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APPLICATIONS OF LINEAR PROGRAMMING TO CORPORATE  
FARM PLANNING IN DEVELOPING COUNTRIES:  
A CASE STUDY FOR NAFCO FARMS IN TANZANIA

A thesis  
presented in partial fulfilment  
of the requirement for the degree  
of  
Master of Agricultural Business and Administration  
at  
Massey University  
by  
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1980

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ACKNOWLEDGEMENTS

This study was carried out under the supervision of Dr A.D. Meister, Senior Lecturer, Dept. of Agricultural Economics and Farm Management, Massey University.

I wish to record my sincere appreciation of the dedicated guidance given by Dr Meister throughout the study and the patience shown, especially when reading the scripts.

I also wish to thank Professor R.J. Townsley, Dept. of Agricultural Economics and Farm Management, Massey University, for the invaluable advice offered from the initial stages of planning the course of my study, right through the stage of building the computer model and for generously giving his time to read over my script.

I am also very much indebted to Bruce Wilson, Reader, Faculty of Business Studies, Massey University, for his comments on the financial aspects of the model; to Professor Wilfred Candler of the World Bank, N.Y. for his comments on the computer model during its initial stage of development.

I am grateful to many staff members of NAFCO who readily sent me some of the basic data through the mail.

My thanks are also due to the Massey University Computer Centre staff for their co-operation during the computer analysis.

I wish to thank Mrs Veronica Lobb for her superb job of typing the thesis.

Finally, I would like to extend my sincere thanks to the New Zealand Government for sponsoring my study in New Zealand under the Bilateral Aid Programme. Thanks are also due to the Tanzanian Government for offering me the opportunity to undertake the study.

Any errors found in this thesis are entirely mine.

The economic development of most of the developing countries depends, almost entirely, on the agricultural industry. Measures to speed-up the development of the agricultural sector to increase productivity in such countries are therefore imperative.

In Tanzania, one of the actions the government has taken to achieve this is the establishment of agricultural Corporations which operate large scale mechanized farms. To achieve maximum productivity from scarce resources, such Corporations must be operated efficiently and this can only be achieved with appropriate planning of the corporate farms.

This study has dealt with one such Corporation in Tanzania called National Agricultural and Food Corporation (NAFCO). The objective of the study has been to illustrate how such a Corporation can be operated efficiently so that maximum food production can be achieved from scarce resources. Linear programming has been evaluated as a planning tool for a single representative farm of NAFCO. The aim was to develop a suitable LP model for the farm, use this model to determine the optimal farm plans and associated information and evaluate whether the technique would form a suitable planning tool for NAFCO farms.

The linear programming model developed demonstrated that the profits of the farm under study could be increased substantially by allocating the farm scarce resources more optimally. Repeating the optimisations of the model by changing the various assumptions proved to be quite useful in providing additional information on which to base management decisions. These results provided a better understanding of the effects and implications on what would happen if the anticipated yields, prices and certain policy decisions were changed. These are discussed in detail.

The optimum plan computed should with minor changes be both acceptable and realizable. It is argued that, because under corporate farm structure, specific data relevant to individual farms is more readily available than under peasant farm

situations and that because of the large scale nature of the corporate farms, the availability of wide choice of activities and resources as well as the necessary skills and defined objectives; linear programming would form a suitable planning tool for NAFCO farms.