THE COMMUNICATION PROCESS AND THE ADOPTION OF NEW FARMING PRACTICES: A STUDY OF THE ATTITUDES OF FARM OPERATORS IN SOUTHERN MANITOBA TOWARDS IRRIGATION

A Thesis

Presented to

the Faculty of Graduate Studies and Research

The University of Manitoba

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

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by

Alexander Segall

April, 1967

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The general purpose of this research project was to attempt to evaluate the attitudes of farm operators in the Pembina River Basin of Southern Manitoba, towards the adoption of innovations in farming technique. Through an understanding of the influence exerted by certain sociological and social psychological factors on the adoption of new farming practices in general, it was hoped that a reasonably high degree of reliability could be achieved in predicting the predisposition of farm operators in this area to adopt selected agricultural innovations, such as irrigation. An exploratory attempt was made to investigate the effect of various factors, such as; the differential utilization of the existing channels of communication, and the role played by informal opinion leaders and primary reference groups upon the farm operators' adoption behavior.

By means of an interview schedule information was obtained in regard to: (a) Innovation Proneness; (b) Recommended Farm Practices Adopted; (c) Exposure to Mass Media; and (d) Primary Group Preference for 85 Mennonite farm operators in the Southern Manitoba farming community. Additional information was also obtained in regard to a number of selected social factors including age, education and socio-economic status. By means of contingency tables the four major variables were interrelated and a Chi Square analysis was applied to determine the existence of a relationship. A Chi Square analysis was also applied to test the relation-

ship of all three social factors to each of the major variables. The five per cent level of confidence was selected as the minimum for the determination of significance in all cases.

The only significant relationships revealed by the statistical analysis were: (1) the relationship between age and Primary Group Preference; and (2) the relationship between Exposure to Mass Media and Innovation Proneness. The results indicate that the older farm operators feel very strongly bound to the Mennonite farming community. The data also indicate that there is a significant relationship between the number of farm magazines read, the number of farm broadcasts viewed, and the farm operators' willingness to adopt new farming practices.

The study failed to disclose a significant relationship between the strength of primary reference group ties and the willingness of the farm operators to adopt new farming practices. The fact that the farm operator's primary group memberships failed to influence his willingness to adopt agricultural innovations, appears to reflect the changes which have occurred in the normative structure of the Mennonite community. There has been a general decline, over the years, in the application of restrictive social and cultural sanctions to the adoption of new farming practices, and the attitude of the Southern Manitoba Mennonite farm operators toward the adoption of agricultural innovations may be described, at present, as

moderately favorable. In conclusion, all of the available evidence indicates that the farm operators in the Pembina River Basin of Southern Manitoba are not opposed to the adoption of new farming practices, and would be willing to adopt future agricultural innovations, such as irrigation, if properly promoted.

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CHAPTER I

INTRODUCTION

The general purpose of this research project was to attempt to evaluate the attitudes of farm operators in the Pembina River Basin of Southern Manitoba, towards the adoption of innovations in farming technique. Through an understanding of the influence exerted by certain sociological and social psychological factors on the adoption of new farming practices in general, it was hoped that a reasonably high degree of reliability could be achieved in predicting the predisposition of farm operators in this area to adopt selected agricultural innovations, such as irrigation. The research project, entitled "A Study of Farmers' Attitudes Towards Irrigation" embodied two distinct, although closely interrelated approaches.[1] One section of the study[2] was concerned with an exploratory attempt to determine the relationship of certain value orientations (i.e. economic rationality, tradition, achievement, and familism) to the differential adoption of selected innovations in farm

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[1] All phases of the research project were conducted in close collaboration with Acton Camejo, Department of Anthropology and Sociology, University of Manitoba.

[2] See - Acton Camejo - "Value Orientations and the Adoption of New Farming Practices: A Study of the Attitudes of Farm Operators in Southern Manitoba Towards Irrigation", Unpublished Master's thesis, University of Manitoba, 1967.

practices, that were recommended in the past by the Agricultural Representative of the area. This section of the study is concerned primarily with an analysis of two interrelated aspects of the communication process within the project area; (1) the diffusion of information at the present time, pertaining to agricultural innovations, and (2) past patterns of communication behavior in regard to the adoption of specific recommended farm practices. An exploratory attempt was made to investigate the effect of various factors, such as; the differential utilization of the existing channels of communication, and the role played by informal opinion leaders and primary reference groups upon the farm operators' adoption behavior. The combined studies described above, formed but one portion of a much larger research undertaking entitled "An Interdisciplinary Study of Water Resources and Water Utilization in Western Canada", being conducted at the University of Manitoba, under the auspices of the Department of Energy, Mines and Natural Resources, Government of Canada.

It is important to note here, that the study did not consider type of irrigation, which was seen essentially as a technical question beyond the scope of this present study. Irrigation was viewed rather, as an innovation in farm practice, within the broader context of technological change. Hence, an understanding of the social factors which influenced past adoption behavior in regard to selected agricultural innovations was sought, in order to arrive at an assessment

of the likelihood of the adoption of a new farming practice, such as irrigation. Through this perspective it was hoped that the study would contribute to an understanding of the social factors which must be considered, if future agricultural innovations are to be successfully implemented in the study area, as well as in other farming areas in general.

CHAPTER II

RESEARCH PROBLEM

(1) Prairie Irrigation

A. Alberta and Saskatchewan -

A review of the literature pertaining to irrigation projects in Western Canada revealed regional differences in the farmers' attitudes and willingness to accept a system of irrigation farming. The experience of prolonged drought during the 1930's demonstrated forcefully the effect of a shortage of water on crop yields and income. Irrigation, thus, became recognized as a national problem. Consequently, the Prairie Farm Rehabilitation Act was introduced in 1935, by the Federal Government, to cope with drought problems on the prairies. One of the first major irrigation projects undertaken by the P.F.R.A. was the St. Mary River Dam project, south west of Lethbridge in Southern Alberta. It is important to note that receipt of strong petitions by the Federal Government from farmers in the area was instrumental in activating the investigations by the P.F.R.A., which led to the eventual implementation of the St. Mary Irrigation Project. To date, all principal water storage and supply works outlined in the plans of the project have been constructed. In spite of many setbacks suffered by the St. Mary Irrigation Project during its development, irrigation has been of unquestionable value in terms of the security it has provided

farmers in the area, and benefits which have accrued in equal measure not only to the land directly affected, but also to surrounding communities, the province, and the nation as a whole. "For this success, credit must go to the early Mormon settlers. Their zeal and enterprise, as well as their knowledge and experience in irrigation brought from Utah, set the stage for rapid progress in irrigation development within the area."[3]

In the 1940's, the P.F.R.A. began investigating the possible development of the South Saskatchewan River Dam, near Outlook in central Saskatchewan. It was assumed that the development of an irrigation project in this area would contribute significantly to the stabilization of agriculture. Despite some expressed opposition to the project, an agreement was signed between the federal and provincial governments, and in 1959, construction of the South Saskatchewan River Dam was officially started. Resistance came from a number of diehard dryland farmers in the area, who petitioned the government to be left out of the irrigation project. Farmers opposing irrigation stated that they would need subsidies to change their present farming practices. Thus, the successful implementation of the South Saskatchewan River project has been hindered by the negative attitudes of these

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[3] "St. Mary Irrigation Project - P.F.R.A." - pamphlet prepared by the Canada Department of Agriculture, 1963.

farmers towards the proposed irrigation system in the area. On the other hand, it was demonstrated that the St. Mary River Dam project proved successful in terms of irrigation, due mainly to the favorable attitudes and cooperation of the farmers involved. It is evident, therefore, that the attitudes of farmers played a significant role in determining the ultimate success of proposed irrigation schemes in the provinces of Alberta and Saskatchewan.

B. Manitoba -

(i) Background of Proposed Irrigation Project

At present, no irrigation project, as such, exists in Manitoba, although the need for irrigation in the Pembina River Basin was stressed by both the Arthur D. Little Incorporated Report, submitted to the Manitoba government in 1959, and the report submitted to the International Joint Commission by the International Pembina River Engineering Board in 1964. In 1957, the Manitoba government requested Arthur D. Little Inc., economic consultants, to investigate the technical and economic feasibility of providing a water supply system for the Lower Red River Valley of Manitoba. A survey team of Arthur D. Little Inc., accompanied by a member of the Department of Industry and Commerce visited the region in May 1957. Discussions with industrial, agricultural, and community leaders in the district were followed by consultations with officials of the Federal and Provincial governments. A careful examination was made of the official

reports on the region and its resources. The survey team arrived at the conclusion that agricultural and industrial development of the region was being retarded by the absence of adequate supplies of water for irrigational, industrial and domestic use. It was stressed that the soils of the western portion of the region would reach their maximum level of productivity only if they were provided with a substantially increased supply of irrigation water.

The consultants saw immense economic possibilities in this area. A wide range of manufacturing possibilities were envisaged when the economic potential of the area was explored, but these depended on adequate supplies of water. Further agricultural advance, on which the economy of the area depended, was dependent upon the growth of industries for the processing of agricultural products and the provision of irrigation water, particularly in the western portion of the valley. The analysis of economic development prospects of the region led to the conclusion that there was a need for both potable and irrigation water, and that comparatively limited benefits would follow from the provision of water for only one of these purposes. It was suggested in the report, that the provision of potable water might be followed by the establishment of a certain number of additional plants for the processing of agricultural products, but that the full agricultural potential of the area would be achieved only if additional irrigation water were also made available.

When the present water situation in Manitoba was reviewed by a Work Group for the Committee on Manitoba's Economic Future (June 1962), three specific areas were designated where immediate improvement was needed. The first area is South Central Manitoba (Winkler, Altona), where the water supply is not adequate. The natural water supply for South Central Manitoba, originating primarily from small creeks coming out of the escarpment, plus local wells, is gradually becoming insufficient for the expanding economy of the area, and during dry summers, water has to be hauled by truck. Such circumstances put a ceiling on the economic growth of the area. Based on their study of water resources in Manitoba, the Work Group proposed the following irrigation project for this area:

> Winkler-Morden Irrigation Scheme: Pembina River Watershed Development
>
> Irrigation layout for 20,000 acres (1970)
>
> Budget - $1,400,000[4]

In August 1962, the International Joint Commission instructed the International Pembina River Engineering Board which it established on April 3, 1962, to carry out, through appropriate agencies in Canada and the U. S. A., the technical investigations and studies necessary to enable the

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[4]Report by Work Group on - Water Resources - for Committee on Manitoba's Economic Future, June 1962, p. 101.

Commission to prepare and submit a report and recommendations to the Governments of Canada and the U. S. A., on the development of water resources of the Pembina River Basin. The International Joint Commission was requested to determine what plan or plans of cooperative development of the water resources of the Pembina River Basin would be practicable, economically feasible, and to the mutual advantage of the two countries, having in mind: (a) domestic water supply and sanitation; (b) control of floods; (c) irrigation; (d) any other beneficial use. It was pointed out in the commission's report that the economy of the general area of the two countries was almost entirely dependent upon agriculture, and the success of agriculture was directly related to timely occurrence of, and amount of rainfall during the growing season. Annual precipitation averages 18 inches but growing season rainfall was scarcely more than 13 inches. Therefore it seemed evident that with a requirement of 20 inches for full producing, if ideally distributed, irrigation would be beneficial every season.

The farming risks associated with marginal and variable rainfall have strongly influenced crop selection and farm practices. Irrigation, according to the report submitted to the International Joint Commission, would increase crop yields in virtually all years, thus eliminating wide variations of crop yields and encourage more efficient and more profitable farm production. The irrigated acreage would be

sufficiently large to create opportunity for expansion of associated agricultural processing enterprises, and the irrigation benefits would inevitably spread to improve and stabilize the economy of wide surrounding areas. Irrigation was seen as a major component in the multiple purpose development of the Pembina River Basin which would contribute to the future economic growth of the area. Thus it has been established from the three reports discussed, that irrigation in this area is a necessary condition for increased agricultural output and consequent industrial growth.

(ii) General Description of the Area

The area with which this study was concerned lies in the south central portion of the Province of Manitoba, and is known as the Pembina River Basin. The irrigation scheme proposed for this area is generally referred to as the Morden-Winkler Irrigation Project. The tract of land concerned is located east of the Pembina Escarpment, bordered on the south by the International Boundary and by a line between Morden and Winkler on the north.[5] All of the area lies within fifteen miles of the proposed Pembilier Reservoir on the Pembina River. The gross area is about 38,000 acres, of which about 26,000 acres are arable. The entire irrigable area, as designated by the International Joint Commission

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[5]See Appendix A - Map 1.