



Drought, Heat and Reproduction

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As summer approaches, we can conclude two simple facts; it will get hot and we need more rain. Realizing this, we expect that elevated temperatures will cause our electric bills to rise, but we may overlook the fact that heat stress can impact reproduction and profitability in our cow-calf operations.

Scientists from South Dakota State University reported that heat stress, resulting from by excessive exposure to high temperatures and humidity may cause negative physiological changes to occur in cattle (Table 1).

Table 1.
Physiological changes that may occur due to heat stress

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- ✓ Increased respiration rate
 - ✓ Increased rectal temperature
 - ✓ Increased water consumption
 - ✓ Decreased weight gain
 - ✓ Decreased activity
 - ✓ Decreased fertility
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Source: South Dakota State University

Cow-calf operations managed on a year-round breeding season may need to address heat stress aggressively. Since many cattle on this type of breeding program may calve and breed during the hottest months of the year, heat stress may impact production goals.

Reproductive efficiency is the most critical factor affecting profitability of a cow-calf operation. Aside from the fact that calves born during summer months typically weigh less than their counterparts born during fall and spring at weaning, their dams may have difficulty rebreeding. Research has demonstrated that elevated daytime temperatures can result in increased rectal temperatures, thereby causing reduced pregnancy rates (Table 2; Biggers, 1986).

Table 2. Effects of imposed heat stress on reproduction beef cows*			
	Control	Mild	Severe
Day Temp. (F)	71	97	98
Night Temp. (F)	71	91	91
R. Hum. (%)	43	27	38
Rectal Temp.	38.9	39.2	39.8
Pregnancy (%)	83	64	50

Original Source of Data: Biggers, 1986; Oklahoma State University.
 *Table from Cow-Calf Corner "Heat Stress Can Reduce Pregnancy Rates", Dr. Glen Selk, Oklahoma State University.

Breeding soundness exams require bulls to maintain a sperm motility rate of 30 to 70 percent to receive a satisfactory classification. Failure to do so would result in the bull failing this exam. Researchers from Oklahoma State University have demonstrated that bulls experiencing heat stress may have decrease sperm motility as much as 25 percent in some cases.

To prevent reduced conception rates due to heat stress, producers who breed during summer months may want to consider moving the breeding season to a different time of the year. They should, however, carefully consider aligning marketing options with production goals. Producers who plan to continue breeding during summer months can help reduce effects of heat stress by providing adequate shade, water and an effective internal and external parasite control strategy.



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