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Agricultural Economics Report
Number 2

Re

March 1951

DEPARTMENT OF AGRICULTURAL ECONOMICS
NORTH DAKOTA STATE UNIVERSITY
STATE UNIVERSITY STATION
FARGO, NORTH DAKOTA 58102

SAUC

THE RESEARCH PROGRAM
in
AGRICULTURAL ECONOMICS
and
RURAL SOCIOLOGY

Agricultural Experiment Station
North Dakota Agricultural College
Fargo, North Dakota

Agricultural Economics Report
Number 2

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DEPARTMENT OF AGRICULTURAL ECONOMICS
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INTRODUCTION

The individual farmer in North Dakota has become drawn into the far-flung market system of the national economy and the world. His personal success depends not only upon his technical skill in producing crops and livestock. It depends equally upon his knowledge of prices and costs, of economic principles for getting the highest returns from his land, labor, and capital resources, and upon what happens elsewhere, in far-away cities, regions, countries, and in the field of group action we call public policy.

The Agricultural Experiment Station is carrying on an intensive research program to dig up information, to develop economic principles for fruitful individual and group action, and to organize such knowledge in a way most useful to farmers and rural leaders in tackling the practical problems of making farms and rural communities a better place in which to live.

The following program of research for the coming three or four years has been worked out jointly by the staff of the Agricultural Economics Department. It represents a tentative outline, to be modified as the work progresses and conditions change. The selection of subject matter reflects the major problems farmers are facing. Reliable information and systematic study of these problems should contribute much to the progress of the farm economy of North Dakota.

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Rainer Schickele, Chairman

OUTLINE OF THE PROGRAM

Our research work falls into four major fields of inquiry which of course, are interrelated in many of their aspects. A brief description of these research projects will help to visualize the purpose and methods contemplated.

Page

<p>I. <u>Land Economics</u>, dealing primarily with the institutional arrangements under which farmers control the resources and develop their living standards. The projects planned for are:</p> <p style="margin-left: 40px;">1. Farmers' Access to Capital and Land via Credit and Tenure Arrangements.....</p> <p style="margin-left: 40px;">2. Appraisal of the Rural Tax Situation.....</p> <p style="margin-left: 40px;">3. Recent Changes in the Economic Structure of N.D. Agriculture.....</p> <p>II. <u>Production Economics</u>, dealing primarily with the efforts of farmers to adapt their operations most profitably to the physical, economic, and institutional environment, compatible with general welfare.</p> <p style="margin-left: 40px;">4. Farm Record Analysis and Measurement of Production Efficiency.....</p> <p style="margin-left: 40px;">5. Weather and Price Uncertainties and Their Impact on North Dakota Farm Income.....</p> <p style="margin-left: 40px;">6. Irrigation Development and Income Potentialities of Farming Under Irrigation.....</p> <p>III. <u>Marketing and Consumption</u>, dealing primarily with marketing and distributive processes and consumption patterns.</p> <p style="margin-left: 40px;">7. Pricing and Storing Processes in Marketing Grains.....</p> <p style="margin-left: 40px;">8. Dairy Marketing Problems in North Dakota.....</p> <p style="margin-left: 40px;">9. Effect of Price Supports and Marketing Agreements on Potato Marketing.....</p> <p style="margin-left: 40px;">10. Improved Techniques for Marketing Eggs.....</p> <p>IV. <u>Rural Sociology</u>, dealing primarily with family and community characteristics, social organization and attitudes, population factors and human content of rural life.</p> <p style="margin-left: 40px;">11. Social and Community Adaptations to Irrigation Developments.....</p> <p><u>Recent Publications (1948-50) from the Agricultural Economics Department.....</u></p>	<p>4</p> <p>7</p> <p>9</p> <p>10</p> <p>12</p> <p>14</p> <p>16</p> <p>17</p> <p>20</p> <p>23</p> <p>24</p> <p>26</p>
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NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

Purnell _____

TITLE: Farmers' Access to Capital and Land
via Credit and Tenure Arrangements

- OBJECTIVES:
- (1) To explore the comparative merits of various avenues to ownership or managerial control of farm land and capital resources under existing credit, tenancy and inheritance arrangements.
 - (2) To evaluate the adequacy of present avenues to farm resources in the light of current and prospective capital requirements and production and price risks under North Dakota conditions.
 - (3) To develop practical proposals for improving the conditions of accessibility to farm resources in line with current capital requirements and future income uncertainties — to the mutual interest of the individual farmer, creditor, landlord, and the community.

REASONS FOR UNDERTAKING THE STUDY:

The average citizen of North Dakota is unaware of the wide variety of sources from which capital is provided, and of the conditions under which capital is available. Present and potential borrowers, lenders, and landlords lack information regarding the capital requirements involved in fruitful innovations, expansion and adjustments in agricultural production, which could be greatly enhanced by improving the conditions under which capital is made available to farmers. Maximizing the farm income and productive efficiency in our State, therefore, calls for the dissemination of sound information regarding the amount and terms of loan capital available, the possibilities for its use, and desirable adjustments in rental arrangements designed to encourage more efficient resource use and development.

Modern technology, mechanization, and increasing farm size make farmers more dependent upon the market and upon credit and other sources of capital. At the same time, the wide fluctuations in farm income characteristic of the Great Plains create special problems to keeping farmers adequately supplied with resources; these problems are acute and demand painstaking research for constructive solutions. — The need for research in this field is accentuated by the current defense effort.

Findings from this project should be most valuable in guiding agricultural defense programs in the direction of maximizing production from scarce manpower and capital resources.

PREVIOUS WORK: Considerable work has been done on leasing practices and legal relationships between landlord and tenant (see Bul. 289 on farm Tenancy and Rental Contracts of 1937, and Mr. Shannon's Report on Legal Relations of 1943) and some work on Land Ownership Trends (Bul. 337, 1945). A study of recent developments in leasing practices and related issues is nearing completion. No systematic work has been done on credit problems since 1924, when a rather cursory "Report of a Farm Credit Survey" was published (Bul. 175). This project is intended to make an up-to-date analysis of the credit situation and to interpret the findings within the basic framework of the farmers' access to capital and land by means of inheritance, savings, credit, or tenancy.

PROCEDURE:

- (1) Ascertain the amounts, terms, and collateral requirements of various types of credit made available to farmers by
 - (a) private lending agencies, such as commercial banks, insurance companies, merchants, etc.
 - (b) public agencies, such as Federal Land Banks, Production Credit Associations, Farmers Home Administration, G.I. loan guarantees, etc.
 - (c) individuals, especially relatives and friends.
- (2) Determine sources and amounts of credit used by farmers who began their farming careers at different periods (e.g., 1935-40; 1941-46; 1947 to date).
- (3) Examine various means by which farmers in recent years have financed the increase in their farm acreage and mechanization, and in housing facilities and improvements.
- (4) In connection with (2) and (3), ascertain the role that inheritance, gifts, and savings have played in acquiring farm resources.
- (5) Determine the nature and extent of credit available to tenants under customary landlord-tenant relations and established credit arrangements.

- (6) Appraise the extent to which farmers require more capital for improving efficiency of farm operations and family living, and the nature of obstacles to fuller use of credit such as collateral security requirements, uncertainty of future yields and prices, psychological barriers, etc.
- (7) Analyze, for various typical farm types and sizes, the comparative positions of an encumbered owner and a tenant, with respect to income over time, rate of saving, access to credit for operating capital, and family living conditions.

For sources of information, a combination of secondary sources, small samples, carefully selected case studies, and model analyses will be used.

PERSONNEL: B. H. Kristjanson, Leader; Cecil Haver.

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

Purnell _____

TITLE: Appraisal of the Rural Tax Situation in North Dakota

- OBJECTIVES:
- (1) To provide a clear picture of the recovery of our state and local governments from the distress period of the thirties and early forties.
 - (2) To isolate and formulate problems which emerge from sharp fluctuations in farm income as a result of poor or good crops and prices, and to determine alternatives for minimizing the impact of lower future farm incomes on state and local governments.
 - (3) To develop classification and assessment techniques designed to bring about an equitable distribution of the tax load.

REASONS FOR UNDERTAKING THE STUDY:

Present confusion and discontent amongst the rural taxpayers of the state points to the need for a rather comprehensive analysis of the rural tax burden. Tax payments by our farmers have risen sharply in the past 5 years in response to increased costs of providing public services. Once established, these higher rates of taxation tend to become fixed. The emerging problem therefore is one of finding means of meeting relatively high tax commitments in the face of a fluctuating farm income base and a very inequitable distribution of the tax load among the owners of land of widely varying productivity and income yielding capacity. We must find ways of minimizing the disrupting effect of periodic low farm incomes on local and state governments, and the demoralizing effect of an inequitable distribution of the tax burden among taxpayers.

PREVIOUS WORK:

Results of the most comprehensive study of North Dakota's tax problems are to be found in 7 reports of the North Dakota Tax Survey Commission, 1936. Another particularly good piece of work was done by Messrs. Hansen, Goodman, and Taylor, Local Government in Southwestern North Dakota (1943). Taylor and Penn made a study of the Management of Public Lands in North Dakota (1942). A good deal of work has likewise been done on problems of land classification, although this requires adaptation to taxation problems. These studies are now from 10 to 15 years old and, while they furnish an excellent basis for the project proposed here, they likewise suggest strongly a need for an up-to-date analysis of emerging problems.

PROCEDURE:

- (1) Examine recent land disposal and management policies of the following as they affect state and local government financing: (a) State Land Department, (b) Bank of North Dakota, (c) Private Corporations, (d) County, (e) School.
- (2) Review the literature of past studies of the problem with particular emphasis on the Tax Commission Reports of 1936 and the State Planning Board Reports.
- (3) Examine in detail the budgets of one or two counties with a view to bringing to the attention of the public the nature and extent of recent changes in receipts and expenditures.
- (4) Determine the extent to which individual units of government are bearing a disproportionate share of certain expenditures. For example, in Dunn County, it is questionable whether the relief burden for Indians should be borne by local taxpayers. The general question arises in connection with state equalization for education, roads, hospitals, etc.
- (5) Consider ways and means of improving assessments of farm lands for taxation purposes. Examine experiences and progress made in other states.
- (6) Develop for one or more counties improved methods of assessments; this phase represents pilot studies carried on in cooperation with local county officials and groups for testing alternative methods for their best adaptation to North Dakota conditions.

PERSONNEL:

Kristjanson, Leader; Voelker.

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

R & MA No. 4

TITLE: Recent Changes in the Economic Structure of North Dakota Agriculture

- OBJECTIVES:
- (1) To study the major factors responsible for the changes in farm size and organization in recent years, with special emphasis upon trends toward diversification or specialization.
 - (2) To determine what effects these changes have had upon capital and labor requirements, size and stability of farm income, and farm welfare opportunities.
 - (3) To evaluate probable future trends in the structure of North Dakota Agriculture.

WORK PLAN: 1951-52.

Under this project, and within the main objectives outlined the work in 1951-52 will be concentrated on the following phases:

- (1) As the material of the 1950 Census becomes available, the data will be summarized by counties and type-of-farming areas, and trends determined from comparison with earlier Census years.
- (2) Comparisons will also be made between characteristic changes in North Dakota and those in adjoining States and the Great Plains region.
- (3) Compilation, analysis and interpretation of the data from the 1950 Census and earlier Census years, supplemented by other sources of relevant material, will be developed with the purpose of preparing a comprehensive publication on "A Half-Century's Progress of the North Dakota Farm Economy, 1900 - 1950," and of bringing up to date Bulletin 357, "Handbook of Facts about North Dakota Agriculture," which was prepared under this project in 1949. -- It will not be until 1953 that all the 1950 Census data are available.

PERSONNEL: Schickele, Leader; Kristjanson.

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

Furnell 142

TITLE: Farm Record Analysis and Measurement of Production Efficiency.

- OBJECTIVES:
- (1) To determine the relative profitability of various farm organizations and practices;
 - (2) To obtain accurate and up-to-date information needed for developing and testing principles of farm organization and management;
 - (3) To measure input - output relations, seasonal distribution of labor requirements and other production factor allocations, for the purpose of determining maximum profit combinations.
 - (4) To develop more appropriate efficiency tests for practical decisions by farmers in planning and improving their farming operations.

WORK PLAN: . 1951-52

Under this project, and within the main objectives outlined therein, the work in 1951 and beyond will be concentrated on the following phases:

- (1) A cost and returns analysis will be completed concerning cash grain farms (1948 Survey by BAE) in the central and northern part of the State. The study will reveal the nature of the farm organization, its capital structure, the source and magnitude of physical and economic inputs and outputs on these farms. The sample, the data, and its statistical analysis are such that important inferences can be made of the nature of the economies of scale of operations and the marginal productivities of resources on these farms. Hence, the direction of resource use adjustment can be indicated. A method will be proposed whereby the individual may use such results in determining the what, why and where of his position and the decisions he could make in an uncertain environment.
- (2) Farms are currently being visited, with the objective of obtaining input-output information on specific farm enterprises. Information on the nearest past production period is obtained from the respondents, and then they are asked to keep an enterprise account on the enterprise for the current production period. In addition, input - output information on feeding is being compiled. The enterprises currently being

8 dairies
15 dairy records 1950-51
2-40 swine farm records 1949-50
studied are:

- 4. schedules*
14 records → (a) hogs (e) beef cattle (farm herd)
(b) dairy (f) feeder cattle *20 schedules*
(c) sheep (farm flock) (g) chickens - laying flocks *20 records*
(d) feeder lambs (h) turkeys

Reports may be anticipated this year on at least two enterprises, probably the hogs and feeder cattle, and perhaps dairy cattle and lamb feeding enterprises.

- (3) By the spring of 1952 or sooner, it is hoped that work has progressed to the point on the enterprises mentioned above that input-output investigations may be started on grain and forage enterprises. And perhaps we can get into economic studies concerning machinery use.
- (4) One of our long-run objectives in this projects is to bring together all the input-output, cost and returns data that may be relevant to decision-making on North Dakota farms. Much of this has been and will be published currently as the results become available. It will be brought together and published as a handbook to guide farm operators in North Dakota and adjacent areas as soon as the progress made under this project shall warrant.

PERSONNEL: Cecil Haver, Leader; LeRoy Schaffner.

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

Purnell 143

TITLE: Weather and Price Uncertainties and their Impact on North Dakota Farm Income.

OBJECTIVES:

- (1) To appraise the economic significance of weather and price fluctuations, their uncertainty, and the risk costs they create, with respect to the flow of farm income over time.
- (2) To assemble the kind of factual information needed as a basis for evaluating various possibilities of increasing farm income stability. These possible resources include crop insurance programs and various alternatives for price and income stabilization measures.

WORK PLAN: 1951-52

Under this project, and within the main objectives outlined therein, the work in 1951-52 will be concentrated on the following phases:

- (1) Crop Insurance Programs: A survey and critical analysis of experiences under various crop insurance programs will be made, with the view of improving present programs.

This involves interviews with farmers and PMA officials in selected counties, and a thorough study of reports from the Federal Crop Insurance Corporation.

Special attention will be given to:

- (a) A comparison of the premium coverage ratios under the various past and present schemes as operated by the Federal Crop Insurance Corp. with a scheme operated on a compulsory nationwide or statewide basis.
- (b) A comparison of the income stabilizing effects of crop insurance and price floors (price insurance).
- (c) Alternative yield bases for crop insurance, such as individual (as formerly), area, a mixture of these two (as now), and possibly a weather or rainfall basis.
- (d) Relative magnitudes of effects of various

crop yield distributions on farm income stability on the one hand, and crop insurance operations on the other.

- (2) Technical and Cultural Practices: To explore the costs and benefits of income stability attained through the employment of various recommended dry-land farm practices, such as (a) summer fallow, (b) stubble-mulching, (c) strip cropping, (d) drought-resistant crops, etc.

This phase of the work will consist largely of a systematic evaluation of Experiment Station findings concerning the effect of such practices upon yields under various weather conditions, especially as to their stabilizing effects, and of applying the results to normalized farm budgets by means of model analysis.

- (3) Deferable Costs: The farm cost structure will be examined for an appraisal of the stability that can be achieved by deferment of certain costs in unfavorable years. Search will be made to discover means of making more of the costs flexible over time in consonance with income variations. Special attention will be given to exploring the possibilities of putting emergency production credit and terms of real estate mortgage repayments on a more workable basis.

- (4) Inventory Management: Further study is considered in appraising the contribution to stability given by storage and withdrawals of cash grain, feedstuffs, and liquid reserves.

For a large part of the work, the most appropriate method of analysis is model construction and budgeting technique, and a good deal of the data will come from secondary sources. Wherever first-hand information can be obtained and used to advantage through surveys or other means, these devices will be exploited.

PERSONNEL: Schickele, Leader; Thair (BAE)

COOPERATION: Bureau of Agricultural Economics, U.S.D.A.

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

ND _____

TITLE: Economic Problems of Irrigation Development and Income Potentialities of Farming Under Irrigation

- OBJECTIVES:
- (1) To make a critical analysis of the development of existing irrigation projects in North Dakota, for the purpose of learning from past experiences and of guiding the course of future irrigation developments.
 - (2) To analyze the legal and organizational aspects of irrigation and watershed development in North Dakota, for the purpose of assisting legislators and farmers in prospective irrigation in determining the most appropriate legal and organizational methods in irrigation or flood control development.
 - (3) To explore the transition problems in shifting from dryland to irrigation farming, for the purpose of helping farmers appraise the probable effect of irrigation upon farm organization, capital requirements, farm costs and income.
 - (4) To study the comparative costs of alternative irrigation systems, especially of sprinkler irrigation versus land leveling and surface irrigation.

REASONS FOR UNDERTAKING THE STUDY:

The potential impact of Missouri River Basin development upon the North Dakota farm economy and upon thousands of individual farm families is tremendous. In 1949 the Experiment Station entered into a cooperative Memorandum of Understanding with the Bureau of Agricultural Economics, USDA, to carry out work along the lines indicated above. The BAE has assigned two highly qualified research workers to this work, stationed in the Agricultural Economics Department of NDAC. Since 1948 the Experiment Station also has cooperated with the Bureau of Reclamation, USDI, in an economic research project on dry-land farming characteristics in proposed irrigation areas, covered under Project ND 700. The present project will consolidate all the work this Station will carry on in this field.

PREVIOUS WORK:

Some work is in progress on a review of the status of water rights under North Dakota law, and of the various forms of water control organization, such as irrigation

and conservancy districts, cooperative associations, etc. This phase of the work has been started by Mr. Voelker of the BAE. A manuscript is nearing completion on dryland farming conditions in proposed irrigation areas by Mr. Schaffner of the Experiment Station under Project ND 700, which is to be terminated by June 30, 1951. Under the same project, work has been started on dryland-irrigation transition problems in the Cannonball area; this work will be continued under this new project.

PROCEDURE: Much of the data needed for objectives (1) and (2) will come from secondary sources, including unpublished reports, files and records of the offices of irrigation projects, court houses, and agencies such as the BAE and Bureau of Reclamation, especially the reports of project boards of review to the Secretary of the Interior. This material will be supplemented by interviews of local people, project managers, ditch riders, and old-timers.

For objectives (3) and (4), much information will be obtained from farmers in existing and in proposed irrigation areas, and intensive case studies of typical conditions will be undertaken with a selected number of farmers. Considerable budgeting of normalized farm models will be carried out using various alternative irrigation organizations as contrasted with their present or best potential ~~dryland~~ organization.

In connection with objective (4) close cooperation with agricultural and irrigation engineers of the Experiment Station, the Soil Conservation Service, and Bureau of Reclamation will be established.

PERSONNEL: For the Experiment Station: Schaffner, Haver, Podany
For the Bureau of Agricultural Economics: Voelker, Helfinstine.

COOPERATION: Bureau of Agricultural Economics (under Memorandum of Understanding) Bureau of Reclamation
Departments of Agricultural Engineering and Agronomy, NDAC.

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

R & MA No. 7

TITLE: Pricing and Storing Process in Marketing North Dakota Grains

- OBJECTIVES:
- (1) To determine the characteristics of the pricing process for the various types and grades of North Dakota grains:
 - (2) To trace effect of various storage facilities and costs upon grain marketing practices in North Dakota:
 - (3) To study the effect of various marketing practices upon producer prices and income.

WORK PLAN: 1951-52

Under this project and within the main objectives outlined therein, the work in 1951-52 will be concentrated on the following phases:

- (1) To study the affect of various marketing practices upon producer prices and income, with special emphasis on premium payments.

Farmers are frequently puzzled regarding the way grain prices are determined in the terminal markets and their effect upon local elevator prices. Farmers and elevator managers are faced with uncertain and fluctuating premiums being paid on certain grains. Elevator managers are also handicapped by the lack of hedging coverage for premium price changes. These and related problems demand systematic investigation which will be of great benefit to farmers and other groups.

- (2) To examine the effect of farm policies for national defense upon storage operations of farmers and country elevators.

The building and preserving of adequate grain stocks constitutes an important part of the agricultural defense program. On the basis of last year's survey of storage and pricing practices of elevators and marketing practices of farmers, which ones are likely to produce the best results and are worth encouraging by appropriate loan, prices and storage provisions? The terms and rates of CCC loans, purchase agreements and other price support operations, as well as of crop insurance programs and income tax provisions, have direct effects upon storage and marketing practices of farmers and elevators.

These effects will be explored in their various aspects in the light of past experiences, by interviews with selected farmers, elevator managers, and other informed persons.

PERSONNEL: Hemphill, Leader; Fourn.

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

R & MA No. 15

TITLE: Dairy Marketing Problems in North Dakota

- OBJECTIVES:
- (1) To survey the principal facts and prevalent experiences regarding production, marketing, and consumption of North Dakota dairy products, so as to appraise present and probable future developments in North Dakota dairy marketing.
 - (2) To analyze the various factors determining kind, volume, and quality of dairy products entering marketing channels.
 - (3) To evaluate the dairy market structure with respect to comparative marketing and processing costs and in relation to seasonal production and consumption factors.

These general objectives are directed to furnish information needed for answering such concrete and vital questions as:

- (a) Is more extensive use of price differentials for various grades of cream feasible as an incentive to farmers for delivering higher quality cream?
- (b) Because creameries require quantity, should the creamery industry expand plant size and reduce numbers to get advantages of scale, or should it reduce plant size and increase numbers to eliminate excess plant capacity and get closer to the sources of supply?
- (c) Can local consumption of fluid milk be expanded by such changes in marketing as reducing the price at retail stores below the home delivered price, or reducing the price for a half-gallon container below the price of two one-quart packages?
- (d) Would greater use of seasonal price changes tend to even out production locally and eliminate the need to import fluid milk in presently slack production months?
- (e) What would happen to North Dakota butter markets if fluid milk restrictions in the East were eliminated or reduced, say, in an effort to conserve resources during mobilization? This would reduce butter production in the eastern fluid milk sheds. What would happen if states continue to remove taxes and prohibitions on the sale of colored margarine?

- (f) Why are there no cheese or concentrated milk factories in North Dakota, although cheese is produced in Manitoba and Alberta?
- (g) What is the outlook for change resulting from imminent increases in electrification of farms and improvements in highways?
- (h) What are the changes in markets that may result from continued population shifts to the West Coast, farm-to-town migration within the state, long periods of full employment, and continued nutritional education? How would the adoption of fortification of bread with dried milk solids as a standard operating procedure affect North Dakota dairy industries?

JUSTIFICATION: Dairy products have provided from more than one-third to less than one-fifteenth of North Dakota cash farm income. At times the weekly cream check is the only source of current income. The expansion of markets for local dairy products may aid farmers to maintain incomes above critical survival levels. Preparedness and mobilization require the most efficient use of all resources. Prospects for improving the efficiency of dairy marketing appear to be real and are probably greater than in the marketing of other local farm products. See, for instance, the article of C. Jensen and others in the Bimonthly Bulletin in 1948.

A larger proportion of North Dakota's milk production goes into butter manufacturing than in any other state. Because of small dairy herds, infrequent marketing of butterfat, long and tedious transportation of creams. North Dakota's butter is not generally of high quality at the retail market. At some time during the year, a considerable amount of fluid milk is shipped into North Dakota from outside the state, suggesting that North Dakota might find it profitable to develop a self-supporting fluid milk supply.

- PROCEDURE:
- (1) Consumption facts. Consumption patterns will be measured in five types of situations:
 - (a) a large town; (b) a village; (c) farm families without milk cows; (d) families on commercial dairy farms; (e) families on farms for which dairying is a very minor enterprise.

Monthly patterns of consumption of all dairy products should be obtained for each situation.

The cooperation of all dairies selling in the town is required for (a).

1948 records for Williston families may be obtained from the BHFRN .

Cooperation of Home Economics extension personnel and the FHA may provide (c), (d), and (e).

Demand studies in other parts of the U. S. can be compared with these results. The work of Bartlett is particularly applicable to the objectives of this work.

- (2) Production facts. The farm record analysis project and the NDAC Dairy Department will provide data on the farm production problems. Roy Gilcreast's work may indicate the impact of electrification.

Variability in farm production will be estimated for its effect on processing plants, regarding volume handled, pattern of utilization, and pricing practices.

- (3) Marketing facts. North Dakota volume and costs data will be applied to physical relationships for creamery plants established by research elsewhere. J. Podany's data for Minot creameries can be used for this purpose.

Market areas and practices will be ascertained so far as industry cooperation permits. Census data and other studies will be drawn upon for inference as to possible developments in the future.

Opinions of all sectors of the industry will be solicited on the feasibility of various possible changes in marketing procedures.

- (4) Analysis. Efforts will be made to provide informed judgements on the nine questions listed under "objectives". Further research will be proposed in the more promising areas.

PERSONNEL: Fourt, Leader; Podany.

COOPERATION: Dairy Department, NDAC

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

R & M No. 16

TITLE: Price supports and marketing agreements as they affect potato marketing in North Dakota and the Red River Valley.

OBJECTIVES:

- (1) To evaluate the effect of price support programs on potato marketing practices and income from potatoes.
- (2) To evaluate the effect of marketing agreements on potato marketing practices and income from potatoes.
- (3) To suggest such improvements in public policy with regard to the marketing of potatoes as will be indicated by the findings of the study.

JUSTIFICATION: Potatoes have experienced a declining per capita consumption in the United States. The total acreage of potatoes has declined also, but increased yields in recent years have resulted in increased total production. The decline in demand has created a problem in long-time adjustment. We need a reduction in acreage or a larger rate of consumption or both.

Potatoes are also a product with an inelastic demand and a highly variable year to year production. As a consequence, under a free market, producers face wide year to year fluctuations in income. Potatoes are not storable from year to year. Consequently, there is a problem of the desirability of income stabilization, and if desirable, the methods of effectuating this stabilization. This might involve price support measures, marketing agreements of various kinds, and the development now on expanded outlets for chips, frozen shoestrings and other potato products and of surplus utilization.

Potato price support and control policies and programs designed to maintain farm prices at or near parity have drawn severe public criticism because of large government losses incurred, the uneconomic diversion of large quantities of potatoes, the maintenance of relatively high prices to consumers while large quantities are being destroyed, and for assumed uneconomic use of resources in producing surplus potatoes. The validity of these criticisms cannot be appraised with the available information and economic analysis.

PROCEDURE:

- (1) As a means of implementing the evaluation of the effects of price support programs and marketing agreements on the potato industry of the Red River Valley, data will be assembled on potato production, yields, acreage, number and size of farms producing potatoes,

Red River Valley shipping point prices and volumes, utilization and geographic distribution of Red River potatoes, government purchases and loans of Red River Valley potatoes and disposition of these purchases, and other pertinent information needed for such evaluation. Similar data will also be assembled for analogous commodities, such as onions, produced for the free market. It is anticipated that much of this data will be available from the records of the Federal Agricultural Statisticians and from the Production and Marketing Administration state and county offices.

- (2) This data will be analyzed to show comparisons of the incomes, production response at various price levels, fluctuations of potato prices before and under price support and marketing agreements, and such other analyses as seem necessary to evaluate the effect of price-support programs and marketing agreements on the potato industry of the Red River Valley.
- (3) As a means of expediting the work of this project and to avoid duplication of effort, the work of this project will be coordinated with that of the other Agricultural Experiment Stations.

PERSONNEL: Hemphill, Leader; Schickele

COOPERATION: Regional Technical Committee NCM-8, Regional R & MA Project, North Central States.

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

NCM-6 (Regional R & MA Projects)

TITLE: The Development, and Analysis of Improved Techniques for Marketing Poultry Products.

OBJECTIVE: To determine the characteristics of, services performed by, and practices followed by, marketing agencies (local, wholesale, retail, etc.) handling poultry products and the effect of these practices and methods upon quality, losses, costs, prices, and other factors. (This phase will involve studies of marketing agencies and services they perform.)

JUSTIFICATION: The production of poultry products in a secondary source of income on many farms in North Dakota. Poor market quality, improper handling methods, and high marketing costs result in relatively low returns to producers. Little basic information is available regarding the present channels, costs and margins, and methods of marketing North Dakota poultry products. Such information is essential to the analysis and proper development of new, improved, and possibly better marketing methods, techniques and practices.

PREVIOUS WORK: There has been some work done on egg marketing and the data included in the following Regional Bulletins:

1. Changes in Egg Quality During Marketing.
North Central Regional publication 15.
Michigan State College. August, 1949.
2. Operation of Country Buying Stations in Relation to Egg Quality. Production and Marketing Administration, USDA and Agricultural Experiment Stations in the North Central States and Kentucky, May, 1950.
3. Operation of Central Assembly Plants in Relation to Egg Quality. Production and Marketing Administration and Agricultural Experiment Stations in the North Central States and Kentucky. May, 1950.

PROCEDURE: In general, the survey method will be used to assemble data from secondary and original sources. Many agencies (i.e., State Departments of Markets, Crop Reporting Services, Federal agencies, and Trade Associations) have accumulated data over the years on the poultry industry in individual states. Through the use of unified questions and analysis, data will be tabulated and analyzed on the following:

- (1) Annual and seasonal variation in prices, production, and consumption in various areas including problems in deficit and surplus production areas.

- (2) Market channels and movement of product.
- (3) Grading and other market practices followed.
- (4) Prices received, services performed, and margins charged.
- (5) Changes and trends in the poultry industry.

No special sampling procedure will be involved in the collection of secondary data. Where original data are desired random sampling techniques will be employed. All data will be analyzed by accepted statistical techniques.

PERSONNEL: L. W. Schaffner and R. L. Bryant

COOPERATION: Poultry Department, NDAC; USDA, BAE, FCA, PMA. Regional Technical Committee, North Central States.

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

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TITLE: Analyses of Family and Community Adjustments in North Dakota Irrigation Areas.

OBJECTIVES: The study will be directed toward the following objectives: To determine the:

- (1) Effect of shifts from dryland farming to irrigation on community life; The development of irrigation in North Dakota will have a variety of effects upon institutional and associational patterns in the affected communities. In an area of relatively sparse and generally declining farm population, irrigation will reverse this trend and call for more and diversified community facilities to assure rural well-being, Non-farm population as well as farm population will be affected.
- (2) The process of farm family adjustment: Information is needed on household composition, levels of living, social participation, and other data concerning the background and adjustment experiences of present irrigation farmers, in order to evaluate the social implications of the shift from dryland farming to irrigation as it will evolve in North Dakota. The most salient factors impeding or facilitating adjustment will be analyzed. This project proposes to supplement farm management and other economic data by such relevant material on farm family and rural community adaptation to the new conditions of production and life.
- (3) The problems of housing, domestic water supply, sanitation, mosquito control, farmstead drainage, and similar elements of farm living and community organization. These problems have too often been neglected in the past and allowed to remain unsolved for long periods, resulting in hardship and unnecessary individual and social costs.

REASON FOR STUDY: The Missouri Basin Development will have far-reaching impacts upon community life and upon family living. New irrigation communities need to be able to draw upon the experience of established irrigation areas. Other things being equal, irrigation project designed for social and community efficiency will yield more

benefit per dollar and will be more stable and successful. Foresight and orderly development of the enlarged and diversified community facilities required to meet the needs of the added agricultural production and rural population will pay high dividends.

Much valuable insight can be gained from the experience of established irrigation areas. There are many lessons to be learned from the trials and errors of the past. Systematically organized and carefully evaluated, data on the experience of well-selected areas are bound to offer much needed guidance in meeting similar problem situations in new irrigation projects. Thus, the need for concurrent sociological investigations is recognized as an important phase of Basin development and research.

- PROCEDURE:^{1/}
- (1) Organization records will be utilized, fluid surveys, judgements of local respondents, and secondary data (district records, Census, Dun-Bradstreet, etc.) will be analyzed for community patterns. Assessors' records, Census, district records and observations from local respondents will be utilized for determining the time sequence of in-and-out migration of families, the locality from which families came, the age distribution of operators, the composition of households, the net change in number of farms since establishment of the project.
 - (2) Additional information will be secured to supplement the data from the agricultural economics studies by Farm Management and Land Economics BAE, and North Dakota Agricultural College on household composition, farming history, levels of living and social participation, educational and advisory facilities available to new operators to become skilled in irrigation practices. Project records and local respondents will be the main source of information.
 - (3) Information about make-shift adjustments and compensations for, or family adjustments to, shortcomings of community facilities concerning housing, sanitation, school and recreational needs, will be gathered from local respondents and secondary sources. Comprehensive records of all families are on file and available at least for the Buford-Trenton project.

PERSONNEL: Rainer Schickele, A. F. Anderson (BAE)

COOPERATION: Bureau of Agricultural Economics, USDA, (Memorandum of Understanding)

^{1/} Numbers below correspond to numbered items under "OBJECTIVES"

1948-50 PUBLICATIONS OF THE AGRICULTURAL ECONOMICS DEPARTMENT
North Dakota Agricultural College
Fargo, North Dakota

Bulletins

- No. (published)
- 351 - Rural Communities and Organizations (1948), by Anderson & Vergeront
 - 352 - Barley Marketing in North Dakota (1948), by L.W. Schaffner
 - 353 - Land Values and the Land Market in North Dakota (1949), by Schickele & Engellking
 - 354 - Marketing Feeder Cattle in North Dakota (1949), by B.H. Kristjanson
 - 357 - Handbook of Facts about North Dakota Agriculture (1950), by Kristjanson & Heltemes
 - 360 - What About Our Large Farms in North Dakota? (1950) by B.H. Kristjanson
 - 362 - Stabilizing Farm Income Against Crop Yield Fluctuations (1950) by P. Thair
 - 363 - Sugar beet Production in the Red River Valley (1950) by R. Gilcreast

(in preparation)

Farm Organization and Capital Structure of Dry-land Farms in Northwestern North Dakota, by L. W. Schaffner
Problems in Grain Marketing and Storage Practices, by P.V. Hemphill
Mobility and Living Standards of Farm Families, by A.H. Anderson
Rental Rates and Division of Costs and Returns between Landlord and Tenant, by B. H. Kristjanson

Articles

- North Dakota Farm Prices, by P.V. Hemphill, in every Bimon. Bul.
Marketing Table-stock Potatoes, by L.W. Schaffner, Bimon. Bul. Jan.-Feb. 1948
National Income and Demand for Dairy Products, by R. Schickele, Bimon. Bul. Jan.-Feb. 1948
Role of the Family Farm in Modern Society, by R. Schickele, Bimon. Bul. July-Aug. 1948
What Is Happening to Marketing Margins, by R. Schickele, Bimon. Bul. Sept.-Oct. 1948
Mechanization of Sugar Beet Production, by R. Gilcreast, Bimon. Bul. Nov.-Dec. 1948
The International Wheat Agreement, by B.H. Kristjanson, Bimon. Bul. Mar.-April 1949
~~Flax~~seed Outlook for 1949, by L.W. Schaffner, Bimon. Bul. Mar.-April 1949
North Dakota Farm Size Trends, by Kristjanson & Schaffner, Jour. Farm Econ. Feb. 1949
Comments on a Grass Roots Program, by R. Schickele, Farm Policy Forum, April 1949
Variability of North Dakota Farm Income, by R. Schickele, Bimon. Bul. July-Aug. 1949
Livestock as an Income Stabilizer, by R. Schickele, Bimon. Bul. July-Aug. 1950
Farm Business Survival Under Extreme Weather Risks, by R. Schickele, Jour. Farm Econ. Nov. 1949
Protect Farm Debtors Against Unnecessary Foreclosures, by R. Schickele, Farm Policy Forum, Aug. 1950
Farmers' Adaptations to Income Uncertainty, by R. Schickele, Jour. Farm Econ. Aug. 1950
Institutional Methods of Meeting Weather Uncertainty, by Barber and Thair, Journal of Farm Economics August 1950
Objectives of Land Policy, by R. Schickele Ch. 2 in Land Problems and Policies, edit. by Timons and Murray, Iowa State College Press, 1950