

# What Should be Considered in Bull Selection

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Selecting sires is an important decision that producers make in cow-calf operations. In a single sire herd, the bull is responsible for one-half of the genetics of the entire calf crop. The last three sires used in the operation will represent almost 87 percent of the genetic makeup of a calf crop in a herd where replacement heifers are retained. One of the first requirements before selecting a new herd sire is to determine your herd's present level of production and decide what traits need improvement.

## What breed do I need?

Producers can make their selections from a wide variety of breeds. Select a breed that has a market demand for their offspring in your marketing area. Also, select a breed that has a performance program for which you can document the expected performance of future progeny. No one breed exceeds all other breeds in all traits of economic importance. Within the breed of cattle you select, make sure that the prospective sire has the genetic potential to make positive

directional changes in economically important traits. If the color of the offspring is an important factor, you need to understand the inheritance of color in cattle and how the consequences of the breed you select will affect market demand.

## Do I save replacement heifers?

If heifers are to be retained from within the herd, then producers should consider the bull's EPD for milk. A bull that has a milk EPD that is below his breed's average will most likely sire daughters that do not have a propensity for excellent milk production. If feed resources are limited in a beef operation, selecting a bull that has a milk EPD that is extremely above the average of his breed could drastically affect the future reproduction of his daughters.

Higher levels of milk production require higher levels of feed resources in order to retain a high reproductive rate.

Consequently, selecting and using a bull that has a milk EPD that is extremely below the average of his breed could reduce the weaning weight of his daughters' calves. Most breed EPD averages for all traits are not zero. It is important to obtain a recent up-to-date breed sire evaluation report to determine different breeds' average EPDs for different traits. These sire evaluation reports can be obtained by writing to the particular breed association or finding them on the Web.

## What if I do not save my own replacement heifers?

If heifers are not saved from within the herd, milk EPD does not have to be considered in the selection process. Emphasis should be given to other traits of importance to your herd, such as increased growth rates.

## Do I need to increase weaning weights?

If weaning weights need to be increased, then a bull that you want to consider needs to have an EPD for weaning weight that is higher than his breed average. If your previous bull was of the same breed as the bull that you are considering, his weaning weight EPD needs to be greater than the previous bull's EPD. If you want to change breeds, then select a bull that exceeds his breed's average EPD for weaning weight. EPDs are useful only for comparing prospective bulls within the same breed and not between breeds. There is a positive relationship between increased weaning weight and increased birth weight. As we tend to increase weaning weights and growth, we tend to increase birth weights. Make sure that as you find bulls with high weaning weight EPDs that they do not have excessively high birth weight EPDs or low-calving ease EPDs. It is important to understand that higher numeric calving ease EPDs are associated with fewer calving difficulties.

## Will I use this bull on mature cows and replacement heifers?

If you use the same bull on mature cows and first- and second-calf heifers, then you need to consider the bull's birth weight EPD. Dystocia (calving problems) is highly related to birth weight. Larger calves at birth experience more difficulty in the birthing

process. The largest amount of calving difficulty occurs in first- and second-calf females. It is important to select a bull that is used on all females in the herd that has a birth weight EPD that is below his breed's average. If replacement females are to be synchronized and artificially inseminated to a low birth weight EPD bull, then more latitude in birth weight and calving ease EPDs for the bull selected for the mature cows is allowed.

## Do I want to increase the frame size of my calves?

If calves are discounted at the market due to frame size, then the frame size of the bull needs to be considered in the selection procedure. Frame size is one of the highest heritable traits (about 45 percent) in beef cattle, so directional changes in frame size can be realized fairly rapidly. Small-framed bulls sire small-framed calves. If frame size needs to be increased in your calf crop, a bull with a larger frame size than the present one being used should be selected.

Selecting a large-framed bull that is extremely different in size than the mature cowherd may present calving problems because there is also a positive relationship between mature size and birth weight. Strict attention must be given to the birth weight EPD of extreme-framed bulls that are considered for selection. In addition, as you select a calf crop with increased frame size, note that there tends to be a "frame creep" in the replacement heifers that are retained. You will eventually increase the mature size of the cowherd, and if feed resources are not available to support larger framed females, reproduction may suffer.

## Does my percent calf crop weaned need improvement?

The single most economically important trait in beef cattle production is

reproduction. Many factors have an effect on reproduction and using them as indicator traits may improve percent calf crop weaned. Heavier actual birth weights certainly have a bearing on reproduction as they increase the frequency of calving difficulties. Females experiencing calving difficulties usually require a greater length of time to return to estrus and, if eventually re-bred, calve later in the calving season the following year. Also, females that have difficult births produce calves that are more susceptible to sickness and death and can drastically affect percent calf crop weaned.

The consideration of birth weight EPDs can provide a producer a means of protecting against dystocia (calving difficulty). Some breeds now include a calving ease EPD, which is a measure of how easily a particular bull's calves are born to first-calf heifers. They are either reported in ratios or absolute figures. The higher numbers (both ratios and absolute figures) are indicators of fewer calving difficulties.

Extremely high milk production levels of a cow herd with limited feed resources also may have a detrimental effect on reproductive rate. Caution should be taken when attempting to maximize milk production levels in replacement females that are expected to be productive on poor forage quality and/or quantity. Utilizing milk EPDs and being aware of the breed average in the sire selection process can guard against this problem.

The prospective herd sire should have passed a Breeding Soundness Examination (BSE) within the last 30 to 45 days prior to selection. This is an exam where a complete semen and physical evaluation of the male reproductive system is administered. It should be performed by a qualified veterinarian. Scrotal circumference is measured in the exam and a 12-month-old bull should have a minimum scrotal circumference of 31 centimeters. Some

breed association sire evaluation programs have scrotal circumference EPDs. These EPDs should be considered in herds where replacement females are to be saved. Research has indicated that bulls with larger scrotal circumferences sire daughters that reach puberty at earlier ages than those sired by bulls with smaller scrotal circumferences. Selecting prospective herd sires with larger scrotal circumferences and positive scrotal circumference EPDs is an indirect selection procedure for improved reproductive efficiency.

## **Is the temperament of the bull important?**

Temperament in beef cattle is inherited. Ill-tempered cows usually produce calves that are ill-tempered. Some research reports indicate that the heritability for temperament is 40 percent. Pay attention to the attitude of the prospective herd sire in order to eliminate more temperament problems within your herd.

## **Should I be concerned about carcass traits?**

Most cow-calf producers do not concern themselves with the potential carcass qualities of their calves because they feel like they only sell weaning weight. However, with the emphasis in the industry on carcass value, carcass predictability will continue to play a more important part in merchandising feeder cattle, especially if you used the method of cooperative marketing of feeder cattle to merchandise your feeders. Many breed association sire evaluation reports provide carcass EPDs on bulls, which can be used in designing feeder cattle with carcass predictability. Producers that participate in the Tennessee Beef Evaluation Program are aware of the value of selecting for improvement of carcass traits.

## Where can I find a bull that will fit my needs?

There are many sources of bulls with documented and predicted performance. Purebred breeders that maintain performance records on their beef cattle operations and submit those records to their breed associations will have both adjusted performance records and EPDs for all of the traits of economic importance. They should be able to help you decide what kind of bull will best fit your needs. If they do not have these records and information, then neither you nor the seller will have any idea how that particular bull can benefit or hurt your cowherd's particular needs. He may or may not provide you a means of improving your herd. The fact that a bull is purebred and registered does not necessarily make that bull a herd improver.

Other sources of prospective herd sires are individual breeders' production sales, breed

association consignment sales, performance-tested bull sales and central test station sales. Many state and geographical breed associations sponsor sales of animals consigned with performance records and EPDs.

One thing to keep in mind is that it is sometimes difficult or expensive to find a bull that exceeds breed averages in all traits. Setting priorities is important in determining which traits need the most attention. You may have to sacrifice some trait levels in the first selection and then pay attention to those traits sacrificed in your second purchase, or use A.I. to obtain bulls that might excel in multiple traits but would be too expensive to purchase. Building an excellent genetic base in a herd usually takes more than one generation.



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