

USE OF SHADE AND SPRINKLERS TO COOL COWS PRIOR TO MILKING

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The heat load on dairy cows during summer causes significant losses in milk yield, milk composition and reproductive performance (Davison *et al.* 1994). One simple and low cost method to cool cows is to sprinkle them with water in the dairy yard prior to afternoon milking. Few farms have adopted this technology as there are no data on the likely gains in milk production or the effect on cow comfort in terms of body temperature or respiration rate.

An experiment was conducted at Mutdapilly Research Station over 5 weeks in February-March 1994 with 24 cows (including 12 primiparous cows) in mid-lactation. The treatments were 0, 30, 60 and 90 minutes of sprinkling with water under 80% shade cloth prior to afternoon milking. The sprinkling system was a 2 minutes on, 5 minutes off cycle with large water droplets delivered at 25 L/minute from garden sprinklers set at a height of 1.7 m every 5 m along both sides of the dairy yard. During the day cows were fed a mixed ration of maize silage, grain and protein meals under corrugated iron shade within 150 m of the dairy. Rectal temperature (RT) and respiration rate (RR) were recorded on individual cows immediately prior to treatment. Cows were taken to the dairy at staggered times for their treatments and all cows were milked at 1530 hours. Their post milking RT and RR were recorded at 1600 hours after which cows grazed pasture at night as a single group.

Table 1. Effect of time of cooling on milk yield, composition, rectal temperature and respiration rate

Parameter	Time of cooling (minutes)				SED
	0	30	60	90	
Milk yield (L/day)	23.8	24.4	24.4	24.4	0.82
Fat (%)	3.72	3.22	3.32	3.48	0.26
Protein (%)	3.25	3.07	3.11	3.19	0.10
Lactose (%)	4.98	4.90	4.90	4.94	0.10
Rectal temperature (°C)					
pre milking	39.6	39.5	39.4	39.6	0.17
post milking	39.8	39.1	38.8	38.9	0.17
change	+0.2	-0.4	-0.6	-0.7	
Respiration (breaths/minute)					
pre milking	82	70	69	78	5.4
post milking	79	55	48	54	4.5
change	-3	-15	-21	-24	

There was no significant effect ($P>0.05$) of cooling time on milk yield or composition despite a response to cooling of over 1 L/cow on hotter days. There was zero effect on cooler days. Increased length of cooling time reduced both RT and RR post milking ($P<0.01$) while control cows showed no change. The use of sprinklers and shade cloth at the dairy offer a cheap method of cooling cows as the decrease in RT and RR was aligned with a visual improvement in cow comfort on hotter days.

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