

Keeping cows cool

This fact sheet is part of the Profitable Dairying series - *Good business management reduces greenhouse gas emissions.*

The Australian dairy industry has committed to reducing greenhouse gas emissions intensity (emissions per L milk produced) by 30% by 2020.

Keeping cows comfortable with shade and shelter helps them maintain production through extreme weather events.

Keeping cows comfortable

Like most mammals, the dairy cow needs to maintain its core body temperature within a narrow range around 39°C. As temperatures rise above 25°C, a dairy cow is outside its 'thermoneutral' zone and has to start actively regulating its body temperature to keep it in the optimal range.

Cows feeling hot will start to pant, seek shade, refuse to lie down, eat less and crowd around water troughs.

As well as behaviour changes, there are physiological changes:

- Feed intake decreases by 10-20% when air temperature is above 26°C
- Core body temperature rises
- Blood hormone concentrations are changed
- Blood flow distribution is altered; blood flow to gut, uterus and other internal organs is decreased, blood flow to skin is increased.

How much does heat stress cost?

The effects of heat stress include a drop in milk production, reduced herd fertility and lower milk protein and fat tests. During the 2014 January heat wave the average drop in milk production across Victorian herds was 15% (based on milk tanker volumes). Heat stress can also trigger live weight losses and create animal health problems.

An on-going effective heat stress management program can realise substantial benefits. These include:

- Higher summer milk production
- Increased 6-week/100-day in-calf rates
- Reduced loss of embryos
- Increased calf birth weights.

The impacts on cow fertility, health and welfare last well beyond the hot months.

Information about managing heat stress in dairy cows on the [Cool Cows website](#).



To reduce the impact of heat stress on milk production:

- Anticipate high risk weather conditions. These are periods of sustained high daytime temperatures, high overnight temperatures (greater than 25°C, high humidity, cloudless skies, still days, sudden changes from mild, cool weather to hot, humid weather). To register for the Dairy Australia heat alert SMS service [click here](#).
- Make sure everyone on the farm can recognise the signs of heat stress (cows panting more than 60 breaths per minute, drop in milk production) and what action to take.
- Increase access to cool drinking water, particularly at the exit to the dairy - in hot weather cows will drink 200-250 litres per cow per day.
- Provide access to shade. The best way to help cows beat heat stress is to shade them from radiant heat. Provide shade from trees, portable paddock shade structures or a permanent shade shed, or put up shade cloth over the dairy yard.
- Adjust milking times to cooler parts of the day.
- Wet the dairy yard concrete an hour before milking – this helps dissipate the heat stored in the mass of the concrete.
- If you have a sprinkler system – use it. For a sprinkler system to be effective and cost-efficient, without raising the risk of milk quality downgrades, aim to have the sprinklers on for 3 minutes then off for 8 minutes, using a moderate to large water droplet rather than a fine mist.
- If you don't have a sprinkler system set one up. Sprinklers are cheap to install and you can set up a temporary system in the event of unexpected heat waves.
- Provide cows with the highest quality pasture available to graze overnight when they are cooler
- Increase your cows' grain/concentrate feeding rate, feed high quality forage fibre and higher quality protein sources, and increase cows' intakes of potassium, sodium and magnesium.



The Cool Cows website has detailed, practical information on cooling infrastructure. This information is also available in a booklet, "Shade, sprinklers and fans on dairy farms". You can request a free copy from Dairy Australia (Ph. 1800 655 441, enquiries @dairyaustralia.com.au) or download as a pdf from the Dairy Australia website, [click here](#).

Further resources:

[Cool Cows](#)
[Future Ready Dairy Systems Heat Stress Case Studies](#)

Published by Dairy Australia Limited with support from the Australian Government.

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