At the FEEDER with new-life mills

Western BEEF Edition
Fall 2020

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How Does Nutrition Impact Beef Cow Reproduction?

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It has been understood for decades that beef cow nutrition plays a critical role in her reproductive success. Under- or over-nourished cows are at increased risk for metabolic issues, calving difficulties, poor conception rates, extended postpartum intervals and poor embryonic survival. Three important nutritional components to consider are energy, protein and trace mineral status.

Energy

Energy is the primary nutrient regulating beef cow reproduction. It is required for growth, maintenance of pregnancy and milk production. Cows that are not provided with adequate energy have difficulty returning to estrus, reduced conception rates, along with poor colostrum quality and subsequent calf performance. Average energy requirements pre- and post- calving are 60-63% TDN, although requirements will vary depending on animal size and body condition. Monitoring body condition score (BCS) is a good method of assessing the energy requirements of the herd. It is recommended to maintain cows at a BCS of 3.0 at calving and prior to breeding to increase her chances of conceiving on the first cycle. If she loses condition in late gestation or after calving, it is difficult to gain it back prior to the breeding season due to the higher nutritional demands of lactation.

Typically, a high forage-based ration is adequate to meet the cows energy demands. However, feed quality should be tested regularly, whether this is stored forages or pasture, and supplemented with grains or protein feeds if required. For moderate to low BCS cows (<2.5), it may be necessary to provide extra supplementation to meet requirements.

Protein

Low dietary protein has been associated with an increased postpartum interval and reduced conception rates in beef cows. Protein is the main building block of most tissues. In situations of short-term protein deficiency, fat and muscle are broken down to supply energy to the body. However, over the long term, this compensatory mechanism results in a loss of body condition, leading to poor performance and reproductive losses.

For cows with good body condition, protein requirements are 9% pre-calving and increase to 11-12% post-calving while the cow is still lactating. Depending on the quality of feedstuff provided, supplemental protein sources may be necessary to meet this requirement.

Trace Mineral Nutrition

Trace mineral nutrition is critical for reproductive success. They are key regulators in enzymatic pathways which directly impact reproductive performance. When a deficiency occurs, these enzymatic systems are unable to take place. Numerous research studies have reported that copper deficiency results in reduced first service conceptions, lowered embryonic survival and decreased overall pregnancy rates. Similarly, manganese deficiency has been linked to reduced conception rates, abortions and abnormal fetal growth. There is also strong evidence that manganese influences hormone synthesis and ovarian development. This means that these deficiencies will lead to delayed onset of puberty in heifers and suppression of estrus in mature cows.

Due to the cows' ability to store trace minerals within the body, evidence of a deficiency may not be observed until symptoms become critical. For example, a slight deficiency in copper may cause altered estrus behaviour, but the cow continues to cycle normally. A long term deficiency in copper, however, will stop ovulation and the cow will show no estrus signs.

It is recommended to have a year-round mineral program in place on your operation. The type and concentration of mineral fed can be adjusted throughout the year. For example, an inorganic 2:1 mineral can be fed through the winter months along with forages and grain. However, strategic feeding of chelated trace minerals is recommended during calving and breeding. Chelated sources increase the availability of copper, zinc and manganese during this critical period. Feed chelated trace minerals until breeding is over, at which point an inorganic source can be fed. It is also important to keep in mind that the inclusion of chelated trace minerals might be necessary at other stages of production to prevent deficiencies if antagonists are present in the feed, water or environment.

Company Update

By: Phil Roberts, National Sales and Marketing Manager

Over the past six months, we have experienced firsthand how connected our world is and how dependent supply chains are on each step in the process. Thankfully, agriculture is a remarkable sector to work in and is quite familiar with being adaptable and flexible while working through challenges. New-Life Mills took numerous steps, through various practices to ensure we were able to meet the needs of our clientele, while ensuring the well-being of our staff, our clients, and their businesses.

Today we continue to navigate the diverse challenges the pandemic has created, and I am overwhelmed with how the New-Life Mills team came together and demonstrated their ability to be creative in finding ways to meet the needs of our clients and the industry. Looking ahead through the ongoing challenges, our mission continues to remain front of mind. We are committed to building long-lasting business relationships, where we exceed your expectations and work alongside our clients to add value to their business. We are continuously striving to provide the best combination of people, products, and services to meet your on-farm needs and support you in the development of your business.

Points to remember!

- Monitor BCS to ensure the cow is not losing condition pre- and post-calving.
- Remember to adjust dietary protein supply based on stage of production and body condition.
- A year-round mineral program is essential to prevent reproductive wrecks!
- Work with your nutrition team to properly formulate rations to meet cow requirements in every stage of production.

Making Sure Mycotoxins Do Not Co$t You Money

Written by: Maureen Bowman, BSc., MSc., Ruminant Technical Representative

Mycotoxins represent a significant cost to animal health which inevitably impacts the profitable production of your herd. Smart nutrition and understanding of your field and forage will help optimize herd health and reduce the impact of mycotoxins.

Mycotoxins are the secondary metabolites of fungi. Persistence of cool wet temperatures allows the opportunity for the growth and spread of these toxin forming fungi. The toxins are created by the fungus to deter consumption of the infected feeds and allow the spores to continue to multiply. Unfortunately for cattle, they have a much lower sense of detection for these toxins compared to other animals, such as pigs, and will continue to consume contaminated products. Fusaria are the most prevalent mycotoxin forming fungi in North American crops and they can produce a wide variety of mycotoxins. The most important of which are: deoxynivalenol (DON, vomitoxin), fumonisins, zeralenone, T-2 toxin, and fusaric acid (FA).

The best way to prevent the harmful effect of mycotoxins is by minimizing the potential for fungi to produce these compounds pre-harvest. However, this can be difficult to do as current sprays have a very narrow application window in order to be effectively used to prevent mycotoxin formation. The next best option is to limit the growth of toxins after harvest, which can be done by harvesting the grain at maturity with minimal moisture and subsequently storing the grain under dry, cool conditions. In the case of ensiled feed, ensure that it is harvested at the correct moisture content to allow for adequate packing to occur.

Warning signs for the presence of mycotoxins or fungi within the silage bunk are hot pockets of silage in the bunker, or an off colour in the feed. These types of feeds should be avoided, if possible, and not fed to livestock as they present larger risks of containing mycotoxins. It is important to note that in years when mycotoxin levels are high, by-product ingredients such as corn distillers' grains (DDG) and grain screenings are going to have higher levels of toxin contamination. In the case of DDG, it is about a 3:1 conversion after processing, meaning that a 5ppm level of DON in the grain can become 15ppm DON after extraction in the DDG. Blending contaminated feeds with 'clean' feeds is a technique that can be used to help minimize the effects of mycotoxins in your herd. This helps to dilute the toxin load and lower the dosage received per

animal. Which group is getting the final TMR is also important; finisher cattle will have a higher tolerance than bred or lactating cows, whereas steers will have a higher tolerance compared to heifers. Select the most tolerant group to feed an ingredient with toxins to reduce wasted feed and minimize potential health impacts on your animals.

If producers find themselves challenged with suspected mycotoxins in their grains or forages, a good alternative is the use of mycotoxin binders. These products come in a variety of forms and work by sequestering mycotoxins within the lumen of the digestive tract to prevent intestinal absorption. However, with confirmed high levels of toxins in the sample, the best decision is not to feed to those more sensitive groups (younger and breeding stock). It is therefore important to remain diligent when taking samples from the bunk or silo to make the sample as representative as possible.

In conclusion, mycotoxins present a risk for producers by impacting the health and wellbeing of the animal which will directly impact profitability. The increasing challenges we have been experiencing with variable weather patterns during the growing season indicate that mycotoxins will be a continuous presence in our environment. Allowing crop rotation and adequate tillage can help to limit fungal formation within crops. Proper storage and ensiling techniques help to limit the impact mycotoxins can have on your herd. Additionally, a close working relationship with your feed advisor can help determine the right path for your farm to minimize the cost of dealing with mycotoxins.