

Nutribio Management Information - Sheet 6

Prevention of Displaced Abomasum

Displaced abomasums (DA) is a repositioning of the abomasum (the fourth or true stomach) from its normal position on the right ventral abdominal wall. Distension of the abomasum is caused primarily by gas and may be accompanied by an accumulation of liquid within the organ. Most displacements encountered are on the left side.

Symptoms:

1. A sudden or gradual decrease in appetite.
2. Poor bowel movement, soft and discolored with occasional diarrhea.
3. Cows become weak and dehydrated and may fail to get up.
4. Secondary ketosis usually develops unless the disorder is corrected.
5. About 50% of cows with DA have uterine infection.

Abomasal displacements cause economic loss in dairy herds through treatment costs, premature culling and production loss.

Treated cows that remain in the herd produce about 364 kg less milk the month following treatment and an average of 575 kg in a lactation.

Transition Period:

This is the two to three week period before calving. Eighty to 90% of LDA (left displaced abomasums) are diagnosed within one month of calving. This therefore makes the period of 2 to 3 weeks before calving and 2 to 4 weeks post calving as the main risk period. In the transition period there is a reduction in dry matter intake (DMI) of the order of 30% with a slow increase post calving. The reason that reduced intake can predispose DA is due to low rumen fill giving a greater opportunity for migration of the abomasum. There is also a large increase in demand for nutrients at calving for example, there is a fourfold increase in the requirement for calcium at parturition which if low can give rise to retained placenta, acute and subacute milkfever. These along with metritis, ketosis increase the risk factors for LDA. Therefore having feeding and management practices in place that prevent these disorders will aid in the prevention of LDA. Cows that have too high a condition score 3.75 – 4.0 are prone to fatty liver and ketosis resulting in a reduction in DMI post calving again rumen fill, resulting in LDA of approximately 15.7%. Cows under fed post calving will also be prone to LDA. ***Low rumen fill gives decreased rumen motility and therefore abomasal motility and emptying.***

The dry cow period which is looked at as a period where the cow is not making a contribution to cash flow can be divided into the far off or just dry cow and the transition cow or close up period (three weeks pre calving), this is where most of the endocrine changes take place such as increase demand of calcium for the fetus and colostrum along with vitamins and trace elements. How the dry cow is managed in the transition period determines how she will perform in the next lactation.

How should the dry period be managed:

1. It is important in starting off the dry period that the cow is in a condition score of 3.0 this then needs to be maintained with an increase to 3.25/3.5 at calving.
2. The preservation of the forage should have a pH of 3.8 if grass silage, a DMD % = 70 increasing to 76 in the transition period and a crude protein of 14%.
3. Concentrates can be introduced in the transition period to raise the digestibility and introduce some starch to adjust the rumen post calving increasing the rumen papilla for maximum absorption of volatile fatty acids(VFA) post calving. It also has the benefit of reducing the negative energy balance pre calving which is important.
4. Ideally the forage should be low in potash and sodium as these can predispose cows to milk fever. Straw if it can be fed and the use of anionic salts as minerals can benefit the transition cow enormously.
5. If the forage is chopped too fine it lacks structure will reduce the amount of saliva that can be produced, therefore potentially leading to acidosis, if the forage is badly preserved then acidosis will happen. The diet ingested needs to be retained in the rumen for digestion, for the rumen to work properly 18% of the crude fiber needs to be greater than or equal to 3.5cm(1.5 inches). This fiber mat allows the rumen bacteria to grow and aid digestion.
6. Selenium, an essential trace mineral, involved with normal muscle tone or function of the cardiac, skeletal and smooth muscle in the body should be maintained at optimal levels at all times.
7. If straw is fed between 3kgs to 5kgs/cow/day in the dry period analyze the forage being substituted to ensure the diet is adequate in calcium. Research is showing that up to 80% of cows can have sub-clinical hypocalcemia. As calcium is required for muscle contraction, if low can give rise to retained placenta, subsequently metritis and displaced abomasums the domino effect resulting from the primary disorder of retained placenta.
8. The dry cow diet needs to be balanced for energy and protein and optimum supply of calcium(Ca), phosphorous (P), magnesium (Mg), vitamins A&E and the trace elements. Therefore a nutrition and mineral analysis of the forage are necessary to assess potential problems.

Post Calving management:

1. The raw materials making up the diet should be high in digestibility, palatable and balanced to ensure maximum DMI so that metabolic disorders do not occur which can predispose LDA.
2. Adequate structural fiber crucial, if not the diet will ferment in the abomasum giving rise to LDA.

Summary:

As 80% to 90% of LDA are diagnosed within one month of calving, 50% to 80% of LDA are diagnosed within two weeks of calving this **underscores** the transition

period as the major risk period for LDA. Therefore more attention needs to be given to management in the dry period. This will require;

- 1.Reduction in sodium and potassium levels.
- 2.The diet in the transition period containing raw materials of the milking cow to adjust the rumen on calving.
- 3.Avoid over condition cows on calving, if present they should be put on anion mineral salt for 35 days before calving.
4. Rumen fill is critical for rumen motility (diet structure), this gives rumen motility increased abomasal motility and emptying.
- 5.The use of blood tests to establish potential risk have been used. Pre calving analyzing for nonesterified fatty acids(NEFA),cholesterol, 0-7 days before calving, cows with NEFA concentrations = 0.5 mEq/L were 3.6 times more likely to develop LDA after calving. Post calving a blood test to establish the B-hydroxybutyrate (BHBA), serum BHBA >1200 $\mu\text{mol/L}$ were 8 times more likely to develop LDA. Cows with BHBA = 200 $\mu\text{mol/L}$ were 3.4 times more likely to develop LDA.
6. Historical records are a must in aiding prevention and reducing the economic cost of metabolic disorders which can be substantial.