

A FEW TIPS TO COOL CATTLE, KEEPING WATER USE IN MIND

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Heat stress is a reality and must be managed on CA dairies. During summer, milk production and fertility drop and modifications are needed to keep cows cool. Feedline soakers are common to maintain animal comfort. The water sprayed at the feedline bunk is more valuable than ever, especially during drought conditions. For more than a decade, our research team has been looking into solutions that keep CA cows cool using minimal water and energy. Here are some practical ideas that will help you achieve high cow production and comfort while efficiently using water.

Shade over the feedbunk. First things first. Cows enjoy shade and avoid sunny areas during peak heat – even if the soakers are running there (Fig. 1). In drylots, we have found that cows reduce feedbunk visits by half if unshaded. If you manage a dairy with uncovered feedbunks, adding shade over this area will mean more cows will spend time in this area and the water sprayed there will cool more cows.



Fig. 1: Soaking an empty, unshaded bunk. More cows would benefit from this water if the bunk was shaded.

Turn on soakers early & use automated controllers. Turning on soakers earlier helps cows keep cool from the start and is more efficient than trying to cool them down once body temperature has already risen. Cows start feeling hot sooner than we do, usually when the air temperature is about 72°F. To ensure water is turned on and off only when needed by the cows, automated controllers help keep things consistent. The location of the controllers is also essential to provide cooling and save water. It works best if they are placed in the barn to capture the weather that the cows experience.



Fig. 2: Fans placed so that they cool cows at the bunk; moving air over wet animals removes more heat than when they are dry and means we need less soaking overall.

Move the fans to over the feedbunk. Moving the fans from over the lying area to the feedline, where the soakers are, can maintain cow cooling while reducing water use by half (Fig. 2). This is because the air moved by the fans removes more heat from wet cattle than dry ones. We modified the spray cycle from 1.5 min on/6 min off to 0.5 min on/4.5 min off by making this change in one of our studies. Cow cooling was achieved using 2.4 gal/cow/hour – 65% less water than some dairies in CA.

Mind the flow rate used. The higher the flow rate, the larger the droplets, and more water sprayed per unit of time. Although relatively lower flow rate soakers (e.g., 0.4 gal/min) can reduce heat stress, the fine droplets can drift to the bunk and affect feed quality. Using soakers that deliver larger droplets is preferred. We have found that both 0.9 and 1.3 gal/min nozzles effectively cool cows, but using 1.3 gal/min resulted in extra 3 lbs. of milk/cow/day.

Keep an eye on new technology. A promising tool to cut water use while maintaining cow comfort would be to only spray where cows are actually present. We have a prototype for this and hope to do more with it soon. Other less water-intensive approaches like chilled lying mats and cooled air have been tested too, but neither of these was as effective and efficient at cooling cows as soakers and fans.