

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

A FARM MANAGEMENT STUDY OF FOUR
FARMS SUPPLYING TOWN MILK IN THE
PALMERSTON NORTH MILK DISTRICT

A THESIS
SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
MASTER OF AGRICULTURAL SCIENCE
IN THE
UNIVERSITY OF NEW ZEALAND

J.M. Mayfield,
Massey Agricultural College
February 1957

TABLE OF CONTENTS

Chapter	Page
INTRODUCTION	viii
I NATIONAL ORGANIZATION OF THE TOWN MILK SUPPLY	1
Milk Act, 1944	3
Local Milk Authorities	3
The Producer Associations	4
Central Milk Council and Milk Marketing Division of the Marketing Department	5
Milk Amendment Act, 1951	6
Milk Amendment Act, 1953	8
The National Milk Price	10
Quality Control	13
Methods Used to Increase Quality	16
Tuberculosis Testing in Town Milk Supply Herds	18
Summary	21
II CONDITIONS COMMON TO TOWN MILK PRODUCERS IN THE PALMERSTON NORTH MILK DISTRICT	23
Soils in the Manawatu	25
Climate of the Manawatu	28
Rainfall Distribution	30
Temperature	33
Other Climatic Factors	36
Common Economic Factors	37

Chapter	Page
III GENERAL REFERENCE TO METHODS OF RESOURCE USE AND FACTORS	
INFLUENCING THEIR USE	43
Available Resources	43
Capital	43
Land	44
Labour	44
Reasons Behind Resource Use	44
IV TYPES OF PRODUCTION PLANS USED IN TOWN MILK PRODUCTION IN	
THE PALMERSTON NORTH MILK DISTRICT	48
Consideration of a Case Farm In Category I	49
Yearly Distribution of Production and Monetary Return	50
Resources Available and Their Use	54
Factors Influencing Resource Use	58
Features of Farm Management	59
Summary	61
Consideration of a Case Farm In Category IIa	62
Yearly Distribution of Production and Monetary Return	63
Resources Available and Their Use	66
Factors Influencing Resource Use	70
Summary	73
Consideration of a Case Farm In Category IIb	73
Production and Return Distribution	75
Resources Available and Their Use	76

Chapter	Page
Factors Influencing Resource Use	79
Summary	80
Consideration of a Case Farm In Category III	81
Production and Return Distribution	81
Resources Available and Their Use	84
Factors Influencing Resource Use	89
Summary	91
Summary	91
V COMMENTS ON SOME INTERESTING PRACTICES USED IN TOWN MILK PRODUCTION IN THE MANAWATU AREA	94
Replacement Policies of Town Producers	94
The Use of Concentrate Feeding	97
The Use of Irrigation	102
The Use of Nitrogenous Fertiliser	106
The Use of Short-rotation Ryegrass	108
The Practice of Oversowing	111
Grazing Management of Short-rotation Ryegrass Pastures	114
BIBLIOGRAPHY	122
APPENDICES	126

LIST OF TABLES

Table	Page
I Population Figures and Town Milk Sales Through the National Milk Scheme for 1951 and 1955	2
II Monthly Mean Air Temperature and Minimum Grass Temperature	32
III Soil Temperatures 2 p.m. 28/1/54	34
IV The Percentage of the Total Milk Produced in Each Month of 1954 and 1955 in the Manawatu Producer's Association	39
V Actual Production and Return Distribution Compared to the Theoretical for 1953 to 1956	50
VI Production and Return Distribution Compared to the Theoretical for the Period December to March	51
VII Percentage of Production and Monetary Return for the Three Yearly Price Periods	52
VIII Average Herd Production, 1951 through 1955	55
IX Actual Production and Return Distribution Compared to Theoretical for 1953 - 1956	63
X Percentage of Production and Monetary Returns for the Three Yearly Price Periods	64
XI Comparison of Temperatures for Period May to August 1954 With Average Temperatures for Same Period	71
XII Actual Production and Return Distribution Compared to Theoretical for 1953 - 1956	75
XIII Average Herd Production for 1952/53 to 1955/56	77
XIV Actual Production and Return Distribution Compared to Theoretical for 1953 - 1956	81
XV Percentage of Production and Monetary Return for the Three Yearly Price Periods	82
XVI Average Herd Production 1952/53 - 1955/56	85

Table	Page
XVII Seasonal Production of Ryegrass Strains	109
XVIII Cow Grazing Days Per Acre During the Winter and Early Spring for Paddock 5	113
XIX Total Dry Matter Yields	117

LIST OF FIGURES

Figure		Page
1	Monthly Mean Rainfall	29
2	Mean Hours of Sunshine Per Month	35
3	Case Farm Category I, Average Monthly Per Day Production and Return	53
4	Case Farm Category I, Number of Cows in Production	57
5	Case Farm Category IIa, Average Monthly Per Day Production and Return	65
6	Case Farm Category IIa, Number of Cows in Production	69
7	Case Farm Category IIb, Average Monthly Per Day Production and Return	74
8	Case Farm Category IIb, Number of Cows in Production	78
9	Case Farm Category III, Average Monthly Per Day Production and Return	83
10	Case Farm Category III, Number of Cows in Production	88
11	Fitted logistic curves for total herbage and ryegrass yields (lb. D.M./ac.) for the four dates of spelling	115

ACKNOWLEDGEMENTS

The author wishes to express his sincere appreciation to his supervisor, Mr. J.N. Hodgson, for his continued guidance and encouragement. To other members of the Dairy Husbandry Department for their advice and assistance, and to the librarian and staff for their aid.

Thanks is also due to those farmers who freely provided the author with information concerning their farms, to the Manawatu Milk Producers Company for the records and information regarding their association and members, to the staff of the New Zealand Milk Board, Palmerston North, for their assistance.

Special thanks is also due to the authors wife, whose work, understanding, and perserverance has made this thesis possible.

This study was carried out under the tenure of a Fulbright Educational grant provided by the United States Educational Foundation.