

THE UNIVERSITY OF MANITOBA

THE EFFECTS OF CHANGING PRICES AND COSTS ON THE LEVEL  
AND DISTRIBUTION OF AGRICULTURAL PRODUCTION IN  
MANITOBA: A LINEAR PROGRAMMING ANALYSIS

by

LAURENCE BRUCE BELL BAKER

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A dissertation submitted to the Faculty of Graduate Studies of  
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ABSTRACT

THE EFFECTS OF CHANGING PRICES AND COSTS ON THE LEVEL  
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LAURENCE BRUCE BELL BAKER

MAJOR ADVISOR(S): Dr. C. F. Framingham  
Dr. James A. MacMillan

The migration which for many years has been under way from rural to urban communities, has necessitated change in both the number and size of those farms remaining in operation. As farm units increase in size they become more capable of supporting those farmers, and their families, who operate them; even in years of low commodity prices. Those farmers in the smaller size categories however have become a concern of governments. Thus programs such as the Farm Diversification Program (Provincial) and the Small Farm Development Program (Federal) were set up to aid those smaller farm units, especially in the lean years.

This thesis was therefore initiated with three general objectives which are to investigate per farm income, employment and capitalization levels, by region in Manitoba under a) 1971 commodity and factor prices, b) 1974 commodity

and factor prices, and c) to examine the feasibility and effectiveness of farm income stabilization programs, such as the two mentioned above.

The analytical technique chosen for the study is linear programming, with the model being specified by a) region (14), b) farm size (3), c) soil type (3), and d) commodity (41). Transportation activities are specified to move feed grains and intermediate livestock products (such as weaned calves and stocker cattle) into regions which have a deficit.

The general findings of the study are as follows:

1. In years of low grain prices (such as 1971) farms in each size class require supplementation of income by some other means than just farming.

2. In years such as 1974 with high grain prices, both large (greater than 760 acres) and medium sized farms (240 - 759 acres) provide adequate income and employment levels without supplementation.

3. Stabilization programs such as the Farm Diversification Program will have their greatest impact in years with low grain prices (for example 1971).

An interesting result given by the model is that it is possible in a year such as 1971 to raise income levels on the medium sized farms from negative levels to zero by an increase of beef production. There would appear to be feed grain and pasture capacity within the province to allow a large increase in the provincial beef herd. However,

it would seem unreasonable to expect that increases in the provincial beef herd could reach the levels suggested in the results within a short (for example five years) time span, due to constraints on capital and management capabilities.

Manitoba agriculture suffers from a "wheat psychosis" in that in years such as 1971 when grain prices are low, there is a strong move into livestock production. Then when grain prices reach new highs as in 1974, livestock production is forsaken for wheat (and other grain) production. The results given in this thesis indicate that well managed mixed farming should be considered as a viable alternative to the traditional single enterprise crop or livestock farms.

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