

A photograph of four black bulls standing in a grassy field. The bulls are facing forward, and the one on the far left has a yellow ear tag. The background is a bright, slightly hazy sky.

Selection is more than yearling weight and marbling

Bull Buying BASICS

by Dr. Jason Banta

The spring bull sale season will be starting soon and now is a good time to start making a game plan for any upcoming bull purchases. Identifying the items that are most important to your operation will help make the buying process simpler. One of the first things to determine is how many bulls you need to purchase. This will depend on if the operation has one fixed calving season per year, two fixed calving seasons per year, or if calves are born year round.

One or two fixed calving seasons is definitely better from a management and marketing standpoint. One benefit of two fixed calving seasons is only half the bull power is needed for the same number of cows. It will also depend on what bull to female ratio is used for the operation. In general, for the Southeast United States during a 90-day breeding season healthy, properly developed and managed 1- to 2-year-old bulls should be able to cover 15 to 20 females and 3- to 8-year-old bulls should be able to cover 35 to 50 females.

Next consider what the marketing goals of the operation are.

- ▶ Will all calves be sold as stocker calves or feeder cattle?
- ▶ Will calves be sold into a special marketing program?
- ▶ Will ownership of calves be retained through the feedlot?
- ▶ Will replacement heifers be kept for the operation?
- ▶ Is the operation looking to raise and sell replacement heifers?
- ▶ Is the operation looking to raise seedstock bulls or females?

Identifying these goals will help determine the traits that should be emphasized during the selection process. It will also help establish an appropriate purchase price. The money spent on bulls will vary depending on the marketing goals and sale price potential of the progeny. In general, as you move down this list of marketing options the amount of money spent on bulls will likely increase. As a seedstock producer you can't expect to spend a similar amount of money on herd bulls as what you expect to sell their sons for.

Select the breed or breeds of bulls that will be used in the operation. There is not one breed that is good at everything, all breeds have strengths and weakness. The important thing is to select a breed based on the operation goals. Also consider what resources the breed association offers to commercial producers. Does the association allow commercial producers to look up bulls online that are being considered for purchase? In some situations, sale catalogs may not print all EPDs, so it is beneficial to be able to look bulls up online to see all available EPDs, percentile ranks within the breed, and accuracy information. Additionally, it may be desirable to see the EPDs of the sire and dam of the bulls of interest. EPDs do not stay the same and will change and become more accurate as more data is gathered on progeny of an animal or its relatives. So being able to look up previously purchased bulls to see their current EPDs is also valuable.

Actual performance data, adjusted

performance data, ratios, and EPDs could be used to compare bulls. It is important to understand each of these before using them for evaluation purposes.

Actual performance data, adjusted performance data, and ratios cannot be used to compare animals from different breeders or even from the same breeder if the animals are in a different contemporary group. A contemporary group is just a group of cattle of similar age and sex that are managed under the same conditions. These measurements are affected by environmental conditions and nutritional differences. For examples, birth weight of calves with similar genetic potential will be lighter in the fall compared with calves born in the spring. Yearling weights of bulls with similar genetic potential can easily vary by a few 100 lbs. depending on how the bulls were fed.

It is critical that seedstock producers collect and submit actual performance data to breed associations on all animals and for as many traits as possible. This actual information is adjusted to a standard age, so that animals varying slightly in age can be compared fairly. Additionally, appropriate performance data is then used by the breed association to calculate ratios for each animal in a contemporary group. These ratios are extremely beneficial at the breed association level for use in calculating EPDs. Bull buyers should not use ratios in the selection process unless they fully understand how many animals and what animals are in the contemporary group.

One major benefit of EPDs compared with other performance data is that EPDs allow for comparison of animals across breeders and production environments. In most situations EPDs will be the best tool for comparing bulls. Consequently, EPDs have become a major part of bull selection during the last 15 to 20 years. As breed associations have gathered more performance data and genomic testing has improved, the value and benefit of EPDs for bull buyers has increased. Genomic testing (i.e., DNA testing) allows for increased accuracy of EPDs. The level of improvement will vary for each trait and from breed association to breed association. The more animals with individual performance data and genetic testing in the population, the greater the improvement in EPD accuracy. For beef breeds with large databases of DNA tested animals, it is extremely valuable to select bulls that have genomic enhanced EPDs compared to those that don't.

Variation in genetic potential can be high among full siblings. As an example, consider the EPD percentile ranks below for three full brothers (ET flushmates) that have been used in artificial insemination programs and all have at least 3,000 progeny records for birthweight. Percentile ranks for an EPD are a great tool to evaluate how a bull compares to other bulls within the breed for a given trait.

- Calving ease direct (CED) – 30th, 40th, 75th
- Birthweight (BW) – 65th, 30th, 90th
- Yearling weight (YW) – 20th, 55th, 25th
- Docility – 60th, 70th, 20th
- Claw shape - 90th, 3rd, 4th
- Marbling – 95th, 45th, 95th

Without genomic testing, these bulls would have had the same or very similar EPDs when sold as yearlings or coming two-year-old bulls. Fortunately, genomic testing allows for a better estimate of the genetic differences of animals at young ages, allowing bull buyers to make more informed decisions and reduce risk when buying bulls.

There is a long list of EPDs available, so it is important to focus on the EPDs that will have the most impact on the operation. Also, don't just focus on a single EPD like YW or marbling when evaluating bulls. Single trait selection can result in selecting bulls

with some very undesirable traits. In addition to EPDs, \$ value indexes are often reported by breed associations. These indexes can serve as a good sorting tool to eliminate certain bulls but should not be used as the sole or primary selection criteria. Bulls with the same or very similar \$ value indexes can vary greatly in certain traits. The EPDs and \$ value indexes to focus on will vary for the different marketing goals discussed earlier.

Selling All Calves as Stocker or Feeder Cattle

In this scenario, the focus should be on getting live calves on the ground that grow well; EPDs for CED, BW, YW, and docility are valuable to focus on. CED is a better indicator of overall calving ease than the BW EPD; CED is a combination of both calving ease scores and birthweights. Because of this, CED explains more variation in calving differences than birthweight EPDs do.

From a growth standpoint, the YW EPD is a better indicator of growth than the WW EPD for most operations, especially those that precondition calves or sell calves as feeder cattle. Additionally, the heritability estimate for YW is higher (0.42) than the estimate for WW (0.28). Focus on either YW or WW EPDs; there is not a need to look at both in most situations. Good growth is desirable, but it is also important to understand that forage resources for most cow-calf operations may not allow for the full expression of growth potential from extremely high growth bulls. Spending extra money to get the highest ranked bulls for growth may not be rewarded in this situation.

Docility is valuable to look at because of performance benefits and the fact that docile cattle should shrink less when sold than more temperamental cattle. If cattle will be marketed in load lots, then carcass EPDs may also be considered in bull purchases as a marketing tool when the calves are sold.

Keeping Replacement Heifers or Raising Replacement Heifers to Sell

In this scenario, more EPDs should be considered than in the previous scenario. Maternal and management EPDs should be emphasized. Both CED and calving ease maternal (CEM) should be considered; CEM is an indication of how easy a bull's daughters will calve. For

the breeds that have a heifer pregnancy EPD, it should be emphasized.

Docility is even more important in this scenario both for producers keeping heifers and especially those raising heifers to sell. Other management EPDs or traits including claw set, foot angle, and hair shedding should be evaluated either with EPDs, visually or both.

Be cautious of selecting for really high growth bulls as that can lead to really big cows; moderate growth is often better in situations where replacement heifers will be produced. If mature weight EPDs are available, they can be used to help maintain cow weight while selecting for growth. If steers and cull heifers will be retained through the feedlot or marketed in load lots, then carcass EPDs (primarily marbling and carcass weight) should also be considered in this scenario.

Milk EPDs should be looked at, but they should be placed lower on the list of priorities as the milk EPD has the lowest heritability estimate of any EPD at 0.12 percent. For most producers, just avoid extremes in milk EPDs.

Visual appraisal of bulls is important in all situations. Unfortunately, visual appraisal especially for structural soundness has not received the emphasis it should in the last 10 to 20 years as seedstock producers and bull buyers chased certain traits like YW and marbling. From a structural soundness standpoint, bulls should walk smoothly with a fluid stride. When viewed from the rear, feet should track in a straight line. Bulls should stand square with legs not turned in or out. Many breed associations have educational materials with examples of desirable claw shape and foot angle. Poor structure and foot confirmation leads to lameness, reduced performance, increased culling, and can lead to reduced pregnancy rates.

Bulls should also have good width through their chest and good thickness and muscle expression when viewed from behind. Bulls should be balanced, meaning all major segments of the body are proportional and nothing looks awkward compared to the rest of the body. Also look for bulls with good depth of body, volume, and capacity as these bulls generally sire better doing, easier fleshing offspring. Don't overlook visual appraisal when buying your next bull. Remember visual appearance is still one of the main factors affecting calve value. ☺