

North Dakota Beef Cattle Improvement Association
 North Dakota Beef Commission
 North Dakota Business and Industrial
 Development Department
 North Dakota Livestock Mutual Aid Corporation
 North Dakota Poultry Industries Convention
 North Dakota Power Use Council
 North Dakota State Seed Department
 North Dakota State Wheat Commission
 North Dakota Turkey Federation
 Northern Great Plains Research Center
 Office of Water Research and Technology
 Old West Regional Commission
 Pacific Oil Seeds, Incorporated
 Peavey Company
 Pillsbury Company
 PPG Industries, Incorporated
 Protein Products, Incorporated
 Quaker Oats Company
 Red River Commodities, Incorporated
 Red River Valley Potato Growers Association

Red River Valley Sugar Beet Growers Association
 Research Corporation
 Rhodia, Incorporated
 Rohm and Haas Company
 Roman Meal Company
 Schafer-Post Series
 Shell Chemical Company
 Sheyenne Valley Grazing Association
 South Dakota State University
 Stauffer Chemical Company
 Stearns-Roger, Incorporated
 Sugarbeet Research and Education Board of
 North Dakota and Minnesota
 Sunflower Association of America
 Sun Oil Company of Pennsylvania
 Union Carbide
 UNIROYAL Chemical - Canada
 UNIROYAL, Incorporated
 United States Rubber
 The Upjohn Company
 U. S. Borax Research

PROJECTS ACTIVE FISCAL YEAR 1977

North Dakota Agricultural Experiment Station

North Dakota State University

January 1, 1977

PROJECT	TITLE	INVESTIGATOR(S)	PROJECT	TITLE	INVESTIGATOR(S)
BIOCHEMISTRY					
1212	Comparative Study of Plant Carbonic Anhydrase	George Graf	1353 (NC-102)	The Economics of Institutional Arrangements for Viable Rural Communities in the Great Plains	W. C. Nelson T. A. Hertsgaard D. L. Helgeson
1215	Enzymic Biosynthesis of Gramine in <i>Hordeum vulgare</i>	A. G. Fischer	1354 (NC-139)	Economic Analysis of the U.S. Grain Exporting Systems	D. E. Anderson
1217 (NC-96)	Environmental Implications and Interactions of Pesticide Usage	D. W. Bristol H. J. Klosterman	1355 (NC-123)	Costs, Quality, and Demand for Selected Community Services: The Effect of Organizational Form, Size, and Other Factors	D. L. Helgeson
1218	Uric Acid and Hydrogen Peroxide Formation in Bovine Thyroid	A. G. Fischer	1356	North Dakota Resource Inventory, Information Management, and Monitoring System (RIMS)	J. E. Johnson
1219	Extracellular Nuclease from Cell Suspension Culture of Higher Plants	A. E. Oleson	1357	Marketing of Irrigation Production	D. E. Anderson R. G. Johnson
1220	Degradation of Pesticides in Soil and Sunlight	J. R. Fleeker	1358 (NC-117)	Organization and Control of the U.S. Food Production and Distribution System	D. F. Scott
3201	Cooperative Investigations in Agricultural Biochemistry	H. J. Klosterman	1360	Evaluation of Alternative Rural Freight Transportation, Storage and Distribution Systems	D. W. Cobia
5020	Satellite Laboratory for Minor use Pesticides Research	D. W. Bristol H. J. Klosterman	1361	Economics of Marketing Meat Products in North Dakota	T. A. Petry E. V. Dunn G. M. Bedker
AGRICULTURAL ECONOMICS					
1335 (GP-12)	Economics of Farm and Ranch Growth	J. E. Johnson	3303	Collection and Dissemination of Agricultural Data for North Dakota	F. R. Taylor J. R. Price
1336	Credit Problems of North Dakota Agriculture	F. R. Taylor	3306	Service Activities and Pilot Studies	F. R. Taylor
1337	Dairy Market Efficiency	G. W. Erlandson T. A. Petry	3314	Market Development for Hard Red Spring and Durum Wheat	D. E. Anderson
1344	Economics of Crop Production Technology	R. G. Johnson	3319	Service Activities Relating to Ownership, Markets, and Use of Farmland	J. E. Johnson
1347	North Dakota Agribusiness Marketing Information	D. W. Cobia G. W. Erlandson	3328	Economic and Social Impact of Recreational Development of Lake Metigoshe	D. L. Helgeson
1348 (NC-97)	Population Redistribution in the North Central Region —Pre- and Post-1970	T. K. Ostenson	3331	Water Quality and Land Use in the Sheyenne River Basin	W. C. Nelson
1350	Livestock and Products Marketing	T. A. Petry G. W. Erlandson	3332	Impacts of Coal Development Alternatives	F. L. Leistritz
1351	Economics of Farm Size	R. G. Johnson L. W. Schaffner			
1352	Economics of Livestock Production Technology	F. L. Leistritz L. W. Schaffner T. A. Petry			

PROJECT	TITLE	INVESTIGATOR(S)	PROJECT	TITLE	INVESTIGATOR(S)
3333	Growth and Decline of Small Cities in North Dakota	D. L. Helgeson	AGRONOMY		
3334	Alternative Uses of Wetlands	D. F. Scott	1601	Hard Red Spring Wheat Improvement	R. C. Frohberg R. H. Busch
3335	Labor Supply in North Dakota	T. A. Hertsgaard	1606	Corn Improvement	H. Z. Cross
3337	Research and Extension Assist Communities through Title V (REACT)	E. V. Dunn D. L. Helgeson G. M. Bedker	1608	Breeding and Genetics of Spring Barley	A. E. Foster
3338	Feasibility and Potential Impact of Sunflower Seed Processing Firms	D. L. Helgeson D. W. Cobia L. W. Schaffner	1610	Sudan Grass for North Dakota	P. C. Sandal
3339	Water as a Parameter for Development of Energy Resources in the Upper Great Plains	F. L. Leistritz D. F. Scott	1611	Genetics of Hard Red Spring Wheat	R. H. Busch
5030	Resource Inventory, Monitoring, and Analysis System (RIMAS)	W. C. Nelson J. E. Johnson	1613	Breeding and Genetics of Flax	J. J. Hammond
5031	Resource Inventory, Monitoring and Analysis System - Phase II	W. C. Nelson J. E. Johnson	1614	Durum Improvement	J. S. Quick
AGRICULTURAL ENGINEERING			1617	Control of Annual Weeds in Crops	J. D. Nalewaja S. D. Miller
1419	Evaluation of Extensive Irrigation	E. C. Stegman	1620	Male Sterility, Fertility Restoration and Hybrid Vigor in Hard Red Spring and Durum Wheat	K. A. Lucken S. S. Maan
1421	Effects of Air Flow and Temperature in Mechanical Dryers on Wheat Quality	C. W. Moilanen	1621	Intergeneric and Interspecific Crosses of Barley and Rye	A. B. Schooler
1422	Animal Waste Management (NC-93) Systems for the 1980's	G. L. Pratt	1622	Forage Production and Management in North Dakota	D. W. Meyer
1423	Irrigation Scheduling of Mechanized Sprinkler Systems	E. C. Stegman	1624	Soybean Improvement	D. A. Whited
1424	Treatment Methods for Removing Organic Coloring and Minerals from Rural Water Supplies	R. L. Witz Coila Janecek	1625	Hard Red Winter Wheat Improvement	J. R. Erickson
1426	Feedyard Runoff	L. A. Disrud	1626	Biochemical Criteria for Plant Breeding	E. L. Deckard
1428	Ventilation for Confined Cattle	R. L. Witz	1627	Transfer of Cytoplasmic Variability and Disease Resistance to Wheat from Related Species	S. S. Maan
1430	Utilization and Disposal of (NC-118) Municipal, Industrial, and Agricultural Processing Wastes on Land	G. L. Pratt	1628	Integrating Crop Culture, (NC-121) Chemicals and Life Cycles to Control Persistent Weeds	C. G. Messersmith J. D. Nalewaja
1431	Energy for Tillage	H. L. Kucera	1629	Weed Control for Reduced Tillage	S. D. Miller J. D. Nalewaja
1432	Crop Response to Irrigation Management Strategies	E. C. Stegman	1630	Oat Improvement	M. S. McMullen G. S. Smith
1433	Deep Freezing Piled Sugarbeets with Forced Air Ventilation	L. F. Backer	3601	Testing New and Standard Open Pedigree Corn Hybrids	H. Z. Cross
3411	Ditch Linings and Underground Pipe for Irrigation	E. C. Stegman	3602	Breeding Improved Varieties of Oats from North Dakota	G. S. Smith D. C. Ebeltoft J. R. Erickson
ENTOMOLOGY			3605	Hybrid Corn Performance Trials in North Dakota	H. Z. Cross
1518	Factors Influencing Aphid and Leafhopper Transmission of Plant Diseases to Cereal Grains	J. T. Schulz	3606	Increase and Distribution of Improved Inbreds of Corn	H. Z. Cross
1519	Biology, Ecology and Control of Sunflower Insects	J. T. Schulz C. Y. Oseto	3610	Miscellaneous and New Crops for North Dakota	A. A. Schneiter
1521	Biology and Control of Sugarbeet Root Maggot	A. W. Anderson R. D. Frye	3611	Cereal Crops Variety Testing	J. F. Carter
1523	Management of Grasshopper Populations	G. B. Mulkern	3613	Production and Supervised Distribution of Breeders and Foundation Seed	D. C. Ebeltoft
1524	Microbial Agents for Control of Agricultural Pests	R. D. Frye G. B. Mulkern	3616	Linseed Oil as an Adjuvant to Herbicides	J. D. Nalewaja
1525	Livestock Insect Physiology	H. J. Meyer	3617	Commercial Production of Male-Sterile and Hybrid Wheat Seed	D. E. Chandler K. A. Lucken
3502	North Dakota Insect Survey and Insect Collection	R. L. Post	3618	Simulated Hail Damage on Barley	E. L. Deckard
3503	Management of Insects Infesting Corn	D. K. McBride R. D. Frye	3619	Weed Control in Sugarbeets and Related Basic Problems	A. G. Dexter
6201	Shelter Belts in North Dakota	R. B. Carlson	3620	Sawfly Resistant Wheats	G. S. Smith L. R. Joppa R. C. Frohberg
			5050	Introgression of Alien Germplasm to Broaden the Genetic Base and to Reduce the Genetic Vulnerability of Wheat	S. S. Maan R. H. Busch J. R. Erickson

PROJECT	TITLE	INVESTIGATOR(S)	PROJECT	TITLE	INVESTIGATOR(S)
ANIMAL SCIENCE					
1729	Factors Affecting Volatile Fatty Acid Production in the Rumen	D. O. Erickson	3710	Preliminary Investigations (Dairy)	C. G. M. Edgerly
1736	Nutrient Requirements for Confined Ewes	M. R. Light J. E. Tilton	3714	Improving Reproduction in Beef Cattle	J. E. Tilton
1737	Rations for Ruminants	W. E. Dinusson D. O. Erickson R. B. Danielson	3715	Growth in Suffolk Sheep	M. R. Light
1740	Improvement of Beef Cattle (NC-1 Rev.) Through Breeding Methods		3717	Livestock Waste Characterization and Production Rates	C. G. M. Edgerly
1741	Cattle Types and Methods of Marketing	V. K. Johnson	3718	Whey in Rations	C. N. Haugse W. E. Dinusson R. B. Danielson K. L. Davison
1743	Amino Acid Composition of Muscles from Nutritionally-Limited Swine	R. L. Harrold M. J. Marchello C. N. Haugse	3720	Factors Affecting Dieldrin Depletion from Turkeys	
1745	Embryonic Mortality in Swine	J. E. Tilton J. N. Johnson C. N. Haugse	3721	Ultrasonic Evaluation of Beef Cattle	P. T. Berg R. B. Danielson
1747	Interrelationship of Mercury Concentration in Beef, Milk, Soils, Plants, and Water		BACTERIOLOGY		
1748	Area Centers for Beef Development and Producer Education	P. T. Berg M. A. Kirkeide	1806	Effects of Selected Insecticides on Agriculturally Important Microbiological Activities	B. R. Funke
1749	Growth Rate and Market Characteristics in Turkeys as Related to Early Nutrition	R. L. Johnson	1807	Effects of 1-Amino-D-Proline on Some Enzyme Systems	B. P. Sleeper
1750	Adrenal Cortical Levels in Rats and Sheep	J. E. Tilton M. R. Light	1809	The Etiology of Necroses in Poultry	M. C. Bromel
1751	Ergot in Livestock and Poultry Rations	W. E. Dinusson D. O. Erickson	1810	Bacterial Viruses in Farm Animal Waste Lagoons	D. L. Berryhill
1752	Forage Production and Utilization Systems as a Base for Livestock Production	D. O. Erickson C. N. Haugse	1811	Hydrogen-Producing Bacteria in Anaerobic Waste Treatment	P. E. Holmes
1753	Feed Value and Composition of North Dakota Feed Grains	R. L. Harrold D. O. Erickson C. N. Haugse	1812	Genetics of <i>Rhizobium Phaseoli</i>	D. L. Berryhill
1754	Progressive Pneumonia in Farm Sheep Flocks	M. R. Light J. E. Tilton R. J. Amundson K. L. Davison	3802	Serologic Aspects on the Nature of Rust Resistance in Wheat	J. A. Doubly
1755	Influence of DDT on Hepatic Microsomal Enzyme Activities and on Urinary Excretion of Ascorbic Acid		3804	General Service and Preliminary Investigations	K. J. McMahon
1756	Increased Efficiency of Lamb Production through Improved Breeding, Nutrition and Management Systems	M. R. Light D. O. Erickson J. E. Tilton	3805	Japanese Beetle Control with <i>Bacillus popilliae</i>	K. J. McMahon
1757	Nutrition of Pigs	R. L. Harrold J. N. Johnson W. E. Dinusson	5080	Psychrophilic Anaerobic Waste Treatment in Northern Climates	P. E. Holmes
1758	Sow Nutrition and Management	J. N. Johnson R. C. Zimprich C. N. Haugse R. L. Johnson	BOTANY		
1759	Effect of Dietary Fats on Egg Production and on Quantity of Manure Produced		1906	Pasture Management for Spring Grazing in Western North Dakota	W. C. Whitman
1761	Seleniums Effect on Mercury in Eggs, Meat, and Milk	K. L. Davison R. L. Johnson	1908	Rangeland Improvement in (GP-9) North Dakota	Harold Goetz W. C. Whitman
1762	Nutritive Value of Beef	V. K. Johnson M. J. Marchello	1909	Range Forage Production in Relation to the Environment	W. C. Whitman Harold Goetz
1763	Grasses Adapted to North Dakota	F. O. Thetford, Jr. D. O. Erickson	1911	Nitrogen Metabolism as Related to Internal Water Balance of Wheat and Other Selected Plants	D. S. Galitz
1764	Correcting Dietary Selenium (NC-138) Deficiencies in Ruminant Livestock	M. R. Light J. E. Tilton	1912	Induction of Cell Division and Nuclear Replication in Plants by 2,4-D	M. E. Duysen
3707	Productivity of Selected Breeds of Sheep	M. R. Light	1913	Impact of Coal Development on Plant Ecosystems in Western North Dakota (SEAM: Phase I)	D. S. Galitz W. T. Barker W. C. Whitman
3708	Accuracy of Metering and Sampling Devices and Methods of Determining Milk Production	C. G. M. Edgerly	1914	Photosynthesis in Wheat Subjected to Water Deficit Stress	M. E. Duysen T. P. Freeman
			1915	Drought and Nitrate Metabolism in Selected Grassland Species	D. S. Galitz W. T. Barker Harold Goetz
			1916	Metabolic Resistance to Water Deficit Stress in Hard Red Spring Wheat	M. E. Duysen
			1917	Grazing Utilization of Interseeded Mixed Grass Prairie	P. E. Nyren
			1918	North Dakota Rangeland Inventory	W. T. Barker Harold Goetz W. C. Whitman

PROJECT	TITLE	INVESTIGATOR(S)	PROJECT	TITLE	INVESTIGATOR(S)
3902	Preliminary Investigations (Pasture and Ranges)	W. C. Whitman	2312	Genetics of Flax and Flax Rust Interactions	G. D. Statler
3903	Floristic Composition of Wet Lowland Prairie Sites	W. T. Barker Harold Goetz	2313	Biochemical and Anatomical Studies of Flax Rust Resistance	L. J. Littlefield
CEREAL CHEMISTRY AND TECHNOLOGY					
2001	Wheat Protein Fractions and Baking Quality	C. E. McDonald	2314	Bacterial and Fungal Diseases of Beans	J. R. Venette
2002	Quality Investigations of Hard Red Spring Wheat Varieties	L. D. Sibbitt	2315	Root and Crown Rot of Cereals	R. W. Stack
2004	Durum Wheat Quality Evaluation for Consumer Acceptance	B. J. Donnelly	4308	Plant Disease Survey of North Dakota Crops	R. L. Kiesling
2005	Testing and Improvement of North Dakota Barley Varieties for Industrial Acceptance	C. W. Baker	4309	Pathogenicity, Variation, and Importance of Barley Foliar Diseases in North Dakota	V. D. Pederson
2006	The Role of Lipids on Durum Wheat Quality	C. E. McDonald	4312	Cytology of Flax Rust	L. J. Littlefield
2007	Barley and Malt Quality as Influenced by Biochemical Constituents	C. W. Baker	4314	ARS, USDA Coordination	R. L. Kiesling
2008	Carbohydrates - Effect on Milling, Baking and Processing	B. L. D'Appolonia	4315	Disease Resistance in Confectionery Sunflowers	D. E. Zimmer
2009	Market Quality in Wheat (NC-132)	B. J. Donnelly B. L. D'Appolonia	5120	Development of a Blight-free Seed Program for North Dakota Dry Edible Bean Growers	J. R. Venette
2010	Sunflower Seed Product Utilization in Human Foods	B. J. Donnelly Edna Holm	6201	Shelter Belts in North Dakota	R. L. Kiesling
4001	Quality Testing of Wheat Varieties	L. D. Sibbitt	SOILS		
HORTICULTURE AND FORESTRY					
2201	Potato Breeding in North Dakota	R. H. Johansen	2514	Biological Availability of Nitrogen in Soil Organic Matter	J. T. Moraghan
2213	Effect of Production Practices on the Quality of Potatoes	D. C. Nelson	2517	Soil Physiochemical Properties as Affected by Tillage	E. J. Deibert R. E. Sojka
2216	Vegetable Breeding and Genetics	N. S. Holland	2519	Effect of Nitrogen and Phosphorus Fertilizer on Performance of Corn	J. T. Moraghan
2218	Factors Affecting Post-Harvest Marketing Quality of Processed Potatoes	E. P. Lana D. C. Nelson	2520	The Climatic Resources of the (NC-94) North Central Region	J. M. Ramirez
2219	Influence of Stocks on Growth and Fruiting of Apple Trees	N. S. Holland	2522	Effect of Management on Sugar Beet Production	J. T. Moraghan
2220	Vegetable Production Under Irrigation in North Dakota	E. W. Scholz	2525	Nutrient Enrichment of Waters (NC-98) by Soils and Sediments	J. W. Bauder W. C. Dahnke
2221	Selection, Evaluation and Culture of Hardy Ornamentals for the Northern Plains	D. E. Herman	2526	Fertilizer Nitrogen Rate - Spring Wheat Variety Interaction in Relation to Soil Environment	J. C. Zubriski
4203	Fruits Breeding Culture and Varieties	N. S. Holland	2528	Detailed Soil Surveys for Potentially Irrigable Land	M. D. Sweeney D. A. Shay
4204	General Service and Preliminary Investigations	E. P. Lana	2530	Soil Test Values and Potato Response to Fertilizer	W. C. Dahnke L. J. Swenson
4206	Mulches and Row Covers for Vegetable Crops	E. W. Scholz	2531	Effects of Fertilizers and Plant Populations Upon Yield and Quality of Sunflowers	J. C. Zubriski W. C. Dahnke
6201	Shelter Belts in North Dakota	E. P. Lana	2532	Soil Landscape Characteristics (NC-109) Affecting Land Use Planning and Rural Development	H. W. Omodt D. D. Patterson
PLANT PATHOLOGY					
2304	Etiology and Control of Seed, Seedling and Root Diseases of Barley	V. D. Pederson R. L. Kiesling	2534	Soil, Landscape and Ground-Water Relationships in a Prairie Pothole	B. K. Worcester L. J. Brun
2305	Biology and Control of Bacterial and Fungal Diseases of Potato	J. E. Huguelet	2535	Implications of the Atmospheric Environment on Coal Development in Western North Dakota (SEAM: Phase I)	J. M. Ramirez L. J. Brun
2307	Virus Diseases of Potato	J. E. Huguelet	2536	Plant Analysis for Appraising Nutrient Status	J. C. Zubriski J. T. Moraghan W. C. Dahnke
2308	Biology and Control of Foliar Diseases of Wheat	R. M. Hosford, Jr.	2537	Effect of Soil Freezing on Water Infiltration and Runoff	J. W. Bauder L. J. Brun T. H. Krueger
2309	The Genetics of Wheat and Wheat Leaf Rust Interactions	G. D. Statler	2538	Interactions Between Soils and Natural Vegetation	B. K. Worcester C. J. Heidt
2310	Biology and Control of Ergot in Cereals and Grasses	L. J. Littlefield	4505	Soil Correlation	H. W. Omodt
2311	Morphology of Tolerance and Slow Rusting in Wheat	L. J. Littlefield	4507	Soil Survey and Interpretation	H. W. Omodt D. D. Patterson F. W. Schroer

PROJECT	TITLE	INVESTIGATOR(S)	PROJECT	TITLE	INVESTIGATOR(S)
4508	Fertilizer Soil Testing	W. C. Dahnke L. J. Swenson	6242	Off-Station Small Grain Variety Trials	T. J. Conlon
4513	Application of Phosphorus for Small Grains in North Dakota Soils	W. C. Dahnke L. J. Swenson	6243	Crop Production Trials	T. J. Conlon
4518	Soil, Cropping System and Climate on Control of Saline Seeps	L. J. Brun B. K. Worcester R. P. Schneider	6244	Specialty Crops	T. J. Conlon
4519	Coal Overburden Characterization and Revegetation Studies	F. W. Schroer	6245	Horticultural and Woody Plant Trials	T. J. Conlon
4521	Soil Test Values and Alfalfa Response to Fertilizer	W. C. Dahnke L. J. Swenson	HETTINGER BRANCH STATION		
4522	Water Regime of Salt-Affected Soils in Northwestern North Dakota	B. K. Worcester L. J. Brun F. J. Sobolik	6260	Relative Response of Selection Pressure Applied to the Ewe Flock	T. C. Faller
4523	Chemical and Physical Characteristics of Shaped Mined Lands and Their Effect on Establishment of Plants	Glendon Gee	6261	Short-term Sheep Production Investigations	T. C. Faller
4524	Surface and Root Zone Hydrology of Shaped Surface - Mined Spoil Banks and Rehabilitated Lands	Glendon Gee	LANGDON BRANCH STATION		
4525	Plant Establishment and Culture on Surface-Mined Lands	Glendon Gee	6300	Small Grain Variety Trials and Demonstration Plots	R. E. Nowatzki
4526	Detection of Incipient Saline Seeps	L. J. Brun B. K. Worcester	6301	Off-Station Variety Testing	R. E. Nowatzki
4527	Effect of Soil Additives on Soil Physical Properties and Crop Response to Irrigation	J. W. Bauder E. H. Vasey D. F. Wagner	6302	Miscellaneous, Oil, and Specialty Crops Testing	R. E. Nowatzki
4528	Distribution and Properties of Loessial Deposits in Emmons County, North Dakota	B. K. Worcester Nordan Lunde	6303	Soil Fertility and Management	R. E. Nowatzki
4529	A Cooperative Program to Evaluate Surface and Ground Water Problems Associated with Potential Strip Mine Sites	Glendon Gee Terry Brown	6304	Crop Cultural Practice Production Research	R. E. Nowatzki
VETERINARY SCIENCE			6305	Forage Evaluation and Production	R. E. Nowatzki
2610	Bovine Respiratory Diseases (NC-107)	I. A. Schipper C. L. Kelling	NORTH CENTRAL BRANCH STATION, MINOT		
2611	Occurrence and Effects of (NC-129) Mycotoxins in Feeds and Foods	H. H. Casper Carolyn Maier	6340	Crop Variety Demonstration Plots	B. K. Hoag J. R. Lukach
4602	Preliminary Investigations	M. F. Andrews G. E. Staples H. H. Casper I. A. Schipper	6341	Cooperative and Regional Trials	B. K. Hoag J. R. Lukach
4604	Veterinary Diagnostic Service	I. E. Berg M. F. Andrews A. D. Alstad Raul Weiss	6342	Off-Station Testing	B. K. Hoag J. R. Lukach
4605	State Animal Health Service	G. E. Staples	6343	Weed Control	B. K. Hoag J. R. Lukach
4606	Diseases of Neonatal Calves	G. E. Staples	6344	Crop Production Under Irrigation	B. K. Hoag J. R. Lukach
4609	Infectious Bovine Rhinotracheitis (IBR) in the Pregnant Bovine	I. A. Schipper C. L. Kelling	6345	Soil and Fertility Management	B. K. Hoag J. R. Lukach
DICKINSON BRANCH STATION			6346	Cultural and Cropping Practices	B. K. Hoag J. R. Lukach
6220	Livestock Breeding	J. L. Nelson D. G. Landblom	6347	Miscellaneous, Oil and Specialty Crops	B. K. Hoag J. R. Lukach
6221	Livestock Feeding	J. L. Nelson D. G. Landblom	WILLISTON BRANCH STATION		
6222	Livestock Management	J. L. Nelson D. G. Landblom	6380	Cereal Crop Variety Improvement	Neil Riveland E. W. French
6223	Livestock Disease	J. L. Nelson D. G. Landblom	6381	Off-Station Testing	E. W. French Neil Riveland
6230	Grassland Management	T. J. Conlon	6382	Miscellaneous, Oil, and Specialty Crop Improvement	E. W. French Neil Riveland
6240	Small Grain Variety Testing	T. J. Conlon	6383	Crop Production and Management Practices	E. W. French Neil Riveland
6241	Cooperative Small Grain Nursery Testing	T. J. Conlon	6384	Soil and Water Conservation Practices	E. W. French Neil Riveland
			CARRINGTON IRRIGATION BRANCH STATION		
			6420	Irrigated and Dryland Crop Production on the Glacial Drift Prairies of North Dakota	H. M. Olson J. J. Caroline
			6421	Supplemental Irrigation Practices and Equipment Management in a Sub-Humid Climate	H. M. Olson Robert S. Hoffman
			6422	Irrigated Crop Production at Off-Station Sites — Oakes and Karlsruhe	H. M. Olson J. J. Caroline R. S. Hoffman
			6423	Irrigated Forage Production Measured in Pounds of Beef Per Acre	D. W. Rodgers H. M. Olson
			6460	Cereal Grain Tillage Trials	L. A. Spilde