

Formulating a ruminant health programme: focus on pre-calving cow health

Good ruminant health is the cornerstone of profitable dairy production. For ruminants, the transition phase is the most important, as it brings new lactation and sets the tone for the whole yield. The phase brings opportunities, but also challenges if it is not managed well.

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With Kemin’s Formulating Ruminant Health Programme, these challenges are turned into opportunities as they provide the best solution for transition phase management. Solutions not only determine success but also require accurate implementation. Therefore, Kemin’s life-long learning programme offers a wide range of tailor-made services. The services are divided into three big groups: Formulation Evaluation and Validation for Optimal Implementation, Technical Assistance and Customer Laboratory and Application Solutions.

The importance of pre-calving health formulation

A critical time in the dry period is the last three weeks before calving, also known as the ‘close-up’ period. During this time, the cow is preparing to start her next lactation. Without adequate nutrition and

management, cows can calve in and fade quickly and lose potential income. Hypocalcaemia is known to be the main problem affecting calving.

Nearly 50% cows experience subclinical hypocalcaemia

Metabolic disorder i.e. subclinical hypocalcaemia (SCH) is considered a ‘gateway disease’ because it is associated with increased risk of periparturient problems that have long-term consequences to production, reproduction, and survival. Research findings clearly indicate that cows are more susceptible to hypocalcaemia as the lactation number increases.

SCH affects beyond milk fever. It decreases rumen contraction, rumination, dry matter intake and neutrophil functions in the dairy cow. It also increases the incidences of metritis, retained foetal membranes and treatment costs. Therefore, the pre-calving cow phase is an area of great importance that sets the stage for how well the cow will perform after calving.

The specific role of nutrition in ruminant health

A meta-analysis consisting of 42 randomised trials suggested that cows with cationic diets (diets having a positive charge due to higher concentration of sodium, potassium, calcium and magnesium) are more likely to



suffer increased incidences of milk fever or hypocalcaemia. Cationic diets are one of the strong triggers of subclinical hypocalcaemia during the close-up dry cow phase.

Is your cow’s diet cationic or anionic?

In the EMENA region, pre-calving diets are basically cationic in nature. One of the main reasons for this is that the feed ingredients used in close-up diets are fundamentally cationic. Turning your cows’ diets from cationic to anionic (diets having a negative charge due to higher concentration of chloride, sulphur and phosphorus) can create optimal acidification in the cow’s blood. These acidogenic diets work to minimise hypocalcaemia by:

- Changing the cow’s blood pH towards slightly acidic condition due to increasing the concentration of chloride ions.
- Mobilising more calcium from the bones to buffer the acid in her bloodstream.
- Achieving maximum calcium supply at the time of calving.

Fig. 1. Association of hypocalcaemia with the lactation number (Reinhardt et al., 2011).

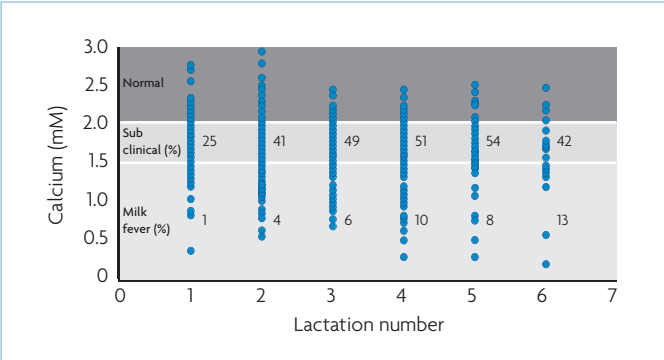


Table 1. Feed ingredients used in close-up diets are fundamentally cationic.

Ingredient		DCAD (mEq/kg dry matter)
Corn silage		+139
Alfalfa hay		+285
Grass hay		+218
Oat hay		+318
Barley		+54
Corn		+25
Soybean meal		+317

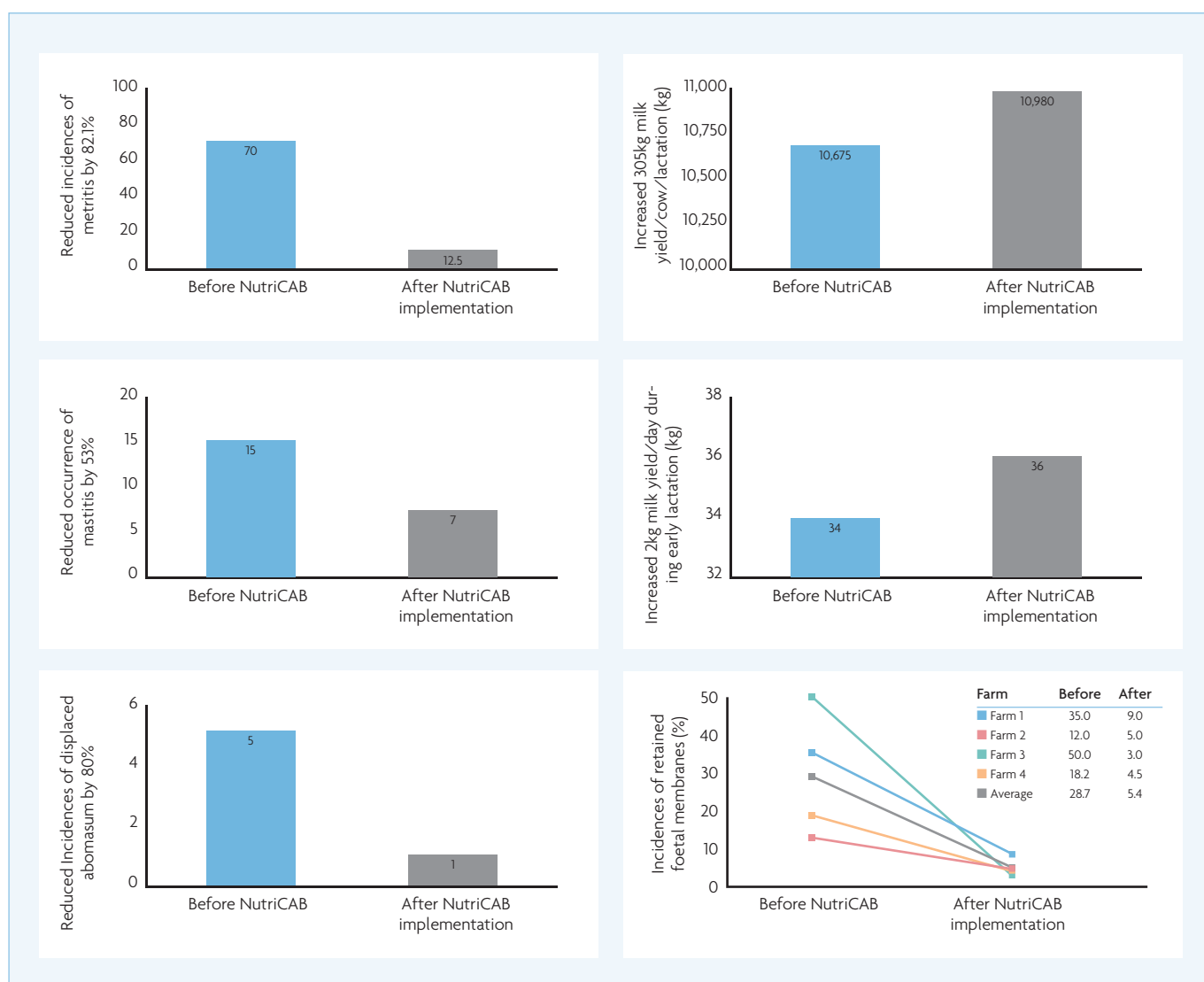


Fig. 2. Changes after the introduction of NutriCAB.

- Reducing incidences of hypocalcaemia which occur due to calcium deficiency.

Expertise in formulating pre-calving cow's health

The encapsulated technology used in Kemin's NutriCAB is called 'pan coating' which is specially designed for coating hygroscopic material like calcium chloride.

NutriCAB comes with the highest concentration (>80%) of calcium chloride in

encapsulated form to mask the bitterness of anionic salt during intake, controlling hygroscopicity during application and storage, ensuring skin safety while handling and improving metabolic health for improved cow performance.

NutriCAB helped in reducing metritis by 82.1%, mastitis by 53%, and displaced abomasum by 80% on different farms.

The reduction in metabolic disorders helps the cows to improve milk in whole lactation by climbing peak of milk yield in early lactation.

The main advantage of this technology is that you invest in 21 days of the pre-calving period and enjoy benefits during the 305 days of the lactation cycle.

References are available from the author on request

Average dosage:

- 100-150g/cow/day from 21 days before calving. Stop feeding after calving.

Advantages:

- Easy control of application (urinary pH).
- Non-hygroscopic: easy storage and application.
- Ensure skin safety.
- Highest DCAD value (-13800 mEq/kg) in coated form.

Benefits:

- Results in three weeks.
- Palatable, thanks to its coating technology.
- Improves cow's performance by reducing metabolic disorders.

Key economic benefits:

- 21-day investment for 305 days of profit.
- Economic return from improved milk yield: 5:1.
- Economic return from reduced metabolic disorders: €50-100/cow.

The benefits of NutriCAB's pan coating.

