



## Recovery after calving- what to do to increase success next calving season

Cows must recover from the serious demands of calving and lactation yet they have about 80 to 85 days to return to estrus after calving to keep a yearly delivery interval. One of the main reasons for reproductive loss, particularly in young cows, is the inability to effectively regulate the postpartum estrus interval.

After calving, cows go through a period in which cows do not experience estrous cycles (anestrous). During this period, the uterus returns to the pre-pregnancy size, shape and position. This uterine involution takes 20 to 40 days if there were no complications.

First ovulation postpartum is usually shorter and results in a lower pregnancy rate if AI'd. In some instances, a cow literally cannot get enough to eat to support the lactation, the hormonal changes, and all the other biological needs to ovulate again. A negative energetic balance during early lactation is often the cause of both pre- and postovulatory reproductive failure because a more severe negative energetic balance increases the duration of postpartum interval, reduces oocyte quality, delays the uterine involution, and reduce the chances of pregnancy<sup>2</sup>. At partum, there is a high risk of metabolic disease associated with energy metabolism, due to excessive mobilization of adipose reserves before calving and during early lactation, and a failure of the cow to rapidly increase intake after calving. High levels of fatty acids in blood and ketosis will reduce fertility. Particularly important are body condition at calving and feeding level before calving to ensure that blood fatty acid and ketosis are not breached<sup>2</sup> and subsequently negatively affect rebreeding performance<sup>1</sup>. The severity and duration of the postpartum negative balance is important for reproduction as higher blood fatty acid and ketosis are associated with a lower likelihood of pregnancy. **Clearly, management of diet and nutrient intake to achieve a proper body condition before and after calving contributes to improving reproductive and productive efficiency.**



Ensuring that cows are neither too thin nor too fat at calving is a critical component of body condition loss and rise of blood fatty acid and ketosis<sup>2</sup>. Body condition score has been shown to be an effective tool to estimate the energy reserves of a cow<sup>1</sup>. Recommendations of body condition score for mature and first calf heifer during the breeding season are of 5 to 5.5 and 5.5 to 6 out of 9-point scale, respectively. Studies have shown that cows that increase their body condition in the last trimester tend to have shorter postpartum intervals. Thus, a dietary management strategy in the last trimester prior to partum focused on improving body condition is crucial for the reproductive performance of the herd.

Dietary supplementation of antioxidants such as tocopherol, selenium, carotene, retinol and vitamin C can be a practical strategy to improve immune cell function and reduce inflammation in these new momma cows. According to a recent study, supplementing with rumen-protected omega-3 polyunsaturated fatty acids and vitamin E (tocopherol) before and after parturition led to lower post-partum blood concentrations of fatty acid,

ketosis and bilirubin and higher concentrations of tocopherol, indicating an overall improvement in liver function, and decreased inflammatory response post-partum.

At calving, cows undergo some level of hypocalcemia (low calcium levels), but the severity and duration differ. The duration and severity of hypocalcemia itself that appear to affect reproductive failure. There are numerous nutritional management strategies to maintain an adequate blood level of calcium during the transition from pregnancy to lactation, the careful attention to dietary magnesium, calcium, potassium, and phosphorus content during the weeks before calving can be particularly effective <sup>2</sup>.

The usage of controlled intravaginal drug release (CIDR) device to slow-release progesterone can be used to induce the cycle of late calving cows or manipulate/synchronize the cycle in cows and heifers. Studies have demonstrated that inserting the CIDR about 20 days postpartum can trigger earlier cycles than may occur naturally. Estrus synchronization by CIDR also can be helpful by decreasing the postpartum interval of cows with poor body condition in breeding season.

There is evidence that under certain circumstances, the use of non-steroidal anti-inflammatory drugs to treat early lactation cows may increase the chances of early pregnancy. Another potential strategy is the use of the immune stimulant which regulates the growth and differentiation of neutrophil precursor cells within the bone marrow. These immune stimulants can act as a peripartum immune restorative agent improving neutrophil number and function during the transition period on uterine health, resulting in reduced incidence of mastitis, placenta retention, and early metritis.

Overall, disorders related to energy metabolism, immunological function, and mineral shortages are major factors for maladaptation during the transition period between calving and the following pregnancy. Producers will be able to make the necessary dietary changes to ensure that those cows are in sufficient condition for the upcoming breeding season by monitoring body condition before and after calving and during the breeding season.

Read more with the following:

1. <https://beef.unl.edu/beefwatch/2021/managing-postpartum-anestrus-beef-cows-successful-breeding-season>
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