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**Summer Heat and Fertility**

Earlier in the summer I dedicated this space to discussing heat stress in livestock, mostly because I'd been sweating my tail off at county fair and it was front of mind. Here we are again dealing with a heat wave in meteorological fall. Sun angle and shorter days seem to lessen the impact of these later heat stress events on livestock, but don't be surprised at pregnancy check to find some open females. Let's look at how heat stress affects reproductive success.

Heat stress can have lasting impacts on reproductive performance, reducing conception rates, increasing embryonic loss, and affecting bull fertility. The July heat event was a bad combination of heat, humidity, and inadequate nighttime cooling. Following extreme heat like this, producers may see reproductive consequences that extend well beyond the hottest days. Heat stress may be temporary, but its effects on reproduction can persist for months. Understanding those impacts helps producers evaluate breeding outcomes and prepare for future weather challenges.

Cattle do not have to appear to be suffering from heat-stress for reproduction to be affected. Research shows that body temperatures begin to rise as environmental temperatures climb, and fertility losses can occur before producers observe characteristic signs of distress. Some of these heat stress signs related to reproduction during the breeding season include; reduced expression of estrus at the end of the synchronization period or low detection of estrus, delayed return to cyclicity in postpartum cows, lower conception rates and increased early embryonic loss.

The first few days after fertilization are particularly critical. Elevated body temperatures during this period can compromise embryo survival before pregnancy is detectable. That is why herds exposed to extreme heat during the breeding season may experience pregnancy rates to be lower than expected. Others may observe a larger proportion of cows conceiving later in the breeding season, leading to a wider calving distribution.

It isn't just the cows and embryos that suffer heat stress effects. Prolonged exposure to heat can impair spermatogenesis, resulting in reduced sperm motility, lower sperm quality, and an increased percentage of abnormal sperm in bulls. Because sperm development takes approximately 60 days, the effects of a heat event are often delayed and may not become apparent until several weeks later. Consequently, bulls exposed to extreme heat in late July may not exhibit the full reproductive consequences until late September or early October.

Nothing can be done to change the impact of summer heat waves, but producers can use the information gained at pregnancy check to make informed management decisions moving forward. Because heat stress may have reduced fertility in both cows and bulls, be prepared for a higher percentage of open females than expected. What might be a frustrating situation can present the opportunity to increase selection pressure within the herd. Retaining only females that successfully conceived can help improve overall reproductive efficiency and concentrate resources on the most productive cows. Don't forget to conduct breeding soundness exams on bulls and manage around possible heat-related short-term infertility.