



Don't Forget About Your Bulls This Breeding Season

By Jackie Nix

Now that spring is upon us, many cattle producers are in the midst of calving. That means that breeding season is just around the corner. Now is the time to start thinking about your strategies for the coming breeding season. Much focus is placed on the importance of proper nutrition for cows for successful breeding and conception, but too often the needs of the bull are ignored. The bull stands in the unique position that he is responsible for 50% of the reproductive success of your herd. Think about it. The nutrition of this one animal will affect the future conception rates of your entire herd. In order for a bull to settle the most cows possible, he needs to be on a high plane of nutrition as well as be healthy and free of heavy parasite loads.

An Overview of Male Reproduction

Unlike the cow that is born with every egg (ova) she will ever ovulate in her life, the bull constantly manufactures sperm from the time of puberty throughout his lifetime. Sperm production takes place in the testes in a continuous cycle. Then once the sperm leave the testes, they undergo a period of maturation in the epididymis (an organ located next to the testis in the scrotum) prior to ejaculation. This entire production cycle takes roughly 60 days from the initial creation of sperm from germ cells on up to the ejaculation of mature sperm in semen. What this means in a nutshell is that the health and nutritional status of a bull for up to 60 days prior to breeding will affect the quality of the semen ejaculated today. What this also means is that fertility in a bull is ever changing. Just because he was fertile last year doesn't mean that he will automatically still be fertile today. Because of sperm production is a continuous process, proper nutrition is critical to maintain peak fertility in the bull.

How Does Nutrition Affect Male Reproduction?

When compared to the needs of other production groups of cattle (lactating cows, growing steers, etc.) the nutritional needs of mature bulls tend to be minimal and are often glossed over in most texts and articles dealing with breeding cattle nutrition. However, it is vital that steps are taken to assure that his nutritional needs (see Table 1) are being met for optimum fertility.

Energy. Energy is important in the diet of a breeding bull in that it directly affects his level of activity and willingness to seek out females in heat. It is extremely important that bulls be in good flesh without being too fat upon entering the breeding season. It is not uncommon for a good bull to lose weight during breeding and "forget" to eat. A mature bull fed a low-energy diet for prolonged periods will suffer loss of libido and testosterone production much earlier than loss of semen quality. Energy is particularly important in the diet of young, growing bulls in that they not only have to support the activity involved in breeding, but also maintain their own growth all while going through a period of reduced feed intake. Immature bulls fed an energy deficient diet will display retarded sexual development and delayed puberty. While effects of an energy deficient diet can be corrected in mature bulls, in young bulls the damage can often be permanent.

Protein. Adequate protein is needed to maintain body condition in an active bull as well as to support growth in young bulls as mentioned above. There is also a protein component in seminal fluids and spermatozoal proteins in the form of enzymes are critical for sperm motility and the penetration and fertilization of the egg. Protein deficiency affects young bulls more than mature bulls. Young bulls on a protein-deficient diet will display decreased libido and poor semen characteristics.

Minerals. While proper levels of all minerals are important to bull health and production, two key minerals with a direct effect on bull fertility are copper and zinc. Copper deficiency has been identified as a serious problem in grazing cattle. Bulls that are deficient in copper may have reduced libido and poor semen quality. If the deficiency is severe, the bull can become sterile due to damaged testicular tissue. High levels of sulfur, iron and molybdenum exaggerate the problem. Many soil types are deficient in copper. Additionally, the endophyte found in fescue binds with copper making it unavailable for use by the bull. Proper zinc nutrition is also very important for the maintenance of the testicular tissue responsible for manufacturing sperm. Low zinc diets result in reduced sperm production and delays in the maturation of sperm. Zinc deficiency also results in reduced vitamin A utilization and signs of vitamin A deficiency may be seen even though adequate levels of vitamin A are present in the diet.

Vitamins. Vitamin A deficiency leads to testicular degeneration in all farm animals. This effect is believed to be caused by a suppression of the release of hormones needed for testicular maintenance. Bulls experiencing vitamin A deficiency produce fewer total sperm and a greater percentage of abnormal sperm, all of which contribute to infertility problems.

Suggestions for a Successful Breeding Season

Starting at least 60 days prior to your anticipated breeding season, place bulls on a higher plain of nutrition making sure to meet their energy, protein and mineral needs. Also be sure that bulls are current on all deworming and vaccinations (especially Vibriosis and Brucellosis). For optimum performance, you may want to consider organic mineral sources (chelated, proteinated, etc.) for optimum mineral bioavailability during this window of high nutrition (60 days prior to and throughout the breeding season). Periodically monitor supplement consumption to make sure that they are taking in recommended amounts.

Sweetlix[®] Supplements Available

Sweetlix[®] offers a wide variety of supplement products that can help to boost the nutritional status of your bulls (See Figure 1). Here are a few of the Sweetlix[®] cattle supplements available through your local Sweetlix[®] dealer that would be ideal for preparing bulls for the breeding season.

EnProAl[®] 25% PLUS Supplement

- A complete protein/energy/mineral/vitamin supplement in one convenient tub
- Delivers recommended levels of Optimin[®] proteinated trace minerals including copper and zinc for increased reproductive performance
- 15% more energy than competitor chemical blocks
- Higher protein delivery than comparable low-moisture tubs
- Predictable feed costs (regular and consistent consumption of 1-2 lbs per head per day)
- Convenient, self-fed supplement

Sweetlix® CopperHead® Max 16:8 w RainBloc®

- Loose, granular mineral & vitamin supplement
- Contains enhanced copper levels to offset problems caused by copper deficiency
- Ideal in situations where cattle exhibit multiple signs of copper deficiency
- High quality trace mineral package ideal for enhanced reproductive performance
- Contains proteinated organic trace minerals for maximum bioavailability
- Works well in conjunction with multiple types of protein and energy supplements
- Added RainBloc® for improved resistance to moisture

Sweetlix® CopperHead® Max 12:12 w RainBloc®

- Loose, granular mineral & vitamin supplement
- Contains enhanced copper levels to offset problems caused by copper deficiency
- Ideal in situations in which cattle need enhanced copper and phosphorus levels
- High quality trace mineral package ideal for enhanced reproductive performance
- Contains proteinated organic trace minerals for maximum bioavailability
- Works well in conjunction with multiple types of protein and energy supplements
- Added RainBloc® for improved resistance to moisture

In summary, nutritional status is key to optimal reproductive function in bulls. Cattle supplements pay for themselves in added production when used properly. For more information about the Sweetlix® line of supplement products for cattle and information to help you decide if they will fit into your own management situation call **Sweetlix®** at 1-87SWEETLIX.

Jackie Nix is a nutritionist with Sweetlix® (<http://www.sweetlix.com>). You can contact her at jnix@sweetlix.com or 1-800-325-1486 for questions or to learn more about the Sweetlix line of mineral and protein supplements for cattle, goats, horses, sheep and wildlife.

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Table 1: Nutritional Requirements of Bulls at Maintenance and Regaining Body Condition.

Bull Weight, Lbs.	Daily Gain, Lbs.	Daily Consumption (As fed basis)	TDN, Lbs. (%)	CP, Lbs. (%)	Copper ¹ , mg	Zinc ¹ , mg	Vit A, IU
1300	1.0	28.2	14.2 (56)	1.9 (7.5)	93	347	45,000
1700	0.0	30.8	13.4 (48)	1.9 (6.8)	101	378	49,000
2100	0.0	36.1	15.7 (48)	2.2 (6.8)	119	444	58,000

¹Mineral values represent an average of a range of requirement levels. Mineral requirements are affected by a variety of dietary, environmental and animal factors that can increase requirement levels.



Figure 1. Proper nutrition will help bulls maintain or even increase fertility.