

# Have you prepared your cow facilities for hot weather?

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COLLEGE PARK, Md. — We are again heading into the hot summer season.

For most dairy producers, hot weather means an annual slump in milk production from heat stressed cows. But proper management can greatly reduce the loss in milk production during hot weather if management decisions are based on an understanding of how cattle maintain body temperature.

Body temperature is a function of the amount of heat generated in the animal plus that gained from the environment, minus the amount lost to the environment. When the amount of heat generated in the body is greater than that lost, body temperature rises.

Since body temperature plays such an important part in the animal's metabolism, slight temperature increases or decreases can drastically effect milk yield of dairy cows.

Rarely is outside temperature greater than the animal's body temperature (101.5°F) and thus heat generally moves from the animal to its environment. Internal sources of heat include that generated from rumen fermentation and heat generated from such functions as breathing, blood circulation and exercise.

The problem in hot weather is that cows produce excess heat, and it is difficult to dissipate.

The animal loses heat principally by three means.

The first, radiation, is simply the natural tendency of heat to move from a high to a low temperature.

Obviously, this heat exchange works both ways. Animals in the sun tend to absorb radiant heat similar to a dark roof on a building. In contrast, the cow in shade radiates heat. This illustrates the importance of providing shade to cattle in hot weather.

A second means of losing heat is by convection or air circulation.

Finally, the most important way which a cow loses heat is by evaporation; for example, through sweating and respiration. Unfortunately the efficiency of evaporation is greatly reduced in humid weather.

Now, the question is — how can the dairy producer manage cows to alleviate heat stress?

First, provide plenty of cool fresh water. Water at 50 degrees Fahrenheit can absorb almost 20 percent of the total heat that a cow produces. And of course, cows need water to cool themselves via evaporation.

Not only is availability of water important but so is its location. If cows spend all day a half mile from the water source, it is unlikely that they will consume as much water as they need. Dairy producers should minimize movement of cattle in hot weather. Remember exercise generates heat which the cow must work to get rid of.

Consider some options in this regard. It is really necessary to move cattle to a distant pasture during hot weather? Consider time of day when cows are moving. Try to do this during the coolest part of the day.

Types of feed and feed management are also very important. Research shows that in hot weather, cattle consume 70

percent of their total feed in the evening hours.

Do you typically fill the feed bunk in the evening to last only 2-3 hours? If so, you may be lowering your cows' feed consumption which is the chief reason for lowered milk production in hot weather. So always try to feed the cows during the coolest parts of the day.

Cows also have a natural tendency to eat less forage in hot weather because rumen fermentation of forage produces more heat than fermentation of concentrates. To compensate for this dairy producers should feed more grain in hot weather to maintain energy intake. However, this

aggravates problems with lower milk fat tests which are more prevalent in the summer.

It may be wise to add a buffer such as sodium bicarbonate at the rate of 30 pounds per ton of concentrate. An increase of .1 to .2 milk fat percent will pay for the added cost of the buffer.

It may also pay to feed more often in the summer to keep feed fresh. Remember silage decays in the feed bunk; and the warmer the weather, the faster the rate of spoilage.

What are other steps that the dairy producer can take?

Consider how your cows are housed. If they are in confinement, is the air circulated adequately?

Remember anything that impairs air movement greatly reduces dissipation of heat via convection. Ridge openings and fans should be considered.

For animals in stall barns, minimum fan capacity is at least 15 air changes per hour. Consider the use of large fans to blow air directly through buildings.

For dairy producers that keep their cattle outside, is shade available? If not, consider keeping them in during the day and turning them out at night.

Although all of these steps may involve more work or a change in normal routine, the benefits in improved production from proper management during hot weather will almost always pay for the inconvenience.

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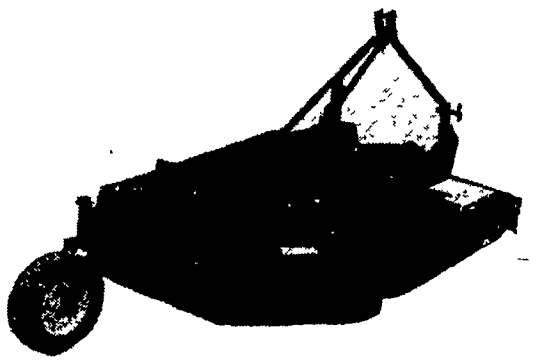


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