

Cattle Business in Mississippi – November/ December 2007

“Beef Production Strategies” article

Preparing for Herd Bull Procurement – Part II

Jane Parish, MSU Extension Beef Cattle Specialist

Bull selection decisions have a major impact on future calf crops and ultimately on profitability. Last month, sources of quality herd sire genetics were discussed, and key considerations prior to following through with herd sire procurement were noted. This month's article focuses on using available selection tools to make better bull buying choices. A critical place to start when beginning the herd sire acquisition process is to evaluate the cow herd(s) that the sires will service. From these herd assessments, profiles of desirable herd sires can be developed.

Selection Goals

Different cow-calf operations have different goals and different resources. Yet bull selection goals for any cow-calf herd should target an acceptable combination of traits that complement the strengths and weaknesses of the cow herd and match target markets. When selecting a bull, consider the needs of the cow herd. Ask questions that will help match a bull to the cow herd. Do weaning weights need to be improved? If so, growth performance is a priority in the selection process. Does calf crop color uniformity need improvement? If so, color pattern inheritance is an important consideration in bull selection. Will the bull be bred to heifers and is limited labor available to assist with calving? If either is the case, calving ease is a priority. Are there plans to retain ownership of calves beyond the feedlot and market them on a value-based pricing grid? If so, attention needs to focus on yearling weights and carcass traits in selecting breeding animals.

Other factors to consider in bull selection include structural soundness, conformation, libido, disposition, scrotal circumference, sheath, frame size, muscling, breed, and horn presence or absence. Try to strike a balance amongst economically relevant traits and avoid extremes. The type of bull selected also needs to be based on the purpose of the bull in the breeding herd. Will the bull be used as a terminal sire on mature cows, will he be bred to heifers, or will he be used to sire replacement heifers? The answers to these questions will impact the emphasis that needs to be placed on maternal traits.

The idea of developing a “want ad” for the cow herd is not a new concept. Yet it is still a useful approach to evaluating the cow herd and prioritizing herd sire needs. Consider what a want ad for herd sires might say for a particular breeding herd.

Fifty-head mature cow herd seeks bulls to improve calf genetics. Must be able to pass a breeding soundness evaluation and effectively perform herd sire duties within a 75-day breeding season. Expected progeny differences and performance information required. Must offer performance traits that complement existing herd genetics. Bulls without documentation of a complete herd health program need not apply.

Selection Tools

Adjusted Performance Records

Many individual trait levels are adjusted for age of the animal and age of its dam. This allows for more fair comparisons of cattle for these traits. For example, weaning weight is commonly adjusted to 205 days of age, and yearling measurements (weight, hip height, scrotal circumference) are typically adjusted to 365 days of age. When evaluating bulls for individual performance traits, be sure that adjusted performance levels are truly adjusted levels and not, instead, actual performance levels.

Performance Ratios

Individual performance ratios rank bulls compared to other bulls within their contemporary groups. A contemporary group of bulls would be bulls that were born within the same birth management group (same calf age group and age of dam group), managed together, and had performance data collected on the same dates. The average performance ratio for a contemporary group is 100. Bulls with performance ratios higher than 100 recorded trait levels higher than the average of their contemporary group. Consider the size of the contemporary group when evaluating performance ratios. Generally, larger contemporary groups give better indications of cattle performance compared to other cattle than smaller contemporary groups. In fact, many breed associations will not accept performance data for use in national cattle evaluations to produce expected progeny differences if a minimum contemporary group size is not met.

Expected Progeny Differences

Expected progeny differences (EPDs) are a useful genetic selection tool available for a wide variety of traits. Expected progeny differences provide predictions of the expected performance of the calves sired by a bull compared to the expected performance of calves sired by another bull. They are based on the performance records of an individual, its relatives, and its progeny. Expected progeny differences are breed specific. Therefore, direct comparisons of EPDs across breeds should not be made. Instead, compare the EPDs of a particular animal to animals within the same breed. Many breed associations publish EPDs on individual animals in sire summaries and searchable internet databases. Breed associations also publish tables that show where individual animals rank within the breed for specific traits such as weaning weight or ribeye area.

Expected progeny differences are currently the best predictors of the genetic performance of an individual animal, and they are available for a growing number of economically relevant traits. Different breeds will have EPDs available for different traits, however, most breeds have basic EPDs such as birth weight, weaning weight, yearling weight and milk. Expected progeny differences can be used to make herd genetic improvement in both commercial and seedstock operations.

Expected progeny differences can change over time as additional performance information is collected. Expected progeny differences come with accuracy values that give an indication of the reliability of the EPD. Accuracies range from 0 to 1, with values closer to 1 signifying higher accuracies. As more usable performance information becomes available for an animal and its relatives and progeny, the more accurate or reliable its EPDs become. Thus, a young, unproven bull with no calves will have lower

accuracy EPDs than a proven sire with hundreds of calf records. Expected change tables are published by breed associations as part of national cattle evaluations to show how much variation can be expected for EPDs at specific accuracy levels.

Marker-assisted EPDs are a relatively new selection tool. Marker-assisted EPDs incorporate genetic information from specific DNA segments of interest into traditional EPD calculations. Incorporation of genetic marker data into EPD calculations can improve EPD accuracy values. Use of marker data alone in selection decisions ignores the genetic contributions of other genes and may not explain much of the variation in a particular trait that is due to genetics.

Selection Indices

Selection indices are based on multiple traits weighted for economic importance, heritability (the proportion of the differences among cattle that is transmitted to their offspring), and genetic associations among traits. In other words, a selection index is a selection tool that accounts for both biological production levels and economics. Selection indices are expressed in dollars per head. A selection index may provide a balanced selection approach when selecting for more than one trait at a time. Yet, when using a selection index, it is valuable to know the traits comprising the selection index and the relative emphasis placed on these traits within the index calculation. Definitions of specific selection indices are available from the respective breed associations.

Customizable selection indices provide breeders with the option to rank cattle according to production and economic conditions specified by the user. Several breed associations provide web-based versions of selection indices that allow the user to enter their own values for various inputs such as herd size, average cow weight, nutrition-related costs, and market prices. Customizable selection indices can be used to rank bulls for the specific production and economic environment in which they intended to be used. The end result is a simulation of ranch-specific production and marketing conditions in which potential herd sires can be compared.

Ranking Potential Herd Sires

Selecting solely on performance numbers may ignore structurally unsound or infertile bulls that will do little for calf crop percentage and herd improvement. On the other hand, selection only based on visual appraisal may ignore the genetic potential of a bull. Making informed sire selection decisions necessitates using selection tools considering both performance information and functionality as part of a comprehensive evaluation of potential sires.

Mississippi BCIA Fall Bull Sale Ahead

The Mississippi Beef Cattle Improvement Association (BCIA) annual fall bull sale has developed a reputation over the last four decades of being one of Mississippi's premier sources of beef cattle genetics. This is due to the commitment to quality of progressive breeders throughout the state over many years. Bull buyers interested in taking home Angus, Brangus, Charolais, Hereford, or Balancer bulls with known performance information (including adjusted performance levels and ratios for economically relevant traits, EPDs and associated accuracy values, and selection indices) and that meet Mississippi BCIA's stringent bull sale qualification standards should plan to participate in

the upcoming sale on Thursday, November 8, 2007 at the Hinds Community College bull sale facility in Raymond, Mississippi.

Bulls will be available for viewing at the sale site starting the afternoon of November 7. The sale then kicks off at noon on November 8. Off-site bidding opportunities will be available at the Panola County Extension office in Batesville, Mississippi and at the North Mississippi Research and Extension Center in Verona, Mississippi. Producers at the Batesville and Verona sites will be able to view video of the sale bulls in the hours prior to the sale and place live bids through interactive video conferencing technology. For a sale catalog or inquiry about a particular bull lot to be offered at the upcoming Mississippi BCIA sale, go to msucare.com/livestock/beef/mbcia/bcia_bullsale.html or contact Jane Parish at jparish@ads.msstate.edu or 662-325-7466.

For more information on sire selection or related topics, contact your local county Extension office.