

Heat Abatement for Dry Dairy Cows



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Heat stress in dairy cows, irrespective if they are milking or dry, can reduce feed intake, lower conception, increase health issues associated with lower immunity, and lower milk production. This paper focuses on dry dairy cows, although, all groups need heat abatement. In dry cows, heat abatement is important because management practices in the dry period determine the success in the lactation period and the health, growth, and future performance of her calf. Monitoring and modifying management practices relative to the temperature heat index can be a solution to reduce some of these losses. Methods to cool dry cows are fairly inexpensive and in the long run will make you money. Many farmers have heat abatement protocols in place for their milking herd, but when was the last time you reviewed your heat abatement program for your dry cows? This article covers specifications recommended for shade structures, fans, water, and ventilation so you can assess your dairy to see if it follows the guidelines of professionals.

Dry Cows on Pasture:

- **Shade:** If cows are on pasture, shade should be available and managed to ensure the underneath surfaces do not become muddy which can be a health risk. When using a shade structure, provide at least 65 square ft/cow and these structures should be between 12 and 16 ft tall. Shade structures can be covered with shade cloth which blocks 80% of sun or roofs should be white colored galvanized metal or aluminum to provide maximal solar reflection. If shade comes from trees, they should be rotated by fencing them off to prevent mud pits. Mud pits lead to increased numbers of environmental bacteria and can result in mastitis.
- **Center Pivots:** Center pivots can be used as a sprinkler system for cows on pasture. They need to be continuously moving to prevent mud spots. A shade cloth over the irrigation system is recommended to provide the cows with shade. Not only can this system give heat abatement, it can increase the nutritional value of the grass through irrigation of the growing forage crop.
- **Feedbunk:** Feed should be shaded to prevent spoilage and maintain the nutritional value. Keeping feed cool can also maintain/increase feed intake, which is especially important in dry cows close to calving. Sprinklers and fans should be found above the feedbunk on the side where cows stand, if possible.

Dry Cows in Housing Facility:

- **Ventilation and fans:** Fans should be placed above feed bunk and freestalls or bedded pack. Air velocity in any barn should be about 4 to 6 MPH. Fans should be cleaned and repaired regularly. If freestalls are used, there should be a 1:1 ratio of stall rows to row of fans. Fans should be angled at 15 to 20 degrees. The open ridge should be sized to provide 3 inches for every 10 ft of barn width. Cows should have 14 to 16 ft of open wall space for natural air to flow in (unless it is a tunnel ventilated barn).
- **Barn Orientation:** Barns should be built east to west to prevent direct sunlight shining into the barn. In the summertime, minimizing sunlight entry into a barn can be critical to improve cow comfort, freshness of feed, and decreasing temperature within the barn.
- **Sprinklers and Water:** Clean, fresh water should be available for the cows' consumption

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without obstruction. Location of water troughs should be within 50 feet of resting area and should be in the shade. There should be a minimum of 2 water troughs per pen, and should have 3 inches per cow in that pen. For example, if there is a pen of 40 cows there should be a total of 10 feet of trough space. This means there should be two, 5 foot water troughs. Sprinklers should be placed along the feed bunk and soak the cow's skin and are more effective when paired with fans. The ratio of on to off time is 2 minutes on for every 10-12 minutes off. Fans should run continuously once the temperature reaches 65°F. Thus, recommendations are identical to those for the milking herd.

Why Does this Matter?

- **Cows calve 2 to 8 days early:** Dams that were heat stressed gave birth to calves 13 lbs lighter. These lighter heifers continued to have lower body weight and height through 12 months of age.
- **Heifers born to heat stressed dams give less milk:** Once that heifer born to a heat-stressed dam calved, milk production was 11 lbs less than heifers born from dams not heat stressed.
- **Lowers milk production next lactation**
- **Decreases conception rate**
- **Lowers immune system:** Fresh cows already have a compromised immune system, but those cows under heat stress have a greater risk of infection since immunity is even more compromised.

Take Home Message:

Heat abatement for dry cows is important and must be properly managed. Remember to assess your dairy's heat abatement programs to reduce heat stress on dry cows and their developing calves. If heat abatement is available for dry cows, the overall health and performance of the cows and their calves will increase. Milk production, fertility and feed intake can be improved with adequate heat abatement.