Selecting the Correct Sire: Practical Tips for the Fall Sale Season

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The main strategies that beef producers can use to improve the genetic quality of their herd are: (1) selecting superior sires, (2) selecting superior replacement heifers, and (3) culling genetically inferior cows. Among these options, sire selection is the most impactful approach. Half of the genetic merit of our most recent calf crop comes directly from the sire(s) selected last year. If producers retain their own replacement heifers, this impact increases, with 75% of the genetic merit of a calf being attributed to two sires. This highlights the critical importance of precise sire selection. With the fall bull sale season approaching, it is important to acknowledge that our sire selection this fall will shape the herd's genetic merit for years to come, making it essential to invest in sires with proven genetic value. This article provides a practical review of how cattle producers can evaluate the genetic merit of bulls.

Choosing the correct sire goes beyond mere visual appraisal. Instead, sire selection should rely heavily on a careful evaluation of sires' genetic potential. Producers should prioritize data-driven decisions and utilize Expected Progeny Differences (EPDs) to ensure they are investing in sires that will improve herd genetics. EPDs are predictions of how an animal's future progeny will perform relative to the progeny of other animals for a given trait. Therefore, EPDs can be used to compare the genetic potential of different bulls for traits of interest.

For example, consider a commercial producer interested in purchasing a bull that produces heavier calves at weaning. While browsing a bull sale catalog or AI sire directory, the producer finds Bull A with a weaning weight (WW) EPD of 85 pounds and Bull B with a WW EPD of 65 pounds. Based on these EPD values, if these bulls were mated to the same cow herd and their calf crops exposed to the same environmental conditions, calves sired by Bull A would be expected to be 20 pounds heavier at weaning than those sired by Bull B (85 – 65 = 20 pounds). Therefore, a producer aiming to increase weaning weights would prioritize Bull A over Bull B.

Breed associations publish a range of EPDs that include maternal traits, such as Heifer Pregnancy and Stayability, and terminal traits, such as Carcass Weight and Marbling. This wealth of information allows producers to make informed genetic selection decisions that align with their operational goals and breeding philosophies.

Another great resource when evaluating the genetic potential of a sire are economic indexes. These indexes are commonly referred to as $Values or $Indexes. Economic indexes combine multiple traits into a single value that represents the expected economic impact of the genetic potential of an animal. One example is the $G (Grid Value) reported by the American Angus Association, which reflects differences between sires in the expected average future progeny performance for carcass grid merit. This economic index combines multiple traits associated with quality grade and yield grade attributes. Similar to EPDs, several economic indexes are available, equipping producers with the resources needed to tailor their genetic selection decisions based on their breeding goals.

Interpreting EPDs can often be overwhelming, especially when producers are unfamiliar with the units (e.g., pounds) and breed averages for a given trait. Ranking percentiles are a useful tool to simplify the interpretation of EPDs and economic indexes, as they rank animals within a breed for a specific trait. For example, an Angus bull in the top 1% ranking for the Marbling EPD has greater genetic merit for that trait than 99% of the breed. If a producer is unfamiliar with the units used to describe the Marbling EPD, they can rely on ranking percentiles to effectively identify bulls that are genetically superior or inferior for that trait.

When using EPDs to identify superior bulls, it is essential to understand the importance of accuracy values. These values are reported as decimals ranging from 0.0 to 1.0 and can be viewed as a measure of confidence or reliability. The higher the accuracy of an animal, the more confident we are that the EPD reflects the animal's true genetic merit. Differences in accuracy values between bulls are primarily determined by the number of offspring a bull has sired and whether their performance data has been reported to the breed association. The more offspring a bull has with performance records reported, the higher the accuracy of the genetic merit predictions. This explains why bulls used in artificial insemination programs, which can often sire thousands of calves, have higher accuracy compared to bulls used only in natural service settings. Genomic testing is also a powerful tool for increasing the accuracy of EPDs, especially for young bulls that have not yet sired calves.

For further assistance with genetic selection concepts in beef cattle, please contact your local Cooperative Extension office (**extension.uga.edu** or 1-800-ASK-UGA-1).

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