



CEDAR GROVE VETERINARY SERVICE NEWSLETTER



NOVEMBER 2019

NUTRITION AND ITS ROLE IN REPRODUCTIVE FAILURE

Reproductive failures on dairy farms can be problematic for the future of the operation. The first culprits when a reproductive problem is identified are often the current method of estrous detection/estrous synchronization and the AI protocols. Beyond those factors, the reasons for reproductive failures can become varied and difficult to pin down. Heat stress and general stresses can be the culprit; but, these are hard to quantify and they have varied timelines for when cows are affected. We know that heat stress can last well into the next few months after the warm weather because of the effects on the developing eggs in the ovaries. Diseases can also be another culprit, but often require many necropsy samples and testing to identify.

One category that is often tossed around is nutrition. Mycotoxins are at the top of the list of to consider, but they are not the only discussion when it comes to nutrition's role in reproduction. Everyday things such as protein and energy balance can have

significant effects on reproduction in dairy cattle. This is especially important factor to consider as diets in the next year will be radically different owing to the varied quality and quantity of crops harvested this summer/fall.

Energy balance is the first item to consider when looking at nutrition and its role in reproductive failure. Negative energy balance is defined as the net energy of the feed consumed by the dairy cow minus the energy required to maintain her bodily function minus the energy required for milk production. Limiting the amount of time and severity of the negative energy balance in just-fresh cows will have a significant impact on how quickly the cow will return to cycling in the early lactation. This allows for better reproductive success at first breeding. One way of monitoring the energy status of early lactation cows is by tracking their body condition scores (BCS). Cows should go dry at 3.5-3.75 BCS and should not lose any condition during the dry period. Fresh cows should not lose more than 0.5 body condition score in the first 60 days

TEST YOUR DAIRY FARMING KNOWLEDGE

- 1) Outside of the Yellowstone area, when was the last case of Brucellosis in cattle in the US?
 - a) 2015
 - b) 2010
 - c) 1996
 - d) 1990
- 2) What percentage of calves treated for pneumonia will need to be re-treated due to re-emergence of clinical signs?
 - a) 5-15%
 - b) 15-25%
 - c) 20-35%
 - d) 40-50%
- 3) What percentage of the spread of both contagious and environmental bacteria is decreased when milkers wear gloves?
 - a) 15%
 - b) 20%
 - c) 35%
 - d) 50%

Answers on back

of lactation. One research study found that first service conception rates were 22.7% for cows that lost body condition in the first 2 weeks after calving, 36% for those that maintained their body condition score, and 78.3% for those that gained body condition score. Management procedures instituted prior to freshening can decrease the period of negative energy balance and reduce the likelihood of loss of body condition score. The most important being increasing the energy density of the close-up ration to meet the requirements of the cow and growing fetus.

Another nutritional factor that can affect reproduction is the amount of degradable protein that is fed to the milking cow. High levels of degradable protein can lead to high levels of blood urea nitrogen and milk urea nitrogen. Both of these have a direct effect on the fertility of the cow during the breeding period. Rations that consist of mostly fermented forages will contain higher levels of degradable protein than dry hay. This is why it is important to test all forages for their soluble and degradable protein content prior to formulating rations. Testing for issues with degradable protein can be done by looking at the blood urea nitrogen and milk urea nitrogen levels in the cow. If these

are above normal levels, the amount of degradable protein should be reduced, and a bypass protein should be considered to add to the ration.

Dry Matter Intake plays a crucial role in promoting cyclicity in the dairy cows. Cows that start cycling the earliest had the highest dry matter intakes during the first two weeks after calving. Dry matter intake correlates with cows also achieving a positive energy status quicker in their lactation. The best way to achieve high levels of dry matter intake in the first two weeks is by controlling infectious and metabolic diseases in the transition period. Part of this will be dictated by the transition cow protocols in place on the farm and part will be determined by a good close-up dry cow ration.

Finally, calcium is an important nutrient to consider when examining reproduction as it relates to nutrition. Calcium is necessary for all muscle contractions in the body. If blood calcium levels are low, the contraction of the muscles in the GI tract are less frequent. This slows down feed passage which decreases dry matter intake and results in negative energy balance. As a result, body condition score will be lost

and all this will have a negative effect on reproduction at breeding time. Additionally, cows with low calcium will have higher incidence of infectious diseases after calving, especially metritis. Uterine infections do have an adverse impact on reproduction by prolonging days open and reduced first service conception rates.

Lack of success with reproduction in a dairy herd can be a complex issue with many factors that can contribute to the problem. It is important to work with the entire management team including the veterinarian, breeder, and nutritionist to identify potential trouble areas and make the appropriate changes.



“Do you consider yourself to be a white cow with black spots, or a black cow with white spots?”

Dairy Farming Knowledge Answers

- 1) B 2) C 3) D

