Selection and Management of Herd Bulls

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SELECTION AND MANAGEMENT
OF HERD BULLS

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Selection

"Which bull should I buy?" This is one of the most important decisions a breeder will ever make. For a bull not only represents a sizeable investment, but also influences the economic return from the herd for years to come. Therefore, the breeder wants a bull that will both settle a high percentage of the cow herd with one service and sire calves with genetic potential for rapid and efficient growth.

"How do I find that kind of animal?" Following is a discussion of the factors to consider when selecting a future herd bull.

PERFORMANCE

First, select a bull on which performance information has been kept, paying closest attention to his weight adjusted to 365-days and weight ratio. His performance should be at least equal to the herd average in which he was produced or to the average of a group of bulls on test. His superiority (or inferiority) with respect to the average is indicated by the weight ratio, which is calculated as follows:

\[
\text{Individual Bull's 365-Day Weight} \times \frac{\text{Average 365-Day Weight of Group of Bulls}}{100}
\]

A bull with a weight ratio above 100 is heavier than the group average. Likewise, individuals with adjusted weights below average have weight ratios less than 100. For example:

<table>
<thead>
<tr>
<th>Bull</th>
<th>365-day weight (lbs.)</th>
<th>365-day weight ratio average</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1090</td>
<td>109</td>
</tr>
<tr>
<td>B</td>
<td>1010</td>
<td>101</td>
</tr>
<tr>
<td>C</td>
<td>900</td>
<td>90</td>
</tr>
<tr>
<td>Average</td>
<td>1000</td>
<td>100</td>
</tr>
</tbody>
</table>

Generally speaking, only about 30% of a bull calf’s superiority at weaning (205 days) will be passed on to his progeny; but a much greater portion (50 to 60%) of a bull’s superiority as a yearling (365 days) should be transmitted to his calves. This means that a bull’s superiority is better determined at 365 days than at 205 days of age.

It is often said that a bull should weigh 1,000 pounds at a year of age. This is a good rule-of-thumb for Angus and Hereford bulls under average nutrition and management conditions; however, Charolais or Simmentals should weigh more near 1,200 pounds.

Two bulls with the same genetic growth potential may vary 200 pounds or more just because they were fed differently. For that reason, find out what kind of ration the animal was fed, and try to estimate what portion
of his added weight is due to extra fat. It is possible, therefore, to be misled by comparing actual or adjusted weights of two bulls that were managed differently, especially if they are from two different herds. Compare weight ratios, not weights!

PHENOTYPE

Items that can be inspected and appraised visually (muscling, structural soundness, masculinity, etc.) are part of a bull’s phenotype, sometimes referred to as "individuality."

First, consider skeletal or structural soundness. A bull with superior genetic potential for growth cannot transmit that superiority unless his feet and legs are sound and he is able to seek out cows in heat and breed them. Therefore, avoid bulls that are extremely sickle-hocked or post-legged.

A modern-type bull should have: (1) an ample amount of bone; (2) adequate skeletal size, as indicated by height at the shoulder and a long body; (3) above average muscling in the forearm, rump and round, especially through the center of the round at the stifle; and (4) a trim brisket and underline.

Avoid selecting a bull that is excessively large, massive in the shoulders, or abnormally heavy-muscled. Any of these conditions may result in greater calving difficulty for the cows. Don't get carried away on small, non-economic points, such as width between the eyes or color of nose, that contribute little or nothing to productive efficiency or desirability of product.

The reproductive organs, both internal and external, should be examined for abnormalities and indications of disease. Both testicles should be normal in size and consistency. There is a direct relationship between testicular size and sperm production. Watch for bulls with cryptorchidism (one or both testicles retained inside the body cavity) and scrotal hernias, both inherited conditions that impair reproductive performance. Also avoid over-fat bulls that are often less fertile and lack sexual drive and the physical ability to breed cows.

BREEDING SOUNDNESS

Presently, there is no accurate way to predict that a bull will settle 50% or 80% of the cows exposed to him. But through a breeding soundness examination prior to the breeding season, you can identify those bulls of questionable or unsatisfactory breeding potential. They should be eliminated to reduce time lost in the breeding pasture and the resulting loss of pounds of calf at weaning time (i.e., fewer calves at lighter weaning weights).

Examining bulls for potential breeding soundness is a routine practice in many beef operations. Surveys show that 10 to 15% of the bulls tested are unsatisfactory as potential breeders. Such an evaluation (1) gives the producer some assurance that the bull to be used during the coming breeding season will settle a high percentage of fertile cows and (2) helps determine the potential breeding status of bulls for sale or purchase.

Potential breeding soundness is measured by semen quality and structural soundness. Semen quality is determined by collecting a representative semen sample with an electro-ejaculator or artificial vagina and examining it (with both naked

The modern-type bull -- long-bodied, structurally-correct, well-muscled, masculine.
eye and microscope) for color, volume, cell concentration, motility and cell morphology.

PEDIGREE

Record of ancestry is very important to a breeder of registered cattle. Although of lesser importance to a commercial producer, he should not ignore the pedigree. But remember, only the closest relatives (sire, dam, sons, daughters, half-sibs, grandsires and grandams) should receive much consideration when using pedigree information. Performance information from close relatives, especially carcass data from steer progeny and mothering ability of daughters, is very useful in determining breeding value of a sire. Pedigrees will also help in selecting against genetic abnormalities, such as dwarfism and "double muscling."

PUREBRED OR GRADE BULLS

Purebred bulls have been the basis of beef cattle improvement the past few decades. Yet, there is almost no research comparing the merits of purebred vs. crossbred bulls. The current recommendation for commercial producers is to use a planned, systematic crossbreeding program based on crossbred cows and purebred sires.

Don't expect all the progeny of a crossbred bull to look like their sire or perform like him. Calves sired by crossbred bulls will generally vary more in color and conformation than progeny of purebred bulls. Also, remember that hybrid vigor, which was responsible for a portion of the growth exhibited by a crossbred bull, will not be transmitted to his progeny.

PRICE

"How much can I afford to pay for a superior, performance-tested bull?" One rule-of-thumb is that you can pay at least two to three times the value of a 1000-pound market steer. Thus, if a finished steer is worth $300 at 15 months of age, a producer should expect to pay at least $600 to $900 for a performance-tested bull of the same age that will noticeably improve his herd.

"How much more valuable is a superior, performance-tested bull over a mediocre herd bull in terms of economic value of the calves produced?" Following is an actual example of prices paid for two bulls of the same breed, one having above average growth potential and the other, below average.

<table>
<thead>
<tr>
<th>Bull</th>
<th>Weight</th>
<th>365-day Weight Ratio</th>
<th>Grade</th>
<th>Sale Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>1143</td>
<td>107</td>
<td>14</td>
<td>$710</td>
</tr>
<tr>
<td>E</td>
<td>923</td>
<td>98</td>
<td>13</td>
<td>$420</td>
</tr>
</tbody>
</table>

220 lbs. --- Difference --- $290

The price differential of only $290 is by no means an accurate measure of Bull D's true economic superiority to Bull E, as we will now see. (For illustration purposes, let's assume bulls D and E were raised under comparable environments and management levels.)

1. Bull D will transmit about half his superiority over Bull E to his progeny (about 110 pounds) because differences in yearling weights are about 50% heritable. (220 lbs. difference x .5 heritability = 110 lbs.)

2. Because a sire contributes only half of the genotype (genetic make-up) of his progeny, we must halve again the heritable difference, or 55 pounds. (110 lbs. x .5 sire's contribution = 55 lbs.)

3. Assuming each additional pound of yearling weight is worth $0.30, each yearling-age progeny of Bull D should be worth $16.50 more than progeny from Bull E, not
including possible improvement in grade as well.

\[ 55 \text{ lbs. difference} \times \$ .30 \text{ per lb.} = \$16.50 \text{ difference per steer.} \]

4. If Bull D sires 25 progeny per year, his value over Bull E increases to $412.50.

\[ ($16.50 \text{ per animal} \times 25 \text{ head} = \$412.50 \text{ difference per year.} \]

5. Although the actual sale price difference between D and E was only $290, their expected performance difference over 3 years would have been $1237.50.

\[ ($412.50 \text{ per yr.} \times 3 \text{ yrs.} = \$1237.50.) \]

Management

Proper care of the herd sire, especially yearling bulls, is a must to insure optimum breeding performance and a productive life.

TRANSPORTATION AND ISOLATION

Purchase the herd sire at least 40 to 60 days before the breeding season. This gives the bull time to adjust to new surroundings and to recover from stresses involved in sale or transportation. It takes approximately 40 days from the time a sperm cell is formed until it is available for ejaculation. Thus, infertility problems caused by stresses of a sale and transportation are not completely corrected until 40 to 60 days after they have occurred.

NUTRITION

If the newly-purchased bull is carrying excessive flesh, do not "let him down" too quickly. He still has a daily requirement of protein, minerals and vitamins that may not be met if he is taken completely off concentrates. Also, don't let an overfat bull down in condition during the breeding season, because it will likely result in low conception rate.

Bulls should be in moderate flesh condition when they are put into the breeding pasture. Growing yearling bulls may need some grain during the breeding season, especially if pastures are dry. One-half pound of grain per 100 pounds of bodyweight daily should be plenty. Mature bulls should receive the same pastures and feed as the cow herd.

After the breeding season, the amount of feed required will vary with the individual animal. However, a good quality roughage plus 5 to 6 pounds of grain is recommended to help get yearling bulls in condition for the next breeding season. Mature bulls in proper flesh condition can be fed good quality hay, or corn or grass silage, but will need about 50 to 75% more feed than dry, pregnant cows. Trace-mineralized salt and a simple mineral mixture should be provided free-choice at all times.

BREEDING MANAGEMENT TIPS

1. In general, do not expose a young bull to more than 15 or 20 cows during the same period.

2. Provide a satisfactory breeding area. Good footing is a must. Clear pens and pastures of boards, wire and other debris which may cause injury.

3. Observe the cow herd closely, and keep accurate records to assure that the bull finds cows in estrus and services them and that a large percentage conceive to the first service.