Phytosolution to improve rumen efficiency for better feed efficiency

To be efficient nutrient intake must be optimised as much as possible by the dairy cows. For that rumen fermentation has to be optimised so the flora established is as efficient as it possibly can be.

by Jean Pascard, Product Manager, and Cedric Faure, Head of Ruminant Department, CCPA. www.groupe-ccpa.com

The usage of phytosolutions has been permitted to modify the balance of this microbial environment with ionophores like monensin.

Phytosolutions affects the rumen fermentation profile

A published trial done with fistulated cows conducted in Uruguay compared the rumen fermentation profile between a blend of phytosolution (PCA, 103mg/d) to monensin (300mg/d) from 30 days before calving to 60 days after calving.

Before calving cows received a total mixed ration (70% forage +30% concentrate on DM basis), after calving cows had a daily grazing shift (Medicago sativa) and were supplemented with a partial mixed ration (45% forage +55% concentrate on DM basis).

Phytosolutions had a positive and similar action to monensin in the rumen. It reduced the number of protozoa by 64% (Fig. 1) modifying the volatile fatty acids profile with a higher propionate proportion (Fig. 2).

Phytosolution also had an effect on protein degradation with a lower ammoniac concentration just after grazing. Reducing the use of antibiotics in livestock animal feeds will benefit both human and animal health.

Monensin is the most widely used ionophore antibiotic, it is used in dairy cow diets to improve feeding efficiency and reduce risks of metabolic disorders.

This ionophore also modulates the activity of some ruminal micro-organisms. The technical team at CCPA have been looking for natural alternatives to reduce the overall use of antibiotics in livestock animal feeds.

Rumen fermentation leads to better feed efficiency

A published trial done on 72 Holstein cows in South Dakota University showed some of the benefits of the inclusion of another Phytosolution (Rumiviv') at 0.06% of dry matter intake.

It was shown that total volatile fatty acids (VFA) production, as well as propionate, were both greatly improved (Fig. 4). It was concluded that these results are due to the reduction or inhibition of bacteria associated with low feed efficiency in ruminants.

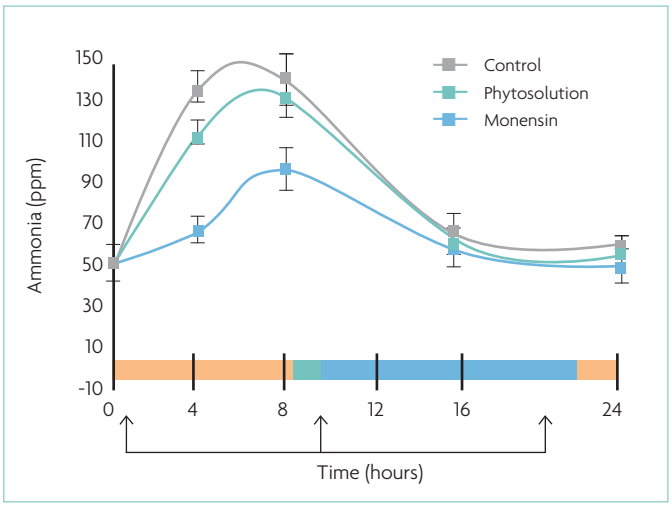

Fig. 3. Rumen ammonia profile after calving.

As a consequence, milk production and feed efficiency, measured as Energy Corrected Milk (ECM) per kilo of Dry Matter Intake (DMI) was significantly better: +7.6%.

This trial included a third group with extruded soya bean meal showed that Phytosolution (Rumiviv') performed as well as extruded soybean meal (ESBM, Soyplus) with a lower cost.

Natural solution

Considering the ability to modify rumen flora, Phytosolutions are a serious natural solution, to modulate ruminal fermentation and to increase performances.

Their usage is growing around the world, and they represent the main production drive in some significant areas such as Europe.

To help the nutritionist or the feed mill CCPA put matrix values (energy, protein, degradability rate of different nutrients) of the product in different rationing systems (INRA, NASEM, Cornell).

It significantly reduces the ration cost and improves the margin. ■

References are available from the author on request

Fig. 1. Protoza density after calving.

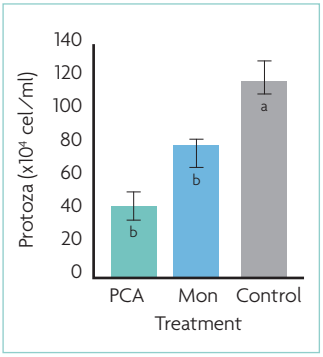

Fig. 2. Proportion of propionate in the rumen after calving.

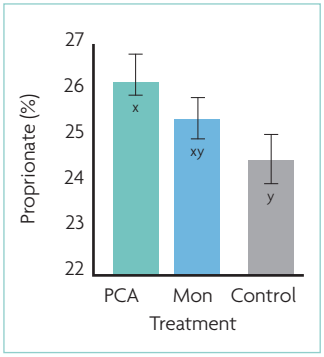

Fig. 4. Improvement in VFA production.

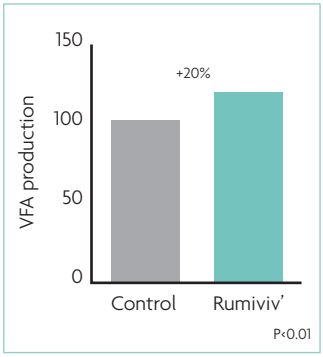

Fig. 5. Milk production (ECM) and feed efficency (DMI).