A STUDY OF WINTER MILK PRODUCTION AND A COMPARISON OF TOWN MILK AND SEASONAL SUPPLY DAIRY FARMS IN THE MANAWATU

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ABSTRACT

The literature review commences with a brief description of the past and present town milk industry and reviews the consequences of recent legislative changes which have already wrought substantial change to the town milk industry.

This is followed by a review of factors affecting milk production per cow (feed intake, level of supplementation, cow quality, breed, stage of lactation, calving date) and factors affecting milk production per hectare (stocking rate) on pastoral dairy farms. The likely effects of these factors on the productivity of town milk and seasonal supply farms is also discussed.

There were two major objectives to the present study. The first was to measure the productivity of town milk farms over the winter period. The second was to compare the overall annual productivity of town milk farms with that of seasonal supply farms in the same district. To achieve these objectives, a survey of 58 Manawatu dairy farms (both town milk and seasonal supply) was carried out during the 1988 winter.

Average daily milk production per cow on town milk farms during winter was 12.6 litres/cow/day and ranged from 8 to 19 litres/cow/day. Mean pasture cover and mean cow condition score decreased slightly over the winter period. Average daily production per cow of milkfat, protein and total solids fluctuated during winter, but showed a universal downward trend. The percentage of fat, protein and total solids in milk all decreased over the winter period. Average daily milk production per cow in winter was positively correlated with a number of other variables measured including cow condition score and pasture cover in May, annual milkfat production per cow and per hectare, and digestibility of supplement eaten.

Daily production per cow was negatively correlated with milkfat % and somatic cell count. Farmers who practiced an "all autumn" calving policy to provide winter lactating cows had significantly higher winter milk production than those farmers who continued to milk late spring / summer calved cows through the winter.

On an annual basis, town milk farms produced considerably less milkfat per cow and per hectare than seasonal supply farms although stocking rate on the two farm types was similar. As a consequence of a high winter feed demand, town milk farmers made, brought in and fed more hay and silage supplement than seasonal supply farmers. Town milk farmers grew more forage crops, fed more concentrates and made more extensive use of irrigation and nitrogen fertilizer to boost pasture growth at strategic times of the year than seasonal supply farmers. No significant differences in youngstock grazing policy was observed between farm types. Both seasonal supply and town milk farms were assumed to grow similar amounts of feed per hectare, but town milk farms fed more per hectare when brought in supplements were considered. However feed consumption per hectare was estimated to be significantly higher on seasonal supply farms due to their higher milkfat production per hectare. This resulted in seasonal supply farms having a significantly higher annual feed utilisation efficiency (95 %) compared with town milk farms.

Hay and silage quality in terms of DM Digestibility, protein % and DM % was measured on all farms. Mean digestibility of DM was 56.1 % and 64.5 % for hay and silage respectively.

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The Manawatu Cooperative Dairy Company Limited gave permission for a supplier survey to be carried out and provided contact addresses and milkfat production figures for a number of the survey farms. Their helpfulness in these matters was appreciated.

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LIST OF ABBREVIATIONS

Common abbreviations used in this thesis are as follows:

-	=	minus
*	=	multiplied by
/	=	divided by
+	=	plus
^	=	to the power of
AA	=	All Autumn calving winter milkers
cowADM	=	Milk production (litres per cow per day)
DM	=	Dry matter
Ha	=	Hectare
Kg	=	Kilogram
ME	=	Metabolisable Energy
MF	=	Milkfat
MJ	=	Megajoule
OM	=	Organic matter
Prob	=	Probability
SOM CELL	=	Somatic cell
SS	=	Some spring calving winter milkers
STD DEV	=	Standard deviation