

MANAGEMENT STRATEGIES TO PREVENT PERIPARTUM DISEASES IN DAIRY COWS

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On rearing high yielding dairy cows, one of the major problems faced by farmers is the peripartum diseases. The peripartum period, the time shortly before, on and after calving is a period of rapid change in the uterus, mammary gland and the metabolism of the animals. Management of cows during the peripartum period can be critical for the mother's health and the effect of good management can be seen in the next lactation period. To achieve "one calf per year" proper care of animals during this period is important. So, the management of peripartum cows involves both welfare issues and potential economic loss, which can be mitigated by improving management during this period.

Peripartum diseases

The majorly affecting peripartum diseases in dairy cows are milk fever, retained placenta, ketosis and dystocia. Most of the periparturient diseases are occurring due to improper nutrition during the periparturient period as it is also called a transition period. The deficiency of either nutritional or non-nutritional management increases the risk for periparturient diseases and other infectious diseases, which ultimately reduces fertility. The fertility of high producing cows is compromised by a poor transition period. A major factor affecting fertility is the level of negative energy balance early postpartum, which may affect

the postpartum estrus, timing of first ovulation, oocyte quality and cyclicity. Hypocalcemia is another metabolic disorder frequently affecting the high yielding cows during the postpartum period. If high calcium requirement immediately after calving cannot cope up with the supplement, blood calcium level decreases and leads to hypocalcemia. Calcium is one of the most important minerals needed for muscle contraction and a decrease in the serum calcium level leads to cardiac arrest and finally mortality. Poor feeding during the dry period leads to most of these periparturient diseases.

During the dry period

During this period the mammary gland undergoes physiological atrophy and nearing calving, undergoes hormone-mediated hypertrophy. As the calving time approaches, colostrum starts to accumulate in the udder. The colostrum differs significantly from the normal milk as it contains twice as much calcium, 10 times more vitamin A, three times more vitamin D and 15 times more iron. It also contains more amount of immunoglobulin to protect the newborn calves from infection. During this period, the capacity of the abdomen decreases as the foetal growth is rapid in this period which leads to a significant decrease in feed intake. This period constitutes an important rest period for the mammary gland and the udder undergoes involution and secretory cell regeneration. Proper feeding during this time ensures good body condition of the cows during and after parturition and can prevent the periparturient diseases. Managerial steps to reduce the occurrence of peripartum disease during this period are

1. As the feed intake reduces during this period, more concentrate feed has to be given to compensate for the nutrient requirements for foetal growth.
2. A proper dry period (last 2 months of gestation) has to be provided.
3. Prophylactic supplementation of calcium along with the feed can be given.
4. Administration of intra-mammary antibiotic therapy at the end of lactation can be done to eliminate existing infections and to prevent new ones.
5. Deworming can be done to prevent maternal transmission of parasites to calves.

During parturition



It is generally known that calving causes acute pain in all species, including cows. Around the time of parturition, the levels of acute-phase proteins increase considerably in response to inflammation and tissue damage. Dystocia also can cause severe pain and leads to physiological stress. The pain and stress occur during are important not only because of their negative welfare, but also have a significant effect on the inhibition of oxytocin release thereby reducing myometrial contractions and delay the parturition. Due to the opening of the cervix during parturition, bacteria can enter easily into the uterus and can cause infection. This may lead to metritis and cause septicemia and affect further conception.

Managemental steps to reduce stress during this period are

1. Provide proper clean feed, water and shelter.
2. Provide proper space for resting area of about 11m²/cow.
3. Provide clean bedding material to prevent infections.
4. Cows should be transferred to a calving pen during the onset of parturition.
5. Cows should be monitored once an hour from the onset of the first stage of calving soon after the rupture of the amniotic bag.
6. Intervention is required if there is any difficulty is observed.
7. Dams should be allowed to lick and clean the amniotic fluid on the calf.
8. Calves should be provided colostrum immediately after calving.

During the postpartum period

The postpartum period is associated with a high incidence of most periparturient diseases and these may trigger a cascade of other diseases. During this period, the immunity of the dairy

cows decreases significantly and are more susceptible to peripartum diseases like metritis and mastitis. Postpartum dairy cows undergo a marked change in energy status as energy output for milk production exceeds energy intake. So, the high energy-rich concentrate should be provided to prevent negative energy balance which may lead to ketosis. Ketosis is a chronic condition and it occurs over a long period of time. It causes neurological symptoms and a decrease in milk yield. Hypocalcemia is one of the major problems in high yielding dairy cows. It causes mortality if not properly treated and it is acute in nature. It occurs mostly within 60 days of calving. Involution of the uterus also occurs during this period and animals returning to the normal restoration of ovarian cycles. Poor body condition at the time of insemination postpartum will affect the conception rate. Preventive measures to be taken during this period are

1. Monitoring the health of cows postpartum carefully upto 10 days for any abnormal in behavior or any other infectious diseases like metritis.
2. Avoid unnecessary use of hormones and antibiotics.
3. Provide proper energy, fibre, proteins, vitamins and minerals rich feed.
4. Retained placenta condition should be treated immediately as it may lead to metritis and septicemia.
5. Teat dips can be used after milking to prevent mastitis.
6. Calcium supplement should be given separately if needed and if the animal has a history of milk fever in the previous calving.

Conclusion

Successful rearing of dairy cows involves both reproduction and nutritional management with standard postpartum health programs to optimize both milk and reproductive performance. Peripartum diseases cause high economic loss to the farmers as it affects both milk yield and reproduction. Metabolic disorders are easy to prevent as they can be easily managed by proper feeding. So, necessary preventive measures have to be taken during the last two months prepartum upto two months postpartum to avoid periparturient diseases. Through proper management, diseases can be reduced and economic loss can be prevented.

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