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Back to Basics

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Gestation length of the beef cow vs. dystocia

Everything is based on an average, but there is no average. For example, when was the last time we experienced a year with average precipitation? Gestation length of a beef cow is another example where the average is seldom the rule.

The gestation length for all breeds of cattle averaged together is 283 days. The range is 279 for Jersey to 292 for Brahman. On the average, the Continental breeds of Charolais, Simmental and Limousin exhibit gestation lengths of 289 days. English-bred cattle such as Angus, Shorthorn and

Hereford exhibit, on the average, shorter gestation lengths of 281, 282 and 285 days, respectively. Within those breeds the average gestation length can vary an additional 12 days on either side of the average for the breed.

Gestation length is an issue because it is associated with dystocia, and it affects the postpartum interval. Bob Bellows, retired Miles City, Mont., researcher at the U.S. Department of Agriculture's (USDA's) Fort Keogh Research Center states, "During the last 10 days of gestation, 1 to 1½ pounds of

birth weight can be added to the size of the fetus. This means that for a calf that had a five-day extended gestation, you could be adding as much as 8 pounds to the birth weight. This might mean the difference between an unassisted birth or a dystocia situation."

Sally Northcutt, director of genetic research for the American Angus Association, says breeding to short-gestation bulls can shorten the postpartum interval and assist in earlier breed-back of the cows.

"Research clearly shows that young cows and cows that have difficult and slow deliveries require additional days of postpartum interval to cycle and rebreed. If a calf is born at 275 days gestation vs. the breed average of 283, that cow will usually have an easier delivery and will automatically have an additional eight-day postpartum interval advantage."

The American Gelbvieh Association has an expected progeny difference (EPD) for gestation length and has used that EPD to reduce the average gestation length of the breed from 289 days to 284

days, says association executive Wayne Vanderwert. That trend has paralleled within-breed decreases in birth weight and dystocia, he says.

The curve benders

We hear about curve benders — those calving-ease bulls that also produce calves with small birth weights yet defy the antagonisms of low birth weight and growth potential. Many of these curve-bender bulls are short-gestation. This would explain why they have the smaller birth weights, yet the calves explode and grow like a long-gestation growth bull. Conversely, high-growth bulls are oftentimes long-gestation sires. This might partially explain the larger birth weights often associated with progeny of growth bulls.

If you would like to discuss this article or simply talk cows, do not hesitate to contact me at 775-738-1721 or torellr@unce.unr.edu. I may be at cow camp calving heifers, so be patient. I will return your call after calving season.



Case study: Twelve years of data on high-accuracy calving-ease AI sires in relation to gestation length and dystocia

Most ranchers know the breeding interval, in other words the 60- or 90-day time period when cows were exposed to bulls. With this information, they can calculate what 60- to 90-day time interval to expect their calving season to occur. There is no way to track gestation length with this information because individual breeding dates are unknown.

When breeding dates are known and calving dates documented, such as with artificial insemination (AI) programs or pasture-breeding situations in which cattle are observed for the actual breeding dates, some interesting information about gestation length on specific bulls is revealed. Take for example the calving data on the author's Angus cattle.

During the past 12 years I have used AI to breed 710 of my own registered cows and heifers. Two hundred and three of these were bred to calving-ease (CE) sires. I was successful on 140 AI pregnancies to CE sires. This resulted in an average conception rate of 69%. I monitored the actual calving date and compared that to the 283-day gestation table:

- 37% were born between 276 and 278 days of gestation.
- 27% were born between 272 and 275 days of gestation.
- 23% were born between 279 and 283 days of gestation.
- 13% were born between 284 and 291 days of gestation.

The average gestation length on all 140 of these calves was 279 days, four days less than the 283-day breed average. The range was from 272 days to 291 days. By the time we reached our 283-day due date, calving was 87% complete for the AI calves of CE sires.

If you place the data for these CE sires on a graph (see Fig. 1), it shows a bell-shaped curve with the peak of the curve around 277 days of gestation. According to Fort Keogh researchers, this data mirrors the Miles City data.

The bell-shaped curve for gestation length is present for all bulls; it just peaks at different levels. For example, the peak for long-gestation growth bulls might be at 287 days. However, the bell-shaped curve of the data is very similar to that shown with the shorter-gestation bulls. The range of gestation will still be 10 to 12 days on either side of the peak of the bell-shaped curve.

Research shows that there is an 80-pound (lb.) birth-weight (BW) threshold relative to dystocia in first-calf English-bred heifers. Sires listed in Table 1 and utilized in this study are obviously short-gestation, CE and low-BW sires, for only a light pull was required on less than 3% of the AI-sired calves studied. Many of these assists were due to abnormal presentation of the fetus and not to excessive birth weight. Ninety-one percent of the calves weighed less than 80 lb. at birth. As birth weights increased to more than 80 lb., so did the assistance rate.

When a first-calf heifer experiences calving difficulty, we often cast all the blame to the immediate sire of the calf. We often forget that the immediate sire contrib-

utes only half of the genetic merit. The pedigree of the dam determines the other half. If the dam's pedigree is stacked with growth and large-BW sires and dams, this is likely to influence calf delivery as a first-calf heifer. Conversely, if the dam's pedigree is stacked with CE sires and dams, one would expect shorter gestations, lower birth weights and less dystocia.

This theory held true with the study cattle. Second- and third-generation short-gestation and CE-sired cows tended to have even smaller calves at birth with shorter gestations. This would support the idea that true CE sires are stacked with calving ease in their pedigree, not simply the immediate sire.

There are several variables that contribute to calving ease other than gestation length. I feel that many of the CE sires are so partially because they are short-gestation sires. It makes sense; you do not want to leave a cake in the oven too long or it will get overdone. Perhaps this is true with a calf.

Fig. 1: Gestation length of 140 Angus cows

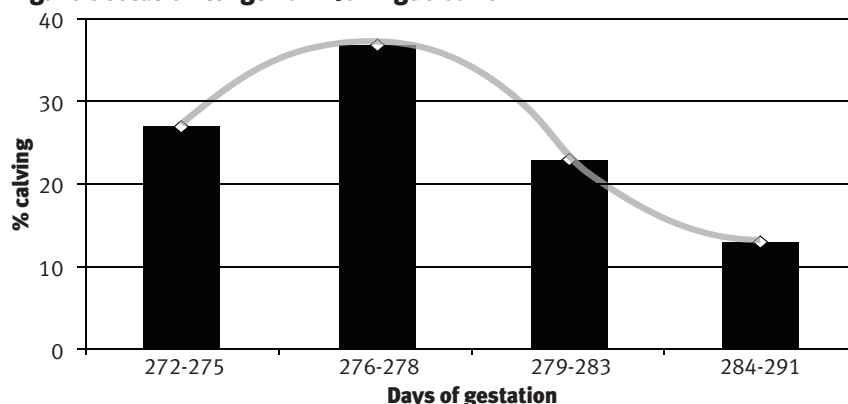


Table 1: EPDs^{a,b} and sire birth weight of bulls evaluated in study

	CED (accuracy)	BW EPD (accuracy)	Actual BW	CED ranking
Bull A	+15 (.58)	-3.5 (.75)	60	top 1% breed
Bull B	+12 (.94)	+0.5 (.94)	74	top 3% breed
Bull C	+11 (.78)	-1.8 (.90)	72	top 5% breed
Bull D	+10 (.87)	+1.0 (.94)	85	top 10% breed
Bull E	+10 (.62)	-0.4 (.84)	78	top 10% breed
Bull F	+8 (.88)	+0.6 (.96)	79	top 30% breed
Breed average	+6	+2.2		50%

^aCED = calving ease direct, BW = birth weight.

^bNumbers are followed by accuracy levels in parentheses for each trait.