What are the best feed additives for dairy cows?

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The best feed additives for dairy cows are a rumen modifier and a rumen buffer. Other feed additives like by-pass fat's, toxin binders, organic trace minerals, extra vitamins, by-pass amino acids etc, can be considered, and either do or may have a place depending upon what specific issues the herd may be facing, the production system and stage of lactation.

Introduction

Feed input costs make up the greatest cost in most dairy businesses. Home grown and purchased forages, cereals, protein and mineral sources are a large outgoing in any dairy business. As such we must do all we can to ensure our diet is as effective as possible in converting this investment into milk.

Small dose "additives" are included in many dairy diets to optimise diet response and cow productivity. They should make the diet more effective.

The two major types we will cover in this article are those that are used proactively to improve the herds productivity, rather than respond to a negative impact or challenge.

a-Rumen Modifiers:

These products are typically used to promote the efficiency of rumen productivity via modifying the microbial population. Typical benefits that are possible, and that we seek, from a rumen modifier include the following (Not all rumen modifiers provide all these benefits):

- Greater dry matter intake, and thus nutrient capture
- Improved VFA yield for more energy per kilo consumed
- Greater fibre digestibility, so the ruminant can deal with fibre better
- Greater Microbial Protein yield
- Greater stability against rumen dysfunction and SARA
- Reduced pro inflammatory response systemically to insults
- Improved productivity during heat stress
- Greater milk volume across a broad range of production systems, diet types and level of cow production levels
- Greater solids content in milk volume, thus solids yield
- Greater feed conversion efficiency and lower cost of production
- Stability of shelf life without losing activity, and stability in processing into pellets or extrusion with heat and moisture
- A comprehensive data set of published independent, trial work that supports and displays these parameters objectively… it can't just be hearsay statements
- A long experience and application in the field across the world, showing that the product performs in the real world, right across the world

- A non antibiotic product that can be applied safely in the food chain and adheres to World Health Organisation's "ONE HEALTH" principles for Antimicrobial Stewardship that should reduce antibiotic use in animal feeds where-ever possible.

What product offers the best outcomes as a feed additive in this class? Diamond V XPC

When we look at this list of goals for a product to function as a rumen modifier additive, the only product that we see that ticks all the boxes is the DIAMOND V XPC, a product of Bioactive yeast metabolites. Other products may offer some of the above attributes, but only Diamond V XPC offers it all, and does so with the proof that independent research results that gives us comfort to support our own personal experiences.

b-Rumen buffers

The second commonly used rumen additive class is rumen buffers.

These are also used pro-actively in diets to improve the efficiency of rumen productivity. In this case it is a more specific mode of action. That mode of action is to offset the accumulation of mild organic acids in the rumen, the reduction in rumen pH, reduce the risk from Sub-Acute Rumen Acidosis (SARA) and sub optimal rumen function.

This challenge from SARA can occur in all dairy systems from intensive grazing systems, through PMR systems to TMR systems. It's a global challenge, and it's not an issue of simple excess grain delivery we are dealing with. Rather it's an issue of improved diets, improved DMI, greater ration density, better forage quality and greater overall rumen fermentation. All of these increase cow productivity and profitability… but they also mean a cow is "pushing harder" around rumen fermentation. We must manage that balance for the good of the individual cow, and the herd.

Effective Rumen buffers can play that role in managing the fermentation and keeping a more optimal rumen environment. If we do not manage this balancing act well, we risk the following:

- Greater accumulation of VFA within the rumen. We like VFA, but we want them transported out of the rumen as energy sources, not accumulating and increasing rumen osmolarity
- Reduced rumen pH, increased acidity, and the death of a range of microbial classes
- More hours per day with the rumen operating in what we may call suboptimal conditions
- Reduced fibre digestion: once the rumen pH falls below 5.8 this is well proven
- Reduced energy yields from each kilo consumed
- Reduced microbial yields, especially fibre digesters
- Reduced feed conversion efficiency
- Lower milk volumes
- Lower solids content in milk, especially milk fat yield that is particularly impacted
- Greater risk of hoof issues
- Greater risk from systemic pro-inflammatory status that impacts a range of health areas
- Lower profitability

Not all rumen buffers are equally effective in this “rumen support” role however, and some that are commonly put forward, such as limestone or Bentonite, are shown in the literature to be ineffective. Others such as sodium Bicarbonate have efficacy, but are not the optimal choice, due to both high dose rate and cost.

What product offers the best outcomes as a feed additive in this class? Acidbuf

The published literature from numerous papers comparing Acidbuf to sodium Bicarbonate shows that Acidbuf used at 50% of the rate of sodium Bicarb consistently outperformed bicarb in terms of rumen stability parameters, ensuing feed digestibility, and resulting milk production and solids yields.

In our opinion this published data displays Acidbuf as the optimal rumen buffer additive.