

MANAGEMENT STRATEGIES TO ALLEVIATE HEAT LOAD ON THE LACTATING DAIRY COW

T. WIELAND^A, R. WALKER^B, P. GOODWIN^A, R. KNIGHT^B and T. DAVISON^C

^A Australian Tropical Dairy Institute, Department of Animal Production University of Queensland, Gatton, Qld 4345

^B Australian Tropical Dairy Institute, DPI Kairi Research Station, PO Box 27, Kairi, Qld 4872

^C Keenan Australia, Bendigo, Vic 3550

Heat loading on dairy cows adversely affects production and reproduction. With the exception of Tasmania, Australian dairy cows experience heat stress at some time during the year. The temperature-humidity index (THI) is above 78 (mild stress to distress) in all States for one or two months at least and for three to four months in New South Wales and Queensland (Davison *et al.* 1996). Production losses as high as 25% have been recorded during summer conditions in countries such as the United States (Barth 1982). Similar losses have been recorded in Australia (Davison *et al.* 1996). Due to the large effect of summer heat stress on the performance of dairy cattle, there is a growing interest in finding ways to alleviate this problem. Strategies being tested that might alleviate excessive heat load include the provision of shade, fans, and sprinklers either at milking time or at other times throughout the day. Simpler management strategies such as changing milking times have not been examined.

A trial investigating different management strategies to alleviate excessive heat load on lactating Holstein-Friesian cows was conducted at the Kairi Research Station, Atherton Tablelands, during the summer of 1996 (2 January to 3 February). Twenty adult dairy cows and twelve first calf heifers were blocked on the basis of production and stage of lactation and assigned to one of four treatments: (1) milking times 0800 and 1700 hours plus sprinklers for 30 minutes continuous spray prior to afternoon milking; (2) milking times 0600 and 1500 hours; (3) milking times 0600 and 1500 hours plus sprinklers for 30 minutes continuous spray prior to afternoon milking; (4) milking times 0800 and 1700 hours. Data were analysed statistically using the GLM procedures of SAS (1988).

Cows milked late regardless of sprinkler access had significantly higher ($P < 0.05$) milk yield than those milked early with or without access to sprinklers.

Table 1. Daily milk yields (mean values $\pm$ s.e.) of four management strategies to alleviate excessive heat load

Treatment	Milk yield (L/day)	% Cows in each group
1 (late milk + sprinklers)	29.47 (± 0.322) ^a	25
2 (early milk)	28.17 (± 0.319) ^b	25
3 (early milk + sprinklers)	28.25 (± 0.322) ^b	25
4 (late milk)	29.91 (± 0.347) ^a	25

Values within columns followed by different letters are significantly different at $P < 0.05$

In conclusion, the objective of this trial was to quantify simple management strategies that included changing milking times. It was shown that altering milking time had a significant effect ($P < 0.05$) of 1.74L on daily milk production. The use of sprinklers at milking time did not improve milk production.

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