



UNIVERSITY OF
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IFAS EXTENSION

Development and Management of Bulls ¹

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Introduction

Calf crop percentage (number of calves born ÷ number of cows exposed to breeding), is the most important factor in determining the total pounds of calf weaned per cow maintained in the breeding herd. As a result, no other factor of beef production has a greater economic impact on the beef operation than the calf crop percentage. This percentage can be reduced if herd bulls are not in adequate condition at the beginning of the breeding season. Proper feeding and management of both young and mature bulls is often neglected, but is essential in obtaining optimal breeding performance and longevity. Bulls should be fed to maintain a thrifty, vigorous condition at all times. Bulls that are either under- or over-fed will have lower sexual activity. Also, overfeeding and lack of exercise are apt to result in reduced fertility as well as wasted feed and money. Reduced fertility and libido of the bull may often be traced back to his early care and feeding. Therefore, adequate exercise throughout the year combined with a well-planned management and feeding program are essential for keeping bulls in moderate flesh and in a natural, healthy condition to maximize/optimize reproductive performance and economic stability.

Developing Young Bulls

Postweaning development of bulls 8 to 10 months of age plays an important role in their potential ability as future herd sires. Their usefulness as yearling bulls depends to a large extent on how they are handled from weaning until the onset of the breeding season. From weaning to three years of age, bulls should be separated by age. Weaned bulls should be dewormed, deflucked (if flukes are a problem in your area), and vaccinated for 5-Way Leptospira, Campylobacteriosis (Vibriosis), and Trichomoniasis (Trich), according to the disease incidence in your region. Your veterinarian is a good source to determine the diseases that are present in a particular area. In addition, bulls should test negative for brucellosis (Bangs) and tuberculosis (TB). Healthy bulls should then be developed to attain adequate growth and size so that their inherited characteristics for production can be determined. To insure adequate growth in the year following weaning, bulls of British breeding should gain at least 2 pounds daily, while bulls of the larger breeds should gain an additional 1/4 pound per day. The practice of feeding high energy concentrates to young bulls in dry lots or commercial tests to attain maximum gains of 3 to 5 pounds daily, when these

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bulls are to be used as yearlings in the breeding program, has been questioned due to the association of excessive fat cover with reduced fertility and soundness problems. Recent reports from the University of Tennessee, however, indicate there is not a relationship between excessive backfat and low-quality semen as previously thought. Therefore, bulls that are raised on high energy diets should be acclimated to pasture prior to the breeding season. Commercial bulls in the Southeast are primarily developed by maximizing the use of forage grazing with limited use of concentrate feeds.

Bulls gaining 2 pounds per day from weaning should weigh over 1250 pounds at 18 to 20 months of age. Rations used to achieve this level of production should be 65 percent TDN (total digestible nutrients) and 10 to 12 percent crude protein. One will need to feed about 2 1/2 to 3 percent of the bull's body weight per day. A recommendation can be given to the self-feeding of high quality forages and a concentrate supplement equal to about one percent of body weight per day. A complete trace mineralized salt and a balanced Ca and P mineral mix, which should be at least 0.41% Ca and 0.21% P for lighter bulls and decrease as bulls become heavier, should be provided free choice at all times. The quantity and type of supplemental feed needed depends on the season and the quality of the base forage provided. It is important to remember that weaned bulls that have not been creep-fed will need to be placed on feed gradually, until they learn to eat concentrate feeds. Some rations for growing bull calves at the rate of 2 1/2 to 3 1/2 pounds per day are presented in Table 1 .

Adequacy of the diet and progress of bulls on feed should be checked by weighing the bulls at monthly intervals.

Feeding Yearling Bulls

Yearling bulls should be fed more liberally than mature bulls, because their growth requirements must be met before any improvement in condition can take place. From 18 months to 3 years of age, bulls should consume 2 to 2 1/2 percent of their body weight daily in dry matter of a complete diet, so they continue to gain about 1 3/4 to 2 pounds per day. Yearling bulls should be fed a grain mixture at the rate of 1 to 1 1/2

percent of their body weight daily, with the percentage of grain decreased and the percentage of roughage increased gradually as they mature. Regardless of condition, the young bull's daily requirement of protein, minerals, and vitamins may not be met without concentrates. During the spring and summer grazing seasons, good pasture will provide most of the yearling bulls' nutritional needs, however; they usually require some supplemental grain (5 lb per day) to maintain satisfactory flesh. If used sparingly during their first breeding season, yearling bulls are likely to lose 50 to 100 lb during the breeding season. Therefore, they must regain this weight in addition to maintaining normal growth and development in preparation for the next breeding season. Again, diets should be growth-promoting rather than fattening.

Feeding Mature Bulls

During the off-breeding season, mature bulls in moderate flesh can be maintained on spring and summer pasture. During the fall and winter feeding periods, mature bulls should be conditioned for breeding. The importance of having bulls in proper condition upon start of the breeding season cannot be over-emphasized. Herd bulls must be in good condition to be fertile and sexually active. In the fall, start feeding mature bulls hay or silage plus one pound of protein supplement before they start to lose weight. Mature bulls will consume daily amounts of feed equal to 1 1/2 to 3 percent of their body weight, depending upon condition and individuality. It is suggested to evaluate body condition score of bulls prior to the breeding season. A small amount of extra feed may be needed 60 days prior to the breeding season to get mature bulls in moderate condition. Five pounds of grain daily should be ample for most bulls; however, if a bull is lacking in condition, he may require as much as 15 to 25 pounds of grain per day. It is important to realize that "hard-keeping" bulls, which require excessive amounts of grain to maintain moderate body condition, will likely sire offspring that are also "hard-keepers" and probably should not be used for breeding due to the economics involved with feeding such animals.

Pen Area for Herd Bulls

Herd bulls should not be allowed to run with the cows the entire year. They should be kept in a separate enclosure during the non-breeding season. Plenty of exercise as well as a good feeding program is necessary if you expect bulls to stay strong and vigorous. Pastures or large paddocks are recommended as confinement areas for herd bulls. Bulls can be run separately or in a group. The practice of running bulls together is more economical and saves labor; however, due to temperament, there can be more injuries when bulls are handled in this manner. This is particularly true when older bulls that have not been raised as contemporaries are intermingled. Bulls should be grouped according to age so that their respective feed requirements can be met more easily. Good pasture is an ideal feed for bulls of any age. Therefore, well-fenced, clean, dry and productive pasture (about 2 acres per bull) will provide needed room for exercise and ideal grazing. These pastures or paddocks should provide adequate shade via trees or shelter and provide easy access to water and a free-choice mineral mix. It is also advantageous to locate these pastures at some distance from the open heifers and the cow herd during the off-breeding season.

Breeding Season Management

Since herd bulls are the most important animals in the herd, it is important that they are in good physical condition and adapted to pasture when turned out with the cow herd. Before the start of the breeding season, bulls should be checked for foot and leg problems. Older bulls should have their feet checked for abnormal hoof growth. Their usefulness can be extended with routine foot trimming and hoof care. It is also advisable to have a Breeding Soundness Examination (BSE) performed at least 60 days prior to turning bulls in with the cow herd. This allows ample time to recheck bulls that received a suspect score, or purchase a new bull that failed a BSE before the start of the breeding season. A BSE should always be performed on younger bulls prior to their first service of cows. After the first breeding season, a BSE is not necessary again until the bull is approximately 6 to 7 years of age; however, a BSE is recommended every year regardless. A BSE is

essential every year if an operation is only utilizing 1 bull or only using 1 bull per breeding herd. Reproductive organs should be examined for abnormalities and indications of disease. Both testicles should be normal in size and consistency, and hang freely from the body. In younger bulls, there is a direct relationship between testicular size and sperm production, testicular firmness, semen quality, and age of puberty of female progeny. Bulls with larger testicles at 12 to 16 months of age will sire female progeny that reach puberty at a younger age. This is important for selection of younger and sexually earlier maturing replacements.

The number of cows that may be settled by a single bull depends on his maturity and development, as well as your breeding management program. The bull's temperament, health, and body condition at time of breeding, along with the area size, topography, carrying capacity of pasture, and size of the herd are all important factors that determine the number of bulls needed. For best results, bulls should be at least 15 months old and well-grown for their age (1100 lb plus) before being placed into service. Yearling bulls should not be exposed to more than 12 to 15 cows during the breeding season. Bulls should be 24 to 30 months of age and well-grown before they are allowed to run with 25 to 30 cows during the breeding season. If pastures are not too large, mature bulls, three years and over, may settle as many as 40 cows or more in a short breeding season, but a good rule of thumb is one bull per 25 to 30 cows.

To determine which bulls should be used with which cows, one should consider placing older bulls with older cows and virgin or younger bulls with heifers and younger cows, respectively. This is a good practice if Trichomoniasis (Trich) is a common problem within a particular area. Typically, Trich is not found in bulls younger than 6 years of age; however, Trich may be found in bulls 6 years of age or older. Once bulls reach 6 years of age, it is a good practice to have bulls Trich-tested on an annual basis. For confidence, a bull should test Trich-free 3 times. Remember, a negative test is not 100% reliable that the disease is absent, but a positive test is 100% certain that Trich is present in the herd.

Once the breeding season begins, it is important to check the breeding groups regularly to insure that the bulls are serving and settling the cows. Record breeding dates and observe those cows 18 to 25 days later for return to estrus. If the percentage of repeat breeders is high, put in a fresh bull and check for abnormalities or sterility in the bull being replaced. Bull fertility and sexual activity can be increased by rotating bulls in and out of the cow herd. This can be accomplished by using only 2/3 of the bulls at one time and rotating in the other 1/3 at two-week intervals. During their time out, bulls can be rested and fed a diet that will enable old bulls to retain condition and young bulls to continue development. An example of a simple three-bull rotation for a 75-day breeding season is diagramed in Table 2 .

By adding the usage of each bull on the left hand side of Table 2, it can be seen that Bull A was used for 6 weeks, Bull B for 9 weeks and Bull C for 7 weeks. Therefore, with this system, Bull B should be the most desirable or the oldest of the bulls, since he was used the most. Also, Bull B was used the longest at the start of the season when most of the cows should be in estrus. A rotational system works best when individual bulls are used separately in different pastures or breeding units. When more than one bull is used with a group of cows, a rotational scheme may cause problems due to fighting and disabling injuries.

Summary

A successful herd bull management and feeding program takes time, effort, and planning. However, a high percent calf crop and a large number of cows calving early in the season indicates that adequate fertility and libido were present during the breeding season, and will help to increase the total pounds of marketable beef at weaning.

Table 1.

Table 1. Feed rations for growing bull calves.			
1. Fall pasture	1% body weight shelled corn*	3 lb 40% protein supplement	Free-choice mineral mix
2. Full feed grass hay	1% body weight shelled corn*	3 lb 40% protein supplement	Free-choice mineral mix
3. Full feed legume hay	1% body weight shelled corn*	Free-choice mineral mix	
4. Full feed winter annual pasture	Free-choice mineral mix		
5. Full feed corn silage	2½ lb 40% protein supplement	Free-choice mineral mix	
6. Full feed sorghum silage	1/2 to 1% body weight shelled corn*	2 lbs 40% protein supplement	Free choice mineral mix
*Grain sorghum, oats or wheat could also be used; however, if wheat is utilized, it should be fed at a rate no more than 1% of the bull's body weight.			

Table 2.

Table 2. Three-bull rotation for a 75-day breeding season
Three herd bulls: A, B and C

Table 2.

Start breeding season with A and B	
Use A and B for 2 weeks	
Bull A used 2 weeks	Pull out bull A
	Put in bull C
Use B and C for 2 weeks	
Bull B used 4 weeks	Pull out bull B
	Put in bull A (bull A rested 2 weeks)
Use A and C for 2 weeks	
Bull C used 4 weeks	Pull out bull C
	Put in bull B (bull B rested 2 weeks)
Use A and B for 2 weeks	
Bull A used 4 weeks	Pull out bull A
	Put in bull C (bull C rested 2 weeks)
Use B and C for 3 weeks	
Bull B used 5 weeks	
Bull C used 3 weeks	