

ON-FARM FACTORS AFFECTING THE QUALITY OF BOVINE COLOSTRUM FOR USE IN THE NUTRACEUTICAL MARKET

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Worldwide markets exist for bovine colostrum products as dietary supplements with positive effects on human health and athletic performance. In the US, the retail value of colostrum products is estimated at US\$100 million. Rapidly growing markets in Asia have also been established. Globally, the value of bovine colostrum products has increased 10 fold since 1997.

The seasonal calving dairying systems of Victoria are well suited to supplying these markets, but problems exist with variability of product and short duration of supply. Farmers are paid according to concentrations of immunoglobulin G (IgG), but manufacturers report variation in the concentration of this protein in the colostrum supply, and at times, this variation precludes the colostrum from meeting the minimum specification for sale (W. Sanderson, pers. comm.). In this study, effects of on-farm management factors on colostrum concentrations of IgG were investigated.

Thirty Friesian dairy cows of varying ages that calved during July and September 2002 were used in this study. Calves were removed from their dams as soon as possible following calving. Samples of colostrum were collected from each cow at the first 6 milkings after calving. Samples were analysed for concentrations of IgG using a nephelometric assay. Cow weight and condition score were recorded prior to expected parturition date. For statistical analyses, cows were divided into groups according to age (young, < 5.1 years; old, > 5.1 years), liveweight (light, <575 kg; heavy, >575 kg) and condition score (thin, <4.75; fat >4.75).

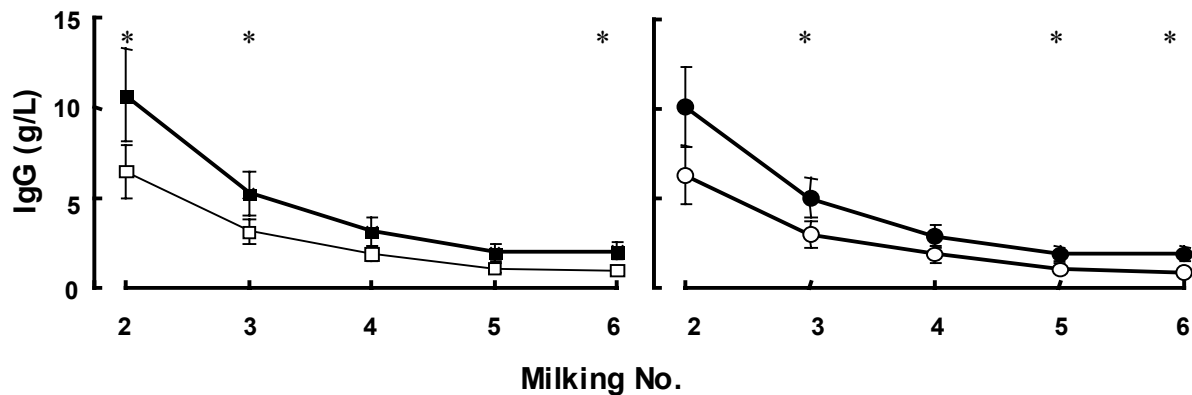


Figure 1. Concentrations of immunoglobulin G (IgG) in colostrum of heavy (■) and light cows (□), or fat (●) and thin cows (○) during the first milkings after calving. An asterisk indicates a significant difference ($P < 0.05$) at that particular milking.

At times, heavy cows at times had higher concentrations of IgG than light cows, and fat cows had higher concentrations of IgG than thin cows (Figure 1). There were no differences in colostrum IgG concentrations for any groups at the first milking, or between young and old cows (results not presented).

These data may help farmers maximise the profitability of supplying colostrum for sale into the human nutraceutical market.

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