



Cattle Producer's Handbook

Reproduction Section

465

Temperament and Reproduction in Beef Females

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For more than a century, the word “temperament” has been used to define the fear-related behavioral responses of cattle when exposed to human handling (Fordyce et al. 1988). As cattle temperament worsens, their response to human contact or any other handling procedure becomes more excitable. Within the beef cattle industry, producers select cattle for temperament primarily for safety reasons. However, recent studies demonstrate that cattle temperament may also have productive and economic implications to beef operations.

Is Excitable Temperament a Stress Response?

“Stress response” is defined as the reaction of cattle to internal and external factors that affect their well being, and animals that are unable to cope with these factors are classified as “stressed.” Examples are extreme temperatures, diseases, and injuries. Based on this concept, the agitated and/or aggressive responses expressed by cattle with excitable temperament when exposed to human handling can be attributed to their fear and consequent inability to cope with this situation; therefore, classified as a stress response. In addition to altered behavior, temperamental cattle may also experience changes in their body physiology, and the hormones produced during this fear-related stress reaction influence several aspects, such as growth, health, and reproduction.

One of the main hormones produced during a stress response is cortisol. Several studies reported that blood cortisol concentrations are greater in temperamental cattle compared to calm cattle (Table 1). This outcome validates that excitable temperament can be classified as a stress response and is one of the reasons why cortisol is commonly considered paramount to the behavioral stress response.

Table 1. Blood cortisol concentrations of cattle with calm or excitable temperament.¹

Item	Adequate	Excitable
<i>Bos indicus</i>		
Steers	16.7	19.6
<i>B. indicus</i> × <i>B. taurus</i>		
Heifers	45.5	57.9
Cows	30.7	42.4
<i>B. taurus</i>		
Heifers	32.1	41.8
Cows	17.8	22.7

¹Cooke et al. 2009ab, Cooke et al. 2012a, and Francisco et al. 2012.

Assessment of Temperament in Beef Cattle

Cattle temperament can be visually evaluated by many methods, which can be categorized into non-restrained and restrained techniques (Burrow and Corbet 2000). Within the non-restrained techniques, cattle temperament is evaluated by their fear or aggressive response to man when they are free to move within the evaluation area. Examples of these techniques are chute exit velocity and pen score.

Exit velocity evaluates the speed of an individual animal immediately after it leaves the squeeze chute by measuring the time required for the animal to travel a pre-determined distance. This assessment can be expressed in actual speed measures (i.e., feet/second), or in a 1-5 scale, where 1 is the slowest and 5 is the fastest animal.

The pen score evaluates the behavioral response of an individual animal when it enters a small pen and interacts with a person standing inside the pen. Typically in a 1-5 scale, the pen score increases as the animal response becomes more aggressive toward the person.