

When Is She Due?

Understanding Gestation Length in Modern Beef Cattle

HUNTER NICKELL – LIVESTOCK PRODUCTION AGENT

Traditional beef-cattle references often cite an average gestation length of 283 days. However, many producers are reporting much shorter gestations for calves conceived by artificial insemination (AI). Recent data suggest that current Angus cattle may calve sooner.

A study of more than 100,000 Angus AI matings from 2000 to 2020 evaluated relationships among gestation length, birth weight, and calving ease¹. Table 1 shows the mean and standard deviation (SD) for the traits studied. Because gestation lengths follow a normal (bell-shaped) distribution, approximately 68% occur within one standard deviation of the mean. In other words, approximately two-thirds of gestation periods ranged from 274.2 to 283.3 days. Interestingly, the average gestation length in this study was 278.6 days—more than four days shorter than the 283-day value commonly found in beef cattle references. Older cows had longer gestation lengths than younger dams (Table 2).

Table 1. Descriptive statistics for gestation length, birth weight, and calving ease in American Angus Cattle.

Trait	Number	Mean (SD)	Minimum	Maximum
Gestation length, d	101,787	278.6 (4.69)	264	292
Birth weight, lb	101,713	79.4 (9.6)	39.9	139.7
Calving Ease	41,804			
Calving ease score		Mean Gestation length (SD), d	Mean birth weight (SD), lb	
1, No assistance	39,946	277.6 (4.7)	78.1 (9.7)	
2, Assisted	1,858	279.3 (4.7)	87.8 (9.7)	

Table 2. Mean gestation length by age of dam

Age of Dam, Years	Gestation Length, days
2	277.7
3	278.6
4	279.0
5	279.2
6	279.3
7	279.5
8	279.6

Estimates of heritability for gestation length in the literature range from 0.20 to 0.64. In this study, heritability was 0.57 for gestation length, greater than for birth weight (0.36) and calving ease (0.20). These traits are related; the correlations between direct gestation length and direct birth weight, or direct calving ease, were 0.29 and 0.31, respectively. The calf genotype (direct genetic effect) had the most influence over gestation length compared to any maternal influence.

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Beyond describing current gestation lengths, the researchers also evaluated how these traits have changed genetically over time. Genetic trends calculated from average estimated breeding values over the years are shown in Figure 1. During the years represented by the study data, gestation length decreased by 4.3 days. The reduction in gestation length appears to coincide with industry-wide selection for lower birth weights and improved calving ease, illustrating how genetic progress in one trait can influence others.

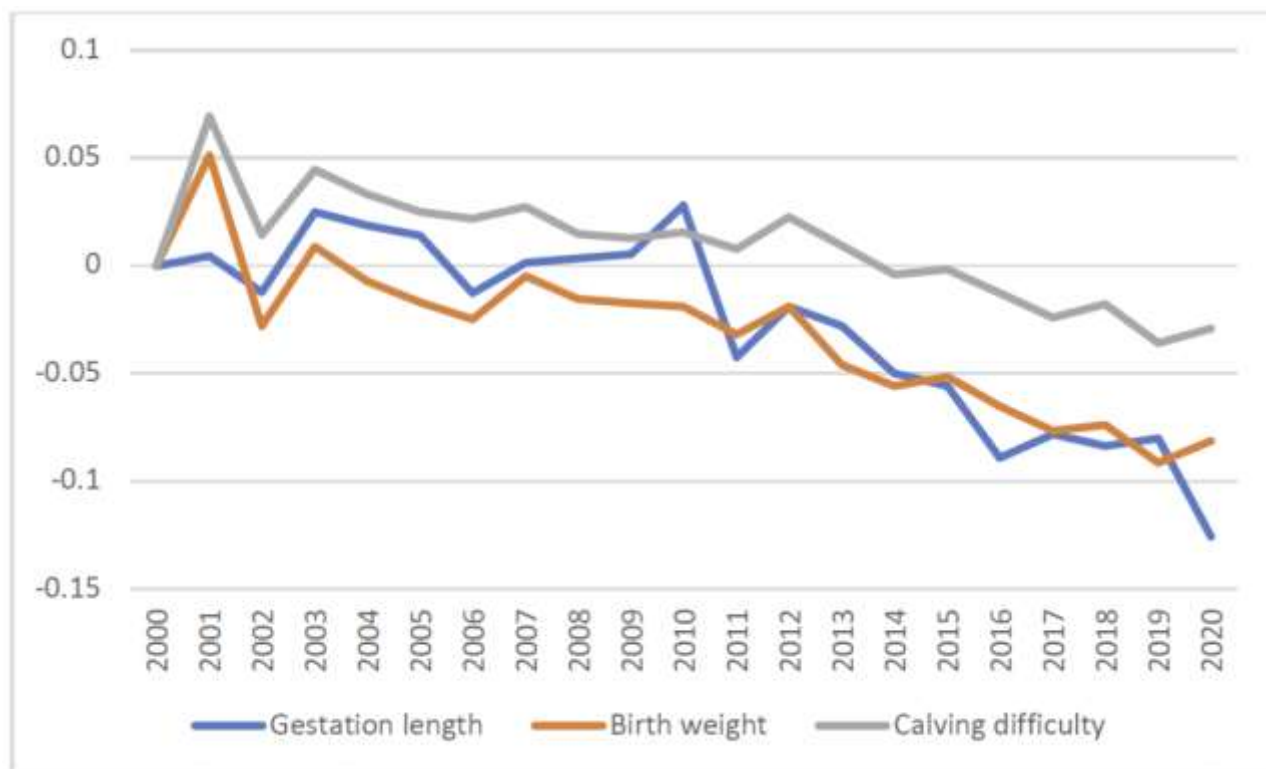


Figure 1. Genetic trends of average estimated breeding value by birth year based adjusted for the year 2000 and scaled to the standard deviation of additive genetic effect for gestation length, birth weight, and calving difficulty in American Angus cattle.

The evidence suggests gestation length in Angus cattle has shortened alongside industry selection for lower birth weight and improved calving ease. While these changes have benefited producers, continued monitoring is warranted to ensure that reductions in gestation length do not compromise calf development, vigor, or long-term productivity.

Gilleland, Carson. 2022 Master's Thesis. North Carolina State University. [Estimates of Genetic Variation for American Angus Gestation Length.](#)

Thank you to Dr. Sandy Johnson for the content of this article. As a Livestock Agent and Cattle Producer, I am passionate about bovine reproduction. If you have any questions, please feel free to contact me at any Southwind District office or by email at nickell99@ksu.edu