

EFFECTS OF THREE TIMES DAILY MILKING ON MILK PRODUCTION AND REPRODUCTIVE PERFORMANCE

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Milk production costs have risen dramatically in recent years and dairy producers are forced to find ways of increasing their net income. Methods most often used to increase milk production are to change herd size and to increase concentrate feeding (Amos *et al.* 1985). Changing the frequency of milking is another method that can be used to increase milk yield and thus increase income. A number of reports have suggested significantly higher milk yield with 3 times (3x) daily milking. There have also been reports of high milk yields adversely affecting reproductive performance of cows (Olds *et al.* 1979; Laben *et al.* 1982). Information on 3x milking under Australian conditions is lacking.

Fifty four Holstein-Friesian cows paired on parity, milk production and stage of lactation were used to determine the effect of frequency of milking on milk production, milk composition, reproductive efficiency, body weight and condition score during a 10-week period. Milking times were 0500 hours, 1300 hours and 2100 hours for the 3 times daily milking group; 0600 hours and 1500 hours for the 2 times daily milking group. Condition score and body weight were measured at 6 weeks following the start of the trial and at the end of the 10-week period. Reproductive data - days to first heat and number of services to conception - were recorded for all cows. All the cows were lot fed with haylage from a harvestore tower twice daily at levels close to *ad libitum* and a grain concentrate, rationed according to production and stage of lactation. All data was analysed statistically using GLM procedures of SAS (1988).

Three times daily milking increased milk yield by 9.5% ($P<0.05$) but did not affect milk composition (Table 1).

Table 1. Effect of milking frequency on milk yield and milk composition

Treatment ^a	Milk yield (L)	Fat (%)	Protein (%)	Solid non-fat (%)
2x Daily milking	19.97 ^a	3.92 ^a	3.21 ^a	8.91 ^a
3x Daily milking	21.87 ^b	3.73 ^a	3.26 ^a	8.88 ^a
SEM	0.33	0.09	0.04	0.04

^a Means in the same column with different superscript differ ($P<0.05$)

Milking frequency did not affect ($P>0.05$) the reproductive performance of the cows in this study, although the 3x daily milked cows showed a tendency towards a longer time to first heat (Table 2). The mean body weight and condition score were not affected ($P>0.05$) by milking frequency.

Table 2. Effect of milking frequency on the reproductive performance, body weight and condition score of milking cows

Parameter	2x Daily milking	3x Daily milking	SEM
Calving to first heat (days)	59.3	79.2	1.7
No. of services to conception	2.1	1.9	0.17
Body weight (kg)	630	613	9.14
Condition score (1-8)	5.72	5.77	0.09

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