

Bull Power
Purebred Bull Specifications: A Commercial Cow-calf Perspective

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Two disclaimers should open this discussion: The views expressed are my own, not those of the sponsors, which I am sure will be a great relief to them. Secondly, as the title is meant to convey, these thoughts are one perspective, not a summary, for there probably are almost as many viewpoints as there are cow-calf producers.

Son John and I represent the fourth and fifth generations to ranch in Texas from before the War between the States. We have used the XXX and Running M brands since 1872, when my grandfather ran Longhorns, subsequently using Durham (Shorthorn) bulls and then Herefords. I grew up in a registered commercial Hereford operation followed by 20 years with registered Angus together with and later separate from my father. We were charter members of Performance Registry International, weighed every calf, and kept individual performance records for many years. Since 1967, I have run a commercial crossbred cow-calf and stocker operation. During this time we have used four breeds of bulls extensively and six other breeds of bulls to a lesser extent. I certainly must be color-blind, and hopefully not very prejudiced.

We have evolved into a spring calving, four breed rotational cross using Angus, Brown Swiss, Hereford, and Santa Gertrudis sires, mostly on native tallgrass rangeland with 41% bulk cottonseed cake or whole cottonseed as protein supplement or small grain grazing when available. When we do things well, we averaged a 94% weaned calf crop percent from all cows exposed over a four year period. When we do things less well, that percentage drops. At weaning and yearling time, we run budget projections to decide whether we should own the cattle longer, or let someone else. Whether for ourselves or others, we are very concerned that our cattle perform well at every stage to the consumers' plate. We try to take optimum advantage of new technology from researchers themselves and from extension and industry people and publications in a lifelong learning mode.

Regardless of breed, our criteria for bull selection to meet our needs and those of our customers have remained fairly stable over the years. Show judges can change their minds on traits between shows or seasons, but cow herds cannot and should not change that much nor that often.

Our first concern is functional and reproductive soundness in the broadest context. Don Dwyer's detailed animal behavior studies indicated that range bulls travel twice as far as cows and grazed only half as long during the breeding season. We check eyes, teeth, feet and legs for functional soundness. The forelegs should be relatively straight from both front and side views. The hind legs should be relatively straight from the rear, but only enough curve from the side

to provide a spring effect without being either post-legged or sickle-hocked. Feet and leg problems increase with increasing age and weight.

Reproductive soundness would include internal and external examination of reproductive organs with special attention to scrotal circumference or size in proportion to age and sheath attachment with no extended prepuce. A satisfactory semen exam and indications of libido with strong expression of male secondary sexual characteristics would complete this area of concern.

There are two other major categories of economically significant characteristics that relate back to reproduction and forward through production to quantity and quality of the product. In economic priority, the next concern would be to discern the maximum growth rate or level of performance that would not result in increased birth weight to the point of calving difficulty, that would not produce a replacement heifer whose requirements exceed our resources, and that would not result in a desirably finished carcass too big to fit the boxed beef trade.

To be more specific, in our area that bull would have a birth weight of 80 pounds or less, a 205 day adjusted weaning weight of 530 plus or minus 20 pounds, an A.D.G. on feed of 3.5 plus or minus 0.5 pounds, and a 12 month weight of 1000 plus or minus 50 pounds with a frame score of 5 to 6. At maturity he would weigh 1800 pounds. These weight ranges would be higher for cooler, drier regions and lower for hotter, more humid regions. It is important not to confuse genetics and environment related to growth and size.

His steers would wean at about 500 pounds, gain 2 pounds per day on high quality forage, at least 3 pounds per day in the feedlot, and at 1050-1200 pounds liveweight have a high percent of choice YG 2 carcasses weighing 700-750 pounds. His heifers would conceive at a 90% rate at 13 to 15 months of age, calve easily, milk well, and weigh 900 to 1100 pounds at maturity.

Since we need all the flexibility we can get to adjust to widely varying and rapidly changing conditions, and since half our calves are heifers, we have no interest in a bull, breed, or cross that will not produce good steers and good replacement heifers for ourselves or someone else. A normal (whatever that is) spread between steers and heifers as calves and yearlings is \$2.00 per hundred weight, when there is replacement interest competing with stocker and feeder buyers. When that interest is absent due to declining female numbers or the heifers are not desirable as replacements, that spread widens to \$8.00 to \$15.00 per hundred. At that spread, only the heaviest heifers will even repay their cost of production at weaning.

The matter of body size and growth rate reflect directly in the amount of nutrients available above those requirements for reliable reproduction in both bulls and females as shown in Table 1. I repeat for emphasis that for efficiency and economy, performance data and E.P.D.'s should be used to select not for maximum growth, milk production and size, but to select the optimum range of performance

levels commensurate with resources, management level, and desired weight and size of end product.

TABLE 1. Priority of Nutrient Use

| <u>Breeding Female</u> | <u>Bull</u> | <u>Steer</u> |
|------------------------|-------------|--------------|
| Fattening | Fattening | Fattening |
| Breeding | Breeding | |
| Growth | Growth | Growth |
| Lactation | | |
| Fetus Development | | |
| Maintenance | Maintenance | Maintenance |

The third major category of selection in terms of economic priority is conformation. In bulls, we select for a shoulder that is muscular, but not coarse, and smoothly laid in at an angle that contributes not only to soundness and easy movement, but easy calving as well. The back should be rounded or quinset-shaped when in breeding condition, rather than flat. The rump should be long from hooks to pins and wide between hooks and between pins. The hindquarter should be deep, as measured from pins to hocks, and with a good cross-section from hook to hock and pin to stifle. From the rear, the hindquarters should be widest through the stifle with good width between the legs.

Notice that those dimensions emphasize muscle mass in length of muscle versus bulge of muscle that increases calving difficulty. No one has yet sold a big, muscle-bound calf that died at birth, perhaps taking his dam with him. The length of rump and depth of hindquarter with the hind leg placed in the center of the hindquarter contribute not only to desirable muscularity, but also to soundness and a more rectangular side view related to reproductive efficiency.

Reliance on bone structure to indicate muscularity and familiarity with particular sites of fat deposition will help differentiate between muscle and fatness. Increasing refinement of ultrasound and other techniques will provide a giant step forward in objective measurement of muscularity and fat deposition in live animals instead of the gross visual estimates most often used. Excessively large ribeyes may become more of a liability than asset.

In the current emphasis on lean end product, we must not overlook the functions of fat in production and reproduction as insulation and stored energy. In the cow, a desirable level must be restored at least from weaning to next parturition with some carryover reflected in a condition score of 5 to 6 for reliable rebreeding. In colder climates, the energy requirement and fat level is higher for maintaining body temperature. Previous reference to bulls' lower intake and higher energy use during breeding requires that bulls gain sufficient fat levels before breeding to provide an adequate reserve of energy during breeding.

The history of the beef cattle business is one of immoderate overreaction from too small to too large and, unless we are careful, now

from too fat to too lean. We must determine and maintain the fat level necessary for consistent reproduction in breeding animals and for consistent eating quality in slaughter animals. Those who study Mother Nature, ecologic, and economic principles will join Plutarch in remembering "Moderation is best, and to avoid all extremes." Hopefully, our industry is maturing to the point that we will not go overboard this time on lean meat and muscularity, but strive for the balance of characteristics that produce high quality beef most efficiently, economically and consistently.

References

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