The Veterinary Link

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Bull selection and care

It is pretty obvious to state that bulls play a tremendously important role on cattle ranches. In the first place, obtaining a high percentage of cows pregnant in a controlled breeding season requires bulls that are fertile and have the ability and desire to mate cows and heifers that are in heat. It is also clear that the genetic makeup of a cow herd has a tremendous impact on profitability. To ensure that a bull is adding considerable value to the herd, he must fit within the herd's genetic goals for low production costs and high demand for the offspring.

Importance of successful bulls

The importance of the bull battery to the genetic profile of the herd is apparent when one remembers that this year's bulls control 50% of the genes in the marketable product and that in commercial herds, greater than 90% of the genetic progress of a herd is via bull selection. Careful attention to selection based on predictions of genetic contribution to desirable traits, management to protect health, breeding soundness examination to remove bulls with questionable breeding ability, and appropriate bull-to-cow breeding ratios are required to optimize the investment ranchers make in their bulls.

According to a USDA survey, the two most common reasons that bulls are culled from commercial herds are infertility and physical unsoundness or injury. To address these risks, bulls should be thoroughly evaluated before each breeding season so that only bulls that are likely to be able to get a high percentage of exposed cows pregnant in a short period of time are turned out into the breeding pasture.

The need for a thorough breeding soundness examination (sometimes referred to as a BSE) is based on the fact that many prospective breeding bulls are infertile, subfertile or unable to mount and breed successfully, and examination prior to the breeding season reduces the risk of breeding failure due to bull problems. The overall effect of BSEs is to eliminate many subfertile bulls and to improve the genetic base for fertility within the herd and breed. Although individual situations vary, national reports indicate that 10% to 20% of bulls will fail a thorough BSE (and another 10% that pass a BSE will perform poorly in the breeding pasture).

Bull selection

Because some bulls that have good-quality semen and pass a physical examination still fail to successfully breed cows, it is necessary that bulls be observed closely during the breeding season. Because bulls that are not successfully mating have a tremendous negative impact on herd reproductive efficiency, every day (or nearly every day), producers should get bulls up and watch them walk and observe their underlines for indication of penis or prepuce problems to identify lameness or injury that will prevent successful mating.

By using a thorough BSE to exclude questionable breeders before the breeding season starts and frequent observation during the breeding season to ensure successful mating ability, a relatively high cow-to-bull ratio can be used with the result that the number of offspring from superior sires is increased and the total bull cost per calf weaned is decreased.

The limited research that is available indicates that mature bulls with high reproductive capacity can be exposed to as many as 50-60 cycling cows in single-bull pastures (but fewer cows per bull in breeding pastures with multiple bulls). Young bulls should be exposed to fewer cows than mature bulls. For bulls less than 3 years of age, a commonly used rule of thumb is that a bull can successfully breed as many cows as his age in months (e.g., a 15-month-old bull should be exposed to no more than 15 cows).

The number of bulls required to adequately cover the breeding females is related to many factors. Environmental factors include terrain, carrying capacity of the pasture and pasture size. Bull factors include age, condition, fertility and social status. Social dominance of bulls is important to consider in multiple-sire breeding pastures. Several studies have shown that the most dominant one or two bulls in multi-sire pastures end up breeding a majority of the cows.

Although a high ratio of cows to bulls helps to reduce bull costs, it also exposes the herd to poor reproductive performance risk if the bulls fail to maintain good semen quality and quantity, or if bulls have reduced desire or ability to mate cows due to injury, illness or low libido. Close observation of bulls during the breeding season is required to be assured that the bulls are getting cows bred. Injuries to bulls during the breeding season are relatively common. When a bull does become lame or incapable of breeding because of an injury to his reproductive tract, he needs to be removed from the breeding pasture and replaced by another bull.

Bull care

Bulls need appropriate housing to provide protection during severely cold or hot weather — both of which can lead to temporary fertility problems. In addition, bulls should be maintained in good body condition throughout the year, becoming neither excessively thin nor fat.

When developing bulls from weaning until they are turned out for their first breeding season, their diet should allow them to express full growth potential without becoming overly heavy. Restricting energy, protein, vitamins or minerals at any time between birth and maturity can delay the onset of puberty of young bulls and possibly reduce lifetime daily sperm output because of reduced testicular development early in life.

Research has shown that bulls fed medium-energy diets from weaning to 2 years of age had greater reserves of sperm cells and higher-quality semen than bulls developed on high-energy diets. In addition, young bulls grown at a rapid rate have a higher risk of bone and joint problems in their legs. This syndrome in bulls has also been described as leg weakness, degenerative joint disease, osteoarthritis and polyarthritis.

The two to three months leading up to the breeding season is an important period of time to ensure that bulls are in good shape to be “breeding athletes.” Exercise is important during the prebreeding season because during the breeding season the bull may travel several miles per day and maintain long periods of physical activity. If given ample area, bulls will usually exercise themselves.

In designing bull facilities, it is a good idea to locate feeding and water areas as far apart as possible to encourage exercise. Bulls should have adequate body condition at the start of the breeding season so that weight loss during this period of high physical activity does not cause physiologic stress.

At the same time, bulls should not be overconditioned. If bulls are too fat, physical activity is reduced and excessive weight loss during the breeding season can occur. If bulls are in good body condition (BCS 5-5.5 on a 1-to-9 scale), then a forage-based diet with supplemental concentrate will be adequate to build the desired energy reserves. If the bulls are thin, then they may need substantially more concentrate feed.

Because bulls are so important for the genetic progress and reproductive efficiency of cattle herds, and because bulls account for a significant expense, excellent bull selection and care are critically important for optimum herd management.

Bulls should be selected based on their ability to get a lot of cows pregnant early in the breeding season to result in the birth of calves that will be higher in value when they are sold. Once bulls are selected for the herd, they need to be fed to maintain good body condition and housed to protect them from injury risk. In addition, bull fertility and mating ability should be evaluated prior to each breeding season and monitored throughout breeding.

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