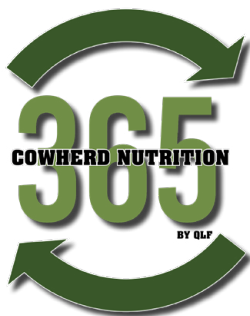


TECHNICAL BULLETIN

COW/CALF



NUTRITION MANAGEMENT OF BULLS BEGINS EARLY



In cow/calf herds across the country, the use of natural service remains high. A survey conducted by USDA's National Animal Health Monitoring System reported that greater than 94% of cows and 79% of heifers are exposed to bulls, only. Reproductive performance is the largest determinant of income in a cow/calf enterprise. Proper management and nutrition of bulls is essential to maximize reproductive performance and genetic improvement of the calf crop.

Bull fertility depends upon various factors such as genetics, environment, and nutrition. Among these, nutrition, plays an impactful role on maximizing the potential of bull fertility. Proper nutrition considerations for herd bulls begin early in life. A fair bit of data presented on bull development has focused on the post-weaning phase. Recent data suggests that fetal and calthood nutrition may have a direct effect on sexual development.

Early gestation is a critical period for establishing normal fetal organ and tissue development. Reproductive tissues are established as early as day 50-60 of gestation (Hubbert et al., 1972). Maternal nutrient status during early gestation may alter function of reproductive organ systems in the fetus, possibly impacting offspring bull fertility and longevity within the herd (Funston et al., 2010).

Nutritional status of bull calves during the calthood phase has a direct effect on reproductive development (Brito et al., 2007; Orth, 1984). Circulating hormones during calthood are directly involved in regulating testicular growth in bulls (Brito et al., 2007). Data suggests that providing a proper plane of nutrition during the first 7 months of age will improve hormonal concentrations responsible for optimum reproductive development (Brito et al., 2007). This places emphasis on the nutritional program for the dam and the pre-weaned calf.

Underfeeding bulls during early phases of development may have an adverse effect on circulating hormone concentrations. Research data reported that bulls receiving restricted feed during calthood were older at puberty and had lighter testes at 16 months of age (Brito et al., 2007). Low hormone levels, as a result of poor nutrition, may have long-term effects on age at puberty and testes size that cannot be reversed by improved nutrition later in life.

Onset of puberty varies based upon the level of nutrition received and circulating hormone concentrations during calthood development. As a general rule of thumb, a bull is said to have undergone puberty when scrotal circumference is between 27 and 29 cm (Lunstra et al., 1978). That said, because a bull can produce semen does not indicate fertility. Semen quality and quantity continue to increase for several months after the initiation of semen production. Only about 35%, 60% and 95%

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of 12, 14, and 16 month old bulls respectively, are reproductively mature and produce good quality semen (Barth, 2000). It is important to pay attention to mineral and vitamin nutrition during the development phase, too. Skeletal soundness and strength will be necessary to support and complete breeding activities.

Proper bull development and nutritional management begins early in life to optimize reproductive development and productivity within the herd. It goes without saying, bulls play an important role in producer profitability. It pays to fine tune developing bull nutrition programs to provide an optimum environment to reach sexual maturity and growth targets efficiently and effectively.

Citations

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