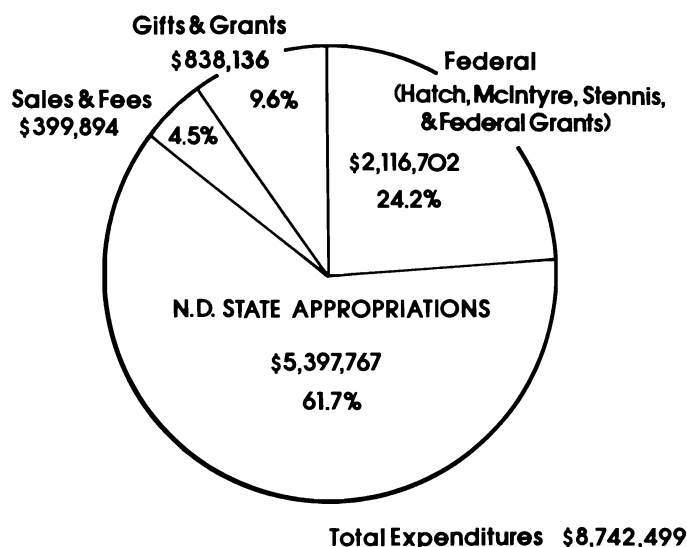


Figure 1. Sources of funds for the Agricultural Experiment Station, Fiscal Year 1977.

The research load administered under the projects indicated earlier is shared by 190 professional persons and their supporting staff with payroll assignments between the College of Agriculture and the Agricultural Experiment Station which are detailed in Table 1. One might say the agricultural research program pays for the equivalent of 150.4 persons and gets the services of 190.0. Conversely, the resident instruction program in agriculture would be similarly enhanced since much research knowledge is carried over into the classroom by the joint teacher-researcher. This is a major strength of the land-grant university system in the United States.

Since no resident instruction funds are spent on the branch stations, the relative contributions of teaching and research to the total program of the on-campus departments are shown in Figure 2. The resident instruction costs in Biochemistry and Botany are borne by the College of Science and Mathematics. During the 1977 fall quarter there was an all-time high of 1,292 students majoring in agriculture from among the total enrollment of 7,576 at NDSU.

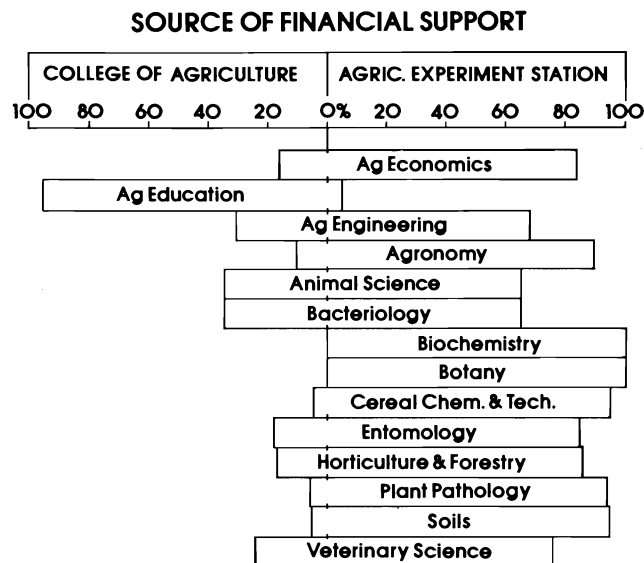


Figure 2. Relative contributions of resident instruction and research to the total program of the on-campus departments involved with agriculture.

In Figure 3 the nine state and national goals for agricultural research have been combined into five major areas of interest to us in North Dakota representing an expenditure of \$8,742,499 in FY 77. The detailed presentation is found in Table 2 with reference to the component Research Problem Areas (RPA's).

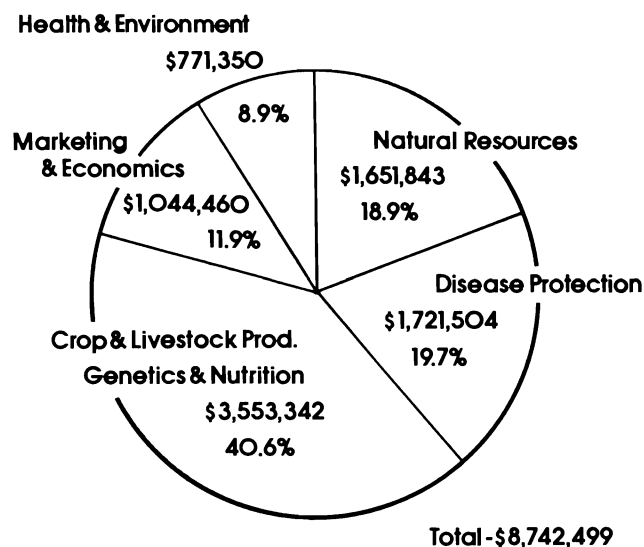


Figure 3. State and national goals for agricultural research combined into five major areas for Fiscal Year 1977.

Table 3. Project analysis of the state agricultural research program by reasearch problem area within each state and national goal for Fiscal Year 1977.

CRIS Identity	Research Problem Area	Expenditures 1977	%	CRIS Identity	Research Problem Area	Expenditures 1977	%
101	Appraisal of Soil Resources	\$ 364,393	4.2	403	New & Improved Fruit & Vegetable Products	\$ 15,783	.2
102	Soil-Plant Relationships	200,815	2.3	404	Quality Mtce., Fruits & Veg.	84,511	1.0
103	Saline, Sodic Soils & Salinity	89,826	1.0	405	Improved Acpt., Field Crops	285,983	3.3
104	Alternative Uses of Land	329,657	3.8	406	New Food Prod. from Field Crops	148,462	1.7
105	Water Conservation	107,656	1.2	407	New Feed Prod. from Field Crops	23,941	.3
106	Irrigation Systems & Facilities	113,566	1.3	408	Quality Mtce., Field Crops	196,258	2.2
107	Watershed Protection & Management	12,743	.1	409	Prod. of Animal Products	13,064	.1
108	Watershed Management	71,156	.8	411	New & Improv. Non-Food Animal Prod.	3,629	.0
109	Weather Modification	105,992	1.2				
110	Appraisal of Forest & Range	59,227	.7				
111	Management of Forest & Timber	15,372	.2				
112	Improvement of Range Resources	181,440	2.1				
	Goal 1 Subtotal	\$ 1,651,843	18.9		Goal 4 Subtotal	771,631	8.8
201	Control of Insects Affecting Forests	\$ 15,372	.2	501	Improvement of Grades & Standards	\$ 46,512	.5
202	Disease, Parasites & Nenatodes in Forests	15,372	.2	503	Marketing Eff. of Agric. Products	24,755	.3
205	Disease Cont., Fruits & Vegetables	72,844	.9	506	Supply, Demand, & Price Analysis	21,987	.2
207	Insect Cont., Field Crops & Range	247,347	2.8	507	Competitive Interrelationships in Agriculture	35,847	.4
208	Disease Cont., Field Crops & Range	439,671	5.0	508	Domestic Market Development	5,928	.1
209	Weed Cont., Field Crops & Range	291,073	3.3	509	Marketing Systems	43,456	.5
210	Insects & Para. Affective Livestock, Poultry	27,194	.3	511	Agricultural Statistics	58,904	.7
211	Disease Control, Livestock	497,635	5.7		Goal 5 Subtotal	\$ 237,389	2.7
212	Control of Livestock Parasites	59,568	.7	601	Foreign Market Development	\$ 35,440	.4
213	Protect Livestock from Toxic Chem.	55,426	.6		Goal 6 Subtotal	\$ 35,440	.4
214	Protect Plants, Ani. & Man from Pollution	2	.0	701	Insure Pure Food Products	\$ 54,079	.6
	Goal 2 Subtotal	\$ 1,721,504	19.7	702	Protect Food & Feed from Toxins	16,380	.2
301	Breeding of Forest Trees	\$ 30,744	.4	707	Prevent Transmis. of Ani. Disease to Man	2	.0
304	Biol. Improvement, Fruits & Veg.	186,165	2.1	708	Human Nutrition	27,090	.3
306	Prod. Mgt. for Fruits & Vegetables	4,257	.0		Goal 7 Subtotal	\$ 97,551	1.1
307	Biol. Improvement, Field Crops	1,779,988	20.4	806	Individual & Family Adjustments	\$ 9,653	.1
308	Mechanication of Prod. of Field Crops	-0-	.0	807	Structural Changes in Agriculture	7,214	.1
309	Production Systems, Field Crops	123,633	1.4	808	Balance Farm Output & Market Demand	8,582	.1
310	Reprod. Performance, Livestock	118,024	1.4		Goal 8 Subtotal	\$ 25,449	.3
311	Biol. Improvement, Livestock	413,110	4.7	901	Waste Disposal	\$ 258,183	3.0
312	Environ. Stress on Livestock	61,357	.7	902	Outdoor Recreation	1,071	.0
313	Production Systems, Livestock	107,061	1.2	904	Wildlife Management	-0-	.0
315	Improvement of Farm Facilities	63,570	.7	905	Trees to Enhance Rural & Urban Environ.	2,597	.0
316	Farm Business Management	65,109	.7	906	Ornamentals & Turf	28,210	.3
317	Structures used in Prod. of Living Poultry	18,323	.2	907	Improved Income/Rural Families	95,157	1.1
318	Biol. Technology & Biometry	582,001	6.7	908	Rural Community Services	100,699	1.2
	Goal 3 Subtotal	\$ 3,553,342	40.6		Goal 9 Subtotal	\$ 485,917	5.6
					TOTAL RPA	\$ 8,580,066	98.1
					Physical Plant Improvements	135,461	1.6
					Not Classified	26,972	.3
					GRAND TOTAL	\$ 8,742,499	100.0