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PRODUCTION CHARACTERISTICS AND RESPONSES
TO FEEDING BY FRIESIAN COWS
FAT AND THIN AT CALVING OF HIGH AND LOW GENETIC MERIT

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ABSTRACT

A review of literature is given on herbage intake achieved by grazing lactating dairy cows. The lactating cows have higher herbage intake than non-lactating cows. Condition at calving may have an effect on herbage intake by dairy cows. The theory of response, the response to feeding both before and after calving are also reviewed. The literature is reviewed which discusses responses to feeding in Europe (where diet of the cows are mainly concentrates) and in Australia and New Zealand where dairy cows graze mainly on pasture. The evidences of improving cows quality by selection are given with special emphasis on New Zealand dairy cows. Genetic merit of a New Zealand cow for milkfat production is measured by her breeding index (BI).

The main objective of the work was to study production characteristics and response to feeding in early lactation by Friesian cows, fat and thin at calving, of high and low genetic merit. Over lactation High BI cows produced more than Low BI cows. The differences between BI groups in milkfat production was in close agreement with the expected differences based on BI's. High BI cows had slightly higher herbage intake than Low BI cows but no significant differences were found. Low BI cows were fatter than High BI cows. No significant difference in fatty acid composition of milk between the BI groups was found. Over lactation Fat cows produced more milkfat than Thin cows. Improving 1 condition score at calving was associated with an increase of 10.5 kg milkfat.

No significant differences in response to feeding in early lactation between High BI and Low BI cows nor between Fat and Thin cows were found. The response to moderate underfeeding during early lactation was mainly immediate response. The residual effects of underfeeding were small and confined to 2 weeks after returning to full feeding. Underfeeding significantly increased mole % of long chain fatty acids of milk and significantly decreased mole % of short chain fatty acids.

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