



Cattle Producer's Handbook

Reproduction Section

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Bull Management and Care in the Western U.S. During and After the Breeding Season

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A sound battery of breeding bulls is integral to the success of any cow-calf operation. Good management practices are important for these bulls both during the breeding season and afterwards in the down time of year.

In most cases, breeding bulls are only useful for 3 to 4 years. Bulls of advancing age have the potential of breeding their own daughters if the operation is raising its own replacement heifers. In addition, skin folds in the sheath area are larger in older bulls, which may increase the risk of trichomoniasis infection.

When older bulls are removed from the breeding battery and new bulls added, young bulls have a higher potential for breeding problems during the breeding season. This can translate into open cows, extended calving seasons, and lighter calves at weaning. Younger bulls may require a higher level of management, including an elevated level of nutrition (Parker, Mathis, and Hawkins 1999).

Bull management and care is an ongoing process. Most successful bull management programs include the following practices, both during and after the breeding season:

- Appraisal of breeding conditions such as pastures or paddocks.
- Assessment of social behavior and bull dominance within the battery.
- Bull-to-cow ratio.
- Evaluation of the body condition and nutritional level of bulls before, during, and after the breeding season.
- Breeding soundness exams, not only for fertility, but also disease potential.

Appraisal of Breeding Conditions

Breeding conditions can definitely determine the success of the breeding season. Included in the breeding conditions is how, when, and where cows and heifers will be bred. Pastures, fences, and working facilities should all be evaluated for any pitfalls that might occur. Managers of cattle being bred under range conditions will have to consider natural barriers, water and forage supplies, and how far the animals can scatter.

Constant monitoring during the breeding season will indicate how well the bulls are working and whether the cows are being covered. Note and incorporate any changes that need to be made before they are forgotten. Fences and natural barriers should be strong enough to limit encroachment by other bulls. This is especially true when trying to keep performance data on individual bulls and females.

Forage and water availability should be evaluated to determine if the location will adequately meet the nutritional requirements for a particular group of animals. For example, should a pasture continue to be used for first-calf heifers (females with first calf at side), or is it better suited for open heifers that are not nursing a calf? It may be too late to make immediate changes in the year this situation is realized. However, changes that will improve the situation should be noted and made for the following year.

Bull Dominance

Although cows do most of the “finding” of a mate, bulls need the freedom of movement to find “hot” cows. When bulls, especially young bulls, are turned into new environments, they naturally will make

adjustments. The bulls may take several days to acclimate themselves to their new environment.

Studies at Clay Center, Nebraska, evaluating sexual behavior of bulls while on pasture, indicated that yearling beef bulls must undergo both a “learning process” and acclimation to their environment before exhibiting sexual behavior. Young beef bulls exhibit more sexual activity including mounting and achieving at least one service while in groups of three or more (Lunstra and Coulter 1997). Large, single-sire breeding pastures with yearling bulls may negatively impact early season matings and conceptions.

Social dominance or aggressive behavior by some bulls can influence the performance of less dominant animals, and limit libido, conception rate, and number of calves sired by each bull. Young bulls should not be expected to compete with older bulls in the same breeding pasture. Even if the pregnancy rate is not affected, the time of conception may be delayed, ultimately lengthening the calving season.

Bulls that have been used more than two breeding seasons may become territorial and expend significant amounts of time and energy fighting to maintain their territory. This may reduce the amount of time bulls spend servicing cows. Bulls have been observed to mount as many as 20 times and failed to complete service while spending time keeping subordinate bulls away from the female in heat (Gary 2009). Cattle producers should assign bulls to mating units in a manner that reduces the impacts of negative behavior.

Bull-to-Cow Ratio

Bull-to-cow ratio needs to be established for each particular breeding situation. Traditionally, the ratio is 1 bull to 25 or 30 cows. However, a Colorado State University study demonstrated that production costs can be lowered by reducing the bull-to-cow ratio. A ratio of 1 bull to 25 heifers was compared with 1 bull to 16 heifers. Both heifer groups were synchronized for estrus. The resulting pregnancy rates were of 83 and 84 percent, respectively (Healy et al. 1993). Thus, bulls can cover several animals in a short period of time with acceptable conception rates.

A ratio of 1 bull per 50 naturally cycling heifers resulted in an 82 percent pregnancy rate in a 28-day breeding season. The same ratio in synchronized heifers resulted in a 77 percent pregnancy rate. There appears to be a limit to how far bulls can be extended when using estrus synchronization, but in a natural mating system, fewer bulls can be used.

Although pregnancy rates were numerically similar across all bull-to-cow ratios previously described, the costs for achieving a pregnant heifer varied greatly. Estimated cost per pregnant heifer for groups with 1 bull to 50 heifers was one-third the cost of groups with 1 bull to 16 synchronized heifers.

Based on this information, many cattle producers may decrease their bull power, maintain herd productivity, and lower breeding costs. However, several factors need to be considered before making this decision:

1. **Topography, Feed Conditions, and Pasture Size**—The type and size of pastures used for breeding will impact the number of bulls needed. There is evidence that cows find the bull when they cycle. Rough, hilly terrain, sparse vegetation, and larger pastures limit the number of cows a bull can breed.
2. **Age and Condition of Bulls**—In today’s market, many ranchers are buying young bulls at production sales where the bulls have been on intensive feeding programs to help them achieve optimum growth. Once these bulls are turned out with the cows, especially on sparse range conditions, they “melt.” In other words, all of that fat and finish disappears, and the young bulls take on an emaciated look. It is important not to let these young bulls slip too far nutritionally.
An alternative may be to use young bulls for shorter periods of time and rotate groups during the season. Leaving young bulls with the cowherd for a long period (more than 70 days) may seriously reduce their body condition. To recondition them after the breeding season may be costly.
Another consideration would be to purchase young bulls well before the breeding season and manage them to “harden up” before turnout by putting them on pastures similar to where they will be used for breeding and allow them to lose some of the over-condition they have from the high feeding period. However, caution should be used to not let them lose too much condition too quickly as this may interfere with fertility.
3. **Breeding Season**—A short breeding season of 60 to 90 days is recommended to ensure uniformity of calves at weaning time. If possible, producers should remove bulls from the cowherd to prevent late calves.
4. **Observation**—Once the bulls are in the breeding pasture, observation allows for evaluation of mating desire as well as the opportunity to see any physical injuries. Observation will also determine if cows in heat are being mated by bulls. Bulls that are not mating because of injury or lack of desire should be removed from the herd. Studies in Texas and Colorado indicate that approximately one in every five beef bulls is questionable or unsatisfactory as a breeding bull based on serving capacity and breeding soundness exams.

Evaluation of the Body Condition and Nutrition Level of Bulls

Proper nutrition is essential to maintain optimum performance in bulls. Bulls should be kept in medium

flesh with a body condition score of 5 to 7 and be allowed to get plenty of exercise. It is important that bulls not deteriorate nutritionally during the winter months. Older bulls can be maintained; while younger bulls should be given the nutrition they need to keep growing. This may involve separating the younger bulls and providing supplemental feed.

Estimate the weight of the older bulls and calculate the amount to be fed at 2.5 percent of their total weight. This can be accomplished using whatever forage materials are available. Be sure that the bulls' protein needs are being met when using mostly grass- or straw-based forages. The younger bulls will need to be fed at a higher rate of 3 to 3.5 percent of their total body weight to ensure that they will have the opportunity to reach mature size. If the bulls are being fed forages of lower quality, supplementation with available concentrates may be necessary. Any type or combination of feed grains will get the job done.

Exercise is also essential during the winter months to keep bulls healthy. The easiest method of providing exercise is to allow them plenty of room to move around in pasture or lot where they are being kept. Placing feed and water at opposite ends of the enclosure forces the bulls to exercise.

Breeding Soundness Examination

A breeding soundness examination performed 30 to 60 days before the breeding season is absolutely critical. A positive exam does not always mean that a bull will be successful when turned in with the cows. However, it is the best insurance that a producer has in predicting breeding bull success. What it does indicate is that the individual bull on the day of test is fertile and sound. Injury, disease, and lack of mating desire can prevent a bull from performing at the desired level. Fertility testing bulls is important, but it's only part of the overall success of a breeding program.

Disease Risk Post Breeding

The breeding soundness exam is the optimum opportunity to perform a trichomoniasis test on each of the breeding bulls. This is a venereal disease that can result in poor reproductive performance in a cowherd and causes cows to abort within the first 4 months of pregnancy. An infected cow may rebreed later in the season but will be extremely late at pregnancy testing time. If the bulls have been pulled after a 60- to 90-day breeding season, these cows will be open.

In a few cases, a cow can remain a carrier, but the overwhelming majority of carriers are bulls. Trichomoniasis is most prominent in bulls 4 years and older. These bulls carry the disease until the next breeding season and can infect a large number of susceptible cows.

The trichomoniasis organism grows best where there is no air and thrives in little pockets or crypts that line the bull's sheath. Younger bulls become infected and spread the disease for a short time then have a tendency to shed the organism when sexually resting. The higher infection rate in older bulls can probably be attributed to the fact that these older bulls have sheaths made of much looser skin. As a result, they can start infecting cows at the beginning of the breeding season and can greatly increase the chance of exposing several cows to the disease.

Breeding bulls should be evaluated annually for trichomoniasis. If a bull is used twice in one year, he should be tested twice each year. Bulls testing positive should be culled and sold immediately. When the bulls are sold they should be identified as carriers. In herds with one positive test, bulls testing negative should be retested at a later date, because it is often difficult to isolate the trichomoniasis organism on one test.

Controlling trichomoniasis in range areas can be difficult and must be a cooperative effort among neighboring producers. The likelihood of herds commingling is high where animals share common fence lines. Consequently, even though a producer may eliminate the problem in his herd, his animals are likely to become infected by carriers in other herds.

There are no proven effective treatments for trichomoniasis so prevention is the only line of defense. Some recommendations are:

1. Maintain as young a bull battery as possible.
2. Culture bulls at a fertility exam, especially those more than 4 years of age.
3. Culture all new bulls before placing with cows.
4. Purchase virgin replacement bulls.
5. Breed virgin bulls to virgin heifers.
6. Pregnancy test all cows and heifers 60 to 90 days after breeding, and cull all those that are open.
7. Vaccinate all females twice the first year, 2 to 4 weeks apart with a second vaccination, 4 weeks before the breeding season with annual revaccination.
8. Keep fences in good repair to avoid getting the disease from neighbors.
9. Be suspicious about buying cows, especially cull cows.
10. Do not buy unidentified older bulls at a local sale barn for use as breeding bulls.

Summary

If a producer runs 30 cows per bull and gets a 100 percent calf crop, the bull's contribution to the calf crop is 30 times greater than each cow within the breeding

herd. Add to that the bull's daughters' future production in the herd. It becomes evident that a particular bull can affect the success of a breeding program for decades.

In order to exert a positive influence on the herd, it is necessary that proper bull power be maintained. The advantage of using young bulls is to control such venereal diseases as trichomoniasis. Proper nutrition is essential to maintain fertile active bulls. Pasture size, forage, and water availability are factors to consider particularly during the breeding season.

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