SUBCLINICAL HYPOCALCEMIA: FIELD EXPERIENCE OF CAUSE AND CONTROL

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Introduction

- Subclinical metabolic diseases, such as subclinical hypocalcemia (SCH), are of current concern because they are linked to an increased risk of periparturient issues.
- Subclinical hypocalcemia is common in Europe, according to a new study from Germany (Venjakob et al., 2017). Subclinical hypocalcemia and clinical milk fever were seen in 47.6% and 8.6% of multiparous cows, respectively.

Objective

- According to a meta-analysis that included 42 randomized trials (Santosh et al., 2019), cows fed cationic diets are more likely to develop milk fever or hypocalcemia.
- The purpose was to see if the European diets were associated to the prevalence of subclinical hypocalcemia.

Material & Methods

- Various diets were studied to determine the status of dietary cation anion balance (DCAB).
- Also, diets were made acidogenic with the help of NutriCAB™ which is a source of coated form of calcium chloride to mask the bitterness of anionic salt during intake, controlling hygroscopicity during application & storage, and ensuring skin safety.

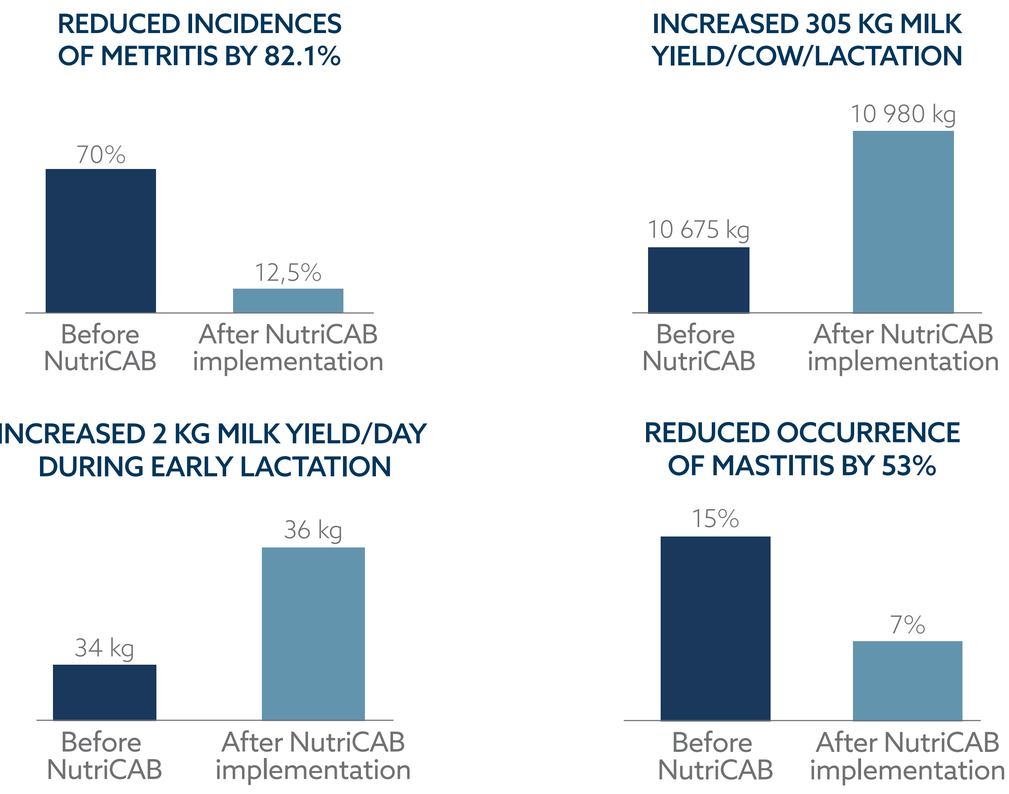
Result and conclusion

- The majority of diets in the EMENA region are cationic in nature, as the components used in the diet are mostly cationic.
- When diets were made acidogenic with palatable NutriCABTM under Kemin's formulating ruminant health program for pre-calving cows, field experience from different farms clearly showed that the incidence of retained foetal membranes was reduced by 81 percent, metritis was reduced by 82.1 percent and mastitis was reduced by 53 percent.
- The reduction of subclinical metabolic disorders improves peak milk production and lactation persistence.
- When pre-calving diets were turned acidogenic with NutriCAB, there was a 5.9% increase in peak milk production.

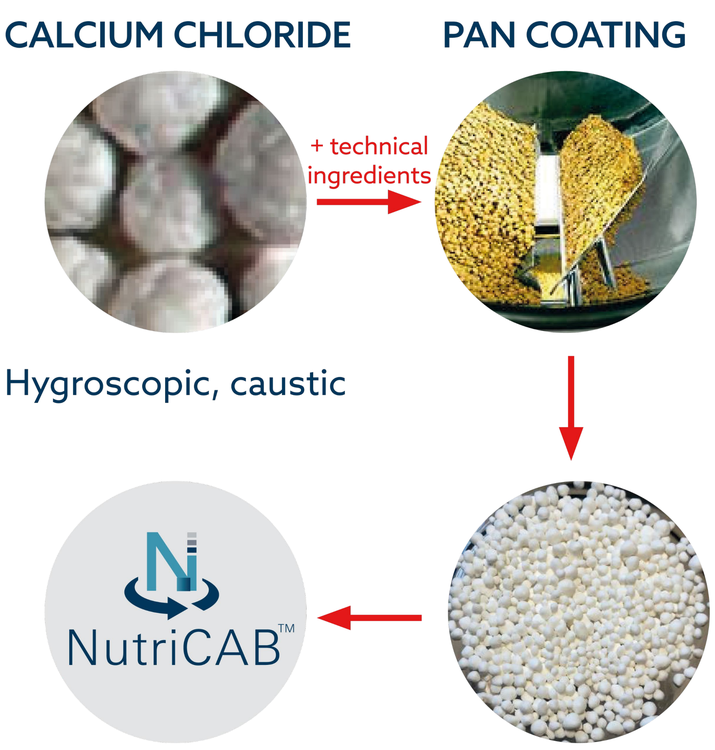
Ingredients	Dry matter, %	As fed, kg	Dry matter intake, kg
Soybean hulls ground	90.2	0.200	0.180
Corn grain 73 % starch	87.5	0.300	0.263
Canola meal solv. extr.	91.9	0.850	0.781
Soybean meal solv. 47%	90.0	0.925	0.833
Soft wheat shorts 39%	88.0	0.187	0.165
Urea	99.0	0.015	0.015
Sugarcane molasses 49%	73.3	0.060	0.044
Min + Vit Dry Cow	93.6	0.042	0.039
Sodium Chloride	99.8	0.006	0.006
Calcium carbonate	99.2	0.005	0.005
Ryegrass silage	31.9	13.500	4.307
Corn Silage	34.1	5.000	1.705
Barley Straw	87.8	5.500	4.829
Total			**13.171**

DCAD Status: +179 mEq/kg dietary dry matter

Table 1: DCAB status of a common pre-calving cow's diet in Europe checked through AMTS dietary software



Graph 1: Cow performance before and after NutriCAB implementation



Graph 2: NutriCAB: Technology of encapsulation

Summary

In dairy herds, subclinical hypocalcemia is common and should not be overlooked. According to studies, pre-calving cow diets should be acidogenic to counteract hypocalcemia. Acidogenic diets not only minimize subclinical metabolic problems but also increase lactation performance.

References

Santos, J.E.P., I.J. Lean, H. Golder, and E. Block. 2019. Meta-analysis of the effects of prepartum dietary cation-anion difference on performance and health of dairy cows. J. Dairy Sci. 102: 2134-2154

Venjakob, P.L., S. Borchardt, and W Heuwieser. 2017. Hypocalcemia – Cow- level prevalence and preventive strategies in German dairy herds. J. Dairy Sci. 100 (11): 9258-9266