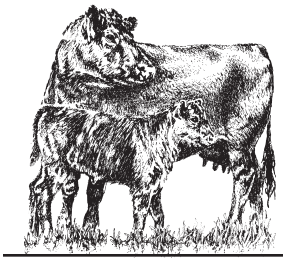

Western Beef Resource Committee *Fourth Edition*

Cattle Producer's Handbook

Reproduction Section 421

Purchasing and Managing Young Bulls

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Selection

Before selecting an individual bull, cattle producers should first determine which breed or breeds will influence their cowherd in a positive manner. The choice of breeds should be based on a long-range plan developed by matching breed strengths to a rancher's production goals and ranch resources. For example, is the goal to increase weaning or yearling weights, increase maternal milk, or increase calving ease? The selection then should emphasize those traits most related to the breeding goals. Individual bull comparison should be done within breed. This avoids confusion caused by differences between individual performance and breed characteristics.

The best tool available to evaluate the breeding value of a bull is expected progeny differences (EPDs). More detailed information on EPDs can be found by reading fact sheet 1037. Most breeders can obtain EPD information through their breed associations. For EPDs to be useful, buyers must first determine their production goals.

Purchasing Young Bulls

In today's livestock industry most bulls are purchased as yearlings. Despite the fact that they are fertile and can breed cows, they are not fully grown or developed. Because of this they require extra management to make sure they achieve their optimum production levels.

Purchasing Bulls

For decades we have been collecting performance data on bulls, but in earlier times, it was mostly individual performance under feedlot conditions. A ratio would be calculated and potential bull buyers would use those numbers to help make selections.

The problem with this is that the ratio only told you how this bull grew as an individual performing against his pen mates. These numbers said nothing about what traits, good or bad, would be passed on to his progeny. In fact, his capacity to grow big and score high on feed tests may not have been passed on at all.

A large breakthrough came when computers became available and statistical methods were developed to calculate expected progeny differences. EPDs provide an estimate of the genetic potential of an animal as a parent based upon three sources of information: ancestors, the animal's own record, and the record of its progeny. Because most yearling bulls do not have progeny, their EPDs are limited to their pedigree and their own performance information.

What does an EPD express? An EPD predicts comparable difference in measurable traits within a breed. Assume that one bull has a birth weight EPD of +3.0 and another bull of the same breed has -1.5. This means that, if these bulls were used on genetically equal females managed under equal conditions, the first is predicted to sire calves averaging 4.5 pounds heavier at birth than the other bull (the difference between +3.0 and -1.5). As a producer you are paying for that expected difference in performance.

EPDs are generally calculated by breed associations and are used for all kinds of traits. Some of the early measured traits were birth weight, weaning weight, and yearling weight. Now there is literally a plethora of different EPDs. There is even an EPD that estimates how docile an animal's offspring might be.

The problem with EPDs is that they are data driven. This means the more information the better. Whenever an EPD is listed it is always accompanied by an accuracy value (ACC).

Accuracies are reported as numerical values from 0 to 1. An EPD with accuracy close to 1 most likely represents the true genetic merit of the animal. As the value lessens and gets closer to 0 the EPD is less reliable. An older bull with several generations of calves

on the ground will have a much higher accuracy just because of the offspring records available. A yearling bull with no progeny will have extremely low accuracies.

Genomics

In the late 1980s and early '90s technologies were being developed that allowed researchers to access the genetic code of living organisms. Using a tissue sample from a live animal, it became possible to identify genetic markers for different traits. Economic attributes of beef cattle such as weaning weight, yearling weight, calving ease, marbling, and many others could be identified in individual animals. This promotes knowledgeable culling and breeding decisions by determining which sires have positive genetic potential.

The ideal way to use this newfound technology is to combine it with the traditional EPD to create a genomic enhanced EPD. This significantly increases the accuracy of the EPD as a selection tool. This is extremely important for young bulls with no progeny and no performance records. With DNA testing, the accuracy values rise and the potential risk declines.

Another important factor is the ability to determine parentage. Errors in pedigrees have significant negative impacts on the reliability of EPDs. Genomics can identify the appropriate sire when producers have to manage multiple sire breeding pastures or when there is a discrepancy with birth dates in an artificial insemination (A.I.) program using cleanup bulls.

The American Angus Association was the first breed organization with genomic enhanced EPDs. Many other breeds are rapidly bringing their performance programs into the realm of modern DNA testing.

The fact of the matter is a bull contributes 50 percent of the genetic material in a beef breeding program. That is a huge factor in the performance of the calves each year. It becomes even more important if a ranch is producing its own replacement heifers. The genetic makeup of any particular bull can have an effect in a herd for many generations. That is why careful selection of herd bulls is tremendously important.

Structure and Soundness

Structure and soundness are extremely important to the success of any breeding bull. Bulls that become crippled will not only be a failure in breeding cows but will also not be able to graze or travel any distance to water.

A rancher can often detect structural problems in young bulls that may lead to later breakdowns. Problems might include weak bone development, joint complications, or malformed leg structure.

Bulls need to be able to travel long distances, especially under range conditions. They also need to be able to stand the stress of the breeding season. Young bulls will try to cover as many cows as they possibly can, which will lead to weight loss and may even cause physical breakdown if the animal is not structurally correct.

Nutrition

One of the most common mistakes with purchasing young bulls is bringing them home, turning them out with older bulls, and expecting them to do well. Most yearling bulls have spent the last 5 to 6 months on a high nutritional plane. They have been pushed and expected to achieve as much growth as possible. Removing them from that level of nutrition and putting them on a maintenance diet can be quite detrimental.

It may not be necessary for the young bulls to be continued on some type of high gaining diet, but the bulls are still growing and need adequate nutrition. In many cases there may be as much as 2 to 3 months between the purchase of a young bull and the beginning of the breeding season. During this time the bulls should be managed to be at a body condition score of 6 at the time of turnout. This will give the bull adequate reserves of energy for use during the breeding season. A yearling bull can be expected to lose 100 pounds or more during the course of his time with the cows.

For information on nutritional requirements and rations see fact sheet 300.

Adjustment

Yearling bulls will need time to adjust to their new environment. They may also need time to exercise and get in shape for the upcoming breeding season. The young bulls may have been grown in lots where adequate exercise was not available. The pre-breeding period also allows for the comingling of bulls before turnout. The bulls need to get to know each other and establish the order of seniority. Fighting is a natural occurrence with bulls, and facilities should be large enough and strong enough to handle these brawls.

Health

Most bulls purchased from breeders will be vaccinated and tested for fertility before sale. If not, a breeding soundness exam (BSE) is necessary (see 425 for more info on BSE and libido exams). A variety of factors affect bull fertility, and it is smart to make sure that everything is in order before turning them out with the cows. Your veterinarian can provide the facilities and procedures to do a BSE on your bulls that will put your mind at ease.

Raising Bulls for Breeding

Purchasing weanling bull calves is another strategy that cow-calf operators can use to improve their bull battery. Many seedstock breeders prefer selling young bulls to avoid the costs of another year of feed and management. When purchasing young weaned calves,

there is scant performance information available to help in selecting the higher quality bulls. This is where the study of genomics will be important in the future.

Nutritional Considerations

Probably the most common mistake made in purchasing young bulls is failure to provide an adequate diet to continue their growth and development. Often bulls are delivered, turned out with other bulls, and left to "rough it" until breeding time. Thus, bull development is delayed, sexual maturity is not achieved, and the resulting calf crop is less than it should have been.

The first step in providing adequate nutrition is determining the desired level of performance. Typically, young bulls have 160 days to grow from weaning to yearling age. Because of the growth potential of our current beef population, yearling bulls are heavier than 1,000 pounds. Therefore, young bulls need to have gains of 2.5 to 3.0 pounds daily. High energy diets are often needed to attain these performance levels.

Different parts of the country have different feedstuffs available. A rancher should calculate a least cost ration using available feeds that will meet the needs of the bulls being grown out. Information on the requirements for cattle can be found in fact sheets 300 and 310. Currently, several computer programs are available for balancing rations.

All bulls should be gaining weight just before the breeding season. As previously mentioned, a young bull will use body stores of energy and lose over 100 pounds during the breeding season. This weight loss should come from energy stored as fat (condition) before breeding rather than muscle tissue. Conversely, excess condition should also be avoided as it lowers the bull's fertility and libido. As an example, fat bulls may fatigue rapidly, contributing to fewer cows conceiving.

For a yearling bull to be used successfully, he should have reached puberty 3 to 4 months before breeding time. The age of a bull at puberty depends on several interrelated factors, but size or weight is probably the most controlling factor. The production of semen by a young bull largely depends on his overall growth as well as the development of his testicles and other reproductive organs. The size of testicles and volume of semen produced are positively correlated.

Facilities

When bulls are mixed with others, the resultant fighting can be detrimental. Buying and raising young bulls as a group vs. buying older bulls from various breeders can reduce fighting and associated injuries.

While it would be best to place young bulls into breeding pastures separate from older bulls, we recognize that most producers have limited breeding pastures. When developing breeding plans that include different breeding pastures for different groups, cattle producers should separate the bulls based on age to ensure good breeding response. If older bulls are going to run common with younger bulls, pen them together before the season to allow time for the required social interaction.

Commercial producers buying bull calves or yearlings need equipment and suitable facilities for growing them out. A large, well-drained lot that gives opportunity for some exercise is desirable. Exercise over rough or rocky ground will help the animals avoid the foot problems that sometimes occur when bulls have been fed heavily to get into sale condition. Locating feed areas away from water sources will facilitate movement of bulls and encourage exercise. Raising bull calves in an area that forces travel will help condition them for breeding cows.

Some type of shelter or housing is advisable where bull calves are confined and the winters are severe or exceedingly wet. An open-sided pole-type shed is desirable, and a partially surfaced lot is helpful if mud is a problem. A loafing shed should provide about 25 to 30 square feet per head. A completely surfaced lot should provide about 50 square feet per animal, and a partially surfaced lot should allow about 150 square feet per head.

Feeder space should be 24 to 30 inches of bunk space per head if all animals eat at the same time. Horned bulls require more bunk space than polled bulls. If self-feeders are used, it may be helpful to place the feeder near the fence line so it can be filled without entering the lot.

Young bulls need access to a plentiful supply of water. Freeze-proof watering facilities are a help. If the water system should freeze up, cattle producers need to haul water if necessary. Too little water can cause slow growth and may result in formation of urinary calculi (stones) or other health problems. If more than 30 bull calves are to be fed, divide them into two groups. It is also a good idea to separate polled animals from horned animals.

The Health Program

Bulls bought as weaners or yearlings should have adequate time to adjust to any environmental problems particular to the new ranch. Buying bulls at a young age gives the new owner opportunity to include the new animals in the overall herd-health program. The breeder or seller should indicate what vaccinations have already been given.

Most bull calves will have had calfhood shots for blackleg and malignant edema. Booster shots for these diseases are necessary and usually are given in a preconditioning program. Most pre-weaning health programs include protection against clostridial and other diseases associated with feedlots. In addition, the health program should include control of both internal

and external parasites. If you have questions, ask your local veterinarian about recommended health practices for your area.

Summary

Several strategies will create a successful bull battery for a cow-calf operation. Whether bulls are purchased as weanling calves, yearlings, or 2-year-olds, it is important that they be carefully selected according to the goals of the individual operation, and then managed nutritionally and physically to be successful breeders.

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