REPRODUCTIVE EFFICIENCY IN
TOWN SUPPLY DAIRY HERDS IN NEW ZEALAND

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Sundar Lal SHRESTHA

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ABSTRACT

The objective of the study was to examine the reproductive performance of dairy cattle in Town Milk Dairy Herds in New Zealand. Breeding and production data for parous animals were collected from the records of twenty herds which ranged in size from 75 to 300 cows. Herd owners were members of the Wellington Hawke's Bay Livestock Improvement Association which provided herd testing and artificial breeding services. There were 12,056 calvings recorded involving 4,050 cows. Of these 9,898 were for Friesian, 672 Jersey, 1,066 Friesian Jersey cross cows and the remaining 420 other breeds and crosses.

The parameters measured were calving interval, calving to first service interval, first service to conception interval, days open, inter-service interval, calving rate to first service and services per cow calving and were 383.7, 84.8, 11.3, 106.9, 43.7 days, 49.3% and 1.7 respectively for the pooled population. Data for calving interval and first service to conception interval were transformed for all analytical procedures - the unadjusted values for these parameters were 388.7 and 19.3 days respectively. The mean milk yield was 3,730 litres and the mean lactation length 291 days.

Age, herd, season and year had highly significant effects on both productive and reproductive performance although the amount of variation that could be explained by these variables was small as far as reproduction was concerned. Any breed differences which may have been present were confounded with herd effects and no significant relationship was found between herd size and reproductive efficiency. This may have been due to an inadequate number of smaller herds in the sample.

Significant negative correlations were found between average daily milk yield and calving, calving to first service and first service to conception intervals. Their values were so low as to be of little consequence.

Reproductive efficiency increased up to the age of four years and then gradually declined whereas milk production increased up to the age of eight years before it declined. The youngest cows, particularly two year olds, which comprise a high proportion of the herd, performed poorly in nearly all reproductive parameters studied.

The correlation between calving to first service and first service to conception intervals was -0.09 and the standard partial regression coefficients (β values) for calving to first service and first service to conception intervals on calving interval were 0.63 and 0.73 respectively. Thirty nine percent of the variation in calving interval was explained by days from calving to first service and 45% by days from first service to conception.

A high incidence of short (11.6%) and long (49.5%) returns, together with an average inter-service interval of 44 days, indicated that detection errors and heat detection efficiency were important problems contributing to delays in breeding and increased numbers of services per cow calving. Conscious management decisions to with-hold cows from breeding to meet specific seasonal needs may have compounded this problem.

Significant seasonal effects were observed with superior results during the spring irrespective of whether cows calved or were being bred at that time. Year differences in both productive and reproductive performance were also noted with best results occurring during years which recorded climatic conditions as being most suitable for pasture growth.

The number of abortions recorded during the course of the investigation were few. Where aborting cows were retained their breeding performance during the year following abortion was poor but this effect did not appear to carry-over to their performance in subsequent years.

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