Heat Hits Cows Sooner Than We Thought

They are affected at a THI of 68.

by R. B. Zimbelman and R. J. Collier

Here is the new Temperature Humidity Index (THI) chart developed here at the University of Arizona. It takes into account new information from both controlled trials and large herd field studies under a variety of climatic conditions involving high-producing cows. The new THI stress threshold is 68. At this THI, respiration rate (RR) exceeds 60 breaths per minute (BPM), and we begin to see milk yield losses. The rectal temperature (RT) of cows will rise above 101.3°F or 38.5°C.

We recorded mild to moderate stress between THI levels of 72 and 79. The respiration rate of cattle in this THI range will exceed 75, and rectal temperature will rise above 102.2°F or 39°C.

Moderate to severe stress is present between THI levels of 80 and 89. Cows in this zone will have respiration rate greater than 85 breaths per minute, and rectal temperature will exceed 104°F or 40°C. At this THI level, death rate will begin to rise.

Severe stress results when lactating cows are exposed to THI levels above 90. The respiration rate of cows will be maximal (120 to 140), and rectal temperature will exceed 106°F or 41°C. Milk yield losses will exceed 20 percent, and death rate will rise sharply.

We now know that cows are affected by THIs as low as 68. This underscores the vital importance of providing facilities and cow-handling strategies that minimize the effects of heat stress.

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