

# UNDERSTANDING LIVE YEASTS



## VISTACELL YEAST FOR MILKERS AND DRY COWS INTEGRAL TO 10,000 LITRE OUTPUT

For Northern Ireland dairy farmer Andrew Reid, Vistacell live yeast is an integral part of a feeding strategy that has seen annual yields hit 10,000 litres/cow, butterfats at 4.11% and all on a system using grass as the primary forage.

“The only way to keep yields this high and maintain butterfats is to make sure the rumen is working as near perfectly for as much of the time as possible,” he explains. “From our experience, Vistacell is absolutely essential to achieving that – at this level of production you simply can’t cut corners.”

Based at Laurel Hill Farm, Lisburn, in County Antrim, the 200 Holstein Friesians are fed as one group during lactation, the year-round total mixed ration (TMR) based on a combination of grass silage, straw, soyabean meal, maize meal and soya hulls.

Nutrition advice is provided by Gareth Anderson from Farmgate Nutrition,

who also analyses silages monthly to ensure rations can be quickly adjusted to maintain a consistent nutrient supply to the cows. Together with Andrew, his father Nelson and two full time employees, it’s a team that has steadily fine-tuned the herd’s nutrition over the years to optimise rumen function and feed efficiency.

“We also put a lot of focus on the dry cows – I believe a good transition is key to producing a 10,000 litre cow,” Andrew continues. “Dry cows are fed a high volume, low energy density ration formulated to optimise the rumen ready for lactation.

*“Vistacell is absolutely essential to making sure the rumen is working as near perfectly as possible.”*

“That includes Vistacell yeast to ensure conditions in the rumen are already as stable and efficient as possible when we need the cow to perform post-calving.”

To avoid potential problems with cation imbalance, haylage for the dry cows is made from pastures that receive no slurry. There’s been just one case of milk fever in the past two years, and the number of displaced abomasums is down to 3 per 250 calvings.

“Be more efficient before you push for expansion, that’s our strategy. So we’ll push for better yields before increasing cow numbers, whilst also improving fertility and keeping on top of health problems.

“You’ve invested for years in genetics capable of producing 10,000 litres and above, so why not invest a little more in the feeds and supplements needed for the cow to deliver that performance. Getting the nutrition wrong for these higher genetic merit cows by cutting costs would cost us much more in the long run.”

# RESEARCH SHOWS ACIDOSIS RISK CONTINUES THROUGHOUT THE GRAZING SEASON

According to the latest research, the threat to rumen function and feed efficiency from sub-acute ruminal acidosis (SARA) when grazing is not limited to just low fibre spring grass. In fact, there's now strong evidence to demonstrate that modern ryegrass swards pose a significant acidosis risk throughout the grazing season.

A study in Ireland investigating the rumen pH of grazing cows supplemented with less than 2kg/day of concentrate showed that 11% of cows were suffering from SARA. An additional 42% were at high risk from SARA and only 47% had a rumen pH within the normal range (pH>5.8).

*“With a typical yield increase of 2 litres/cow/day, the returns will far outweigh the additional cost.”*

A more detailed investigation in Austria monitored daily rumen pH fluctuations in cows fed either grass only, or grass supplemented with 3kg of concentrate twice daily during milking. The cows receiving concentrate showed significantly lower average rumen pH and minimum rumen pH (see Figure 1), with rumen content below pH 5.8 – the point at which fibre digestion is compromised – for a massive 347 minutes each day, compared to just 26 minutes in the grazing only cows.

“It appears that for modern high performing dairy cows, even small meals of starchy concentrates when grazing can trigger SARA, and not just in the spring,” states Dr Nicola Walker, AB Vista’s Ruminant Product Development Manager. “Where levels of supplementary concentrate are higher than in the studies, the incidence and risk of SARA will potentially be even greater.”

Symptoms of SARA include unexpected reductions in feed intakes, milk yields or butterfat level, as well as undigested feed or mucin tags in the manure (see Figure 2). The incidence of health issues like mastitis and laminitis can also be increased.

“So limit in-parlour feeding to 2kg/cow/day, switch to a compound high in digestible fibre and feed Vistacell metabolically active yeast – either alone or alongside Acid Buf rumen conditioner – to help stabilise pH,” Dr Walker adds. “With a typical yield increase of up to 2 litres/cow/day, even before signs of SARA are evident, the returns will far outweigh the additional cost.”

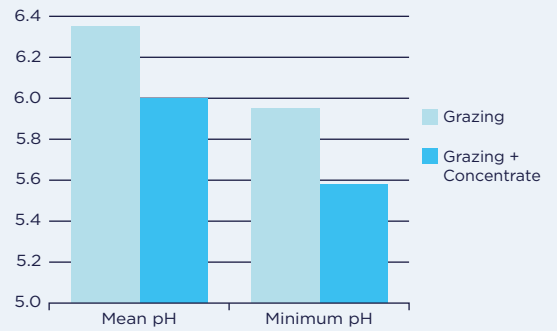
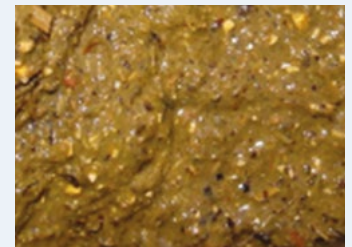


Figure 1: Impact on rumen pH of supplementing grazing cows with concentrate

Figure 2: Abnormal manure is a key indicator of SARA



a) Undigested grains in manure



b) Mucin tags in manure

## OPTIMISE RUMEN PH FOR OPTIMUM RUMEN PERFORMANCE

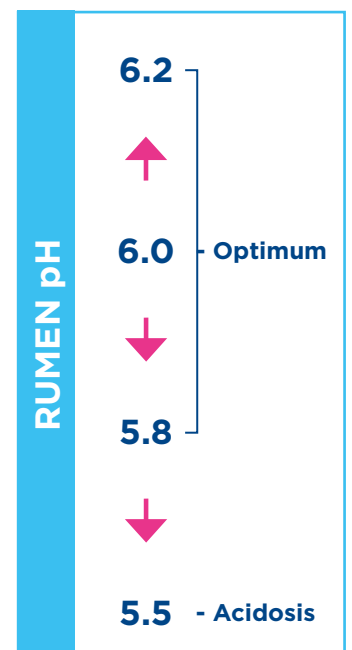
“Rumen conditioning is a much more complex process than simply avoiding acidosis,” explains Dr Derek McIlmoyle, AB Vista’s Technical Director for GB and Ireland. “Even before acidosis becomes a problem, the efficiency with which the rumen ferments feed ingredients can be compromised if the rumen environment is unbalanced.

“The result is a loss of nutrients, below optimum performance and a lower margin over purchased feed costs.”

The risk of acidosis is highest when large volumes of rapidly fermented concentrates are fed, particularly if the ration is relatively low in digestible and structural fibre – both essential for good rumen function.

“More importantly, if rations are pushing the limits of what the rumen can withstand, even if avoiding sub-clinical acidosis, the chances are that rumen fermentation efficiency is already compromised,” Dr McIlmoyle adds. “This is where a metabolically active yeast really comes into its own, improving feed efficiency as well as further reducing the risk of acidosis.

“Maximum VFA production occurs when the rumen is kept above pH 5.8, ideally as close to pH 6.0 as possible, and it is by minimising the time spent outside this range that efficiency gains are made,” confirms Dr McIlmoyle.



# HOW LIVE YEASTS WORK

Vistacell is a metabolically active live yeast that can increase yield by up to 2 litres/cow/day through improved rumen function and increased feed intake, plus lift butterfats, increase body condition gain and reduce the incidence of health issues like mastitis and laminitis.

*“Put simply, live yeast works by optimising rumen conditions and increasing the activity of fibre-digesting microbes”*

And because much of the improvement in rumen function results in more effective fermentation of forage fibre, Vistacell has a huge potential role to play in maximising milk from forage and improving feed efficiency – both top priorities for UK milk producers this year.

Put simply, live yeast works by optimising rumen conditions and increasing the activity of fibre-digesting microbes, whilst at the same time discouraging those microbes that are detrimental to feed efficiency. For a metabolically active yeast like Vistacell, it's the combination of mechanisms involved that make it so consistently effective:

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## 1. Scavenging oxygen

Even trace quantities of oxygen will reduce rumen activity and have an impact on the populations of beneficial anaerobic fibre-digesting microbes in the rumen. As much as 200 litres of oxygen enters the rumen daily via rumination, eating, drinking and blood supply across the rumen wall, so its utilisation by Vistacell is critical to good fibre digestion.

## 2. Competition for sugars

By competing for sugars within the rumen, Vistacell limits its availability for conversion into lactic acid by certain bacteria. The strongest acid produced in the rumen, lactic acid quickly reduces rumen pH and is the primary cause of acidosis, leading to reduced performance.

## 3. Stimulate lactic acid utilising organisms

Vistacell further reduces lactic acid build-up by stimulating microbes capable of converting lactic acid into propionate, a key volatile fatty acid (VFA) absorbed from the rumen to supply energy to the cow.

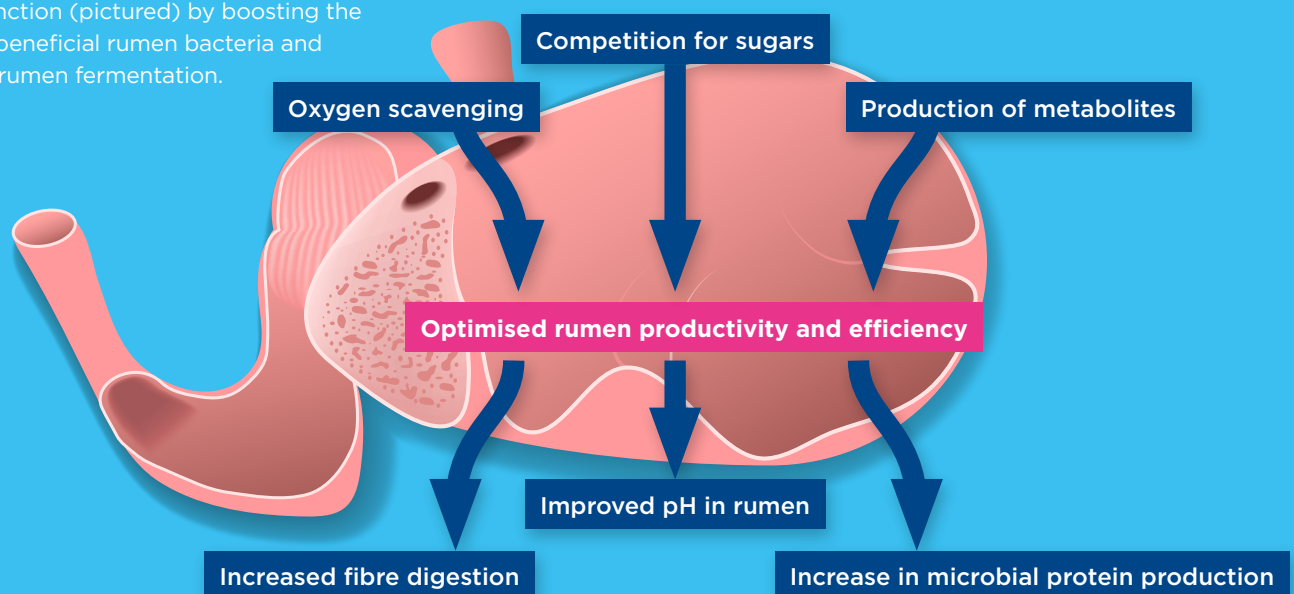
## 4. Improved rumen microbial diversity

Certain metabolites from Vistacell directly boost growth of beneficial microbes, as well as anaerobic fungi that 'open up' forage fibre for bacterial digestion. This increases microbial numbers and diversity, shortening the lag time before fibre digestion begins.

The net result is a significant boost to the efficiency with which forage is digested within the rumen...as long as the yeast used is a live one!

## VISTACELL – IMPROVING MILK YIELD

Vistacell acts as a probiotic to improve rumen and gut function (pictured) by boosting the growth of beneficial rumen bacteria and improving rumen fermentation.



# NEW DAIRY RESEARCH SHOWS RUMEN CONDITIONER PLUS YEAST MORE BENEFICIAL THAN YEAST ALONE

Adding Acid Buf rumen conditioner and Vistacell yeast to dairy rations can produce gains that exceed those achieved by the yeast alone, according to new research from Schothorst Feed Research (SFR) in the Netherlands.

Compared to Vistacell only, the combination treatment (Vistacell AB) substantially reduced the time rumen content spent at low pH (see Figure 1). The time below pH 5.8 - the point at which fibre digestion is compromised - fell from 87 to 50 minutes, whilst time below the pH 5.5 threshold for sub-acute ruminal acidosis (SARA) was halved from 40 to 20 minutes.

“This improvement in rumen function significantly increased the proportion of acetate and butyrate volatile fatty acids (VFA) produced in the rumen, leading to a 4% rise in milk fat production (from 1.58 to 1.65 kg/day),” explains Dr Nicola Walker, AB Vista’s Ruminant Product Development Manager. “The net result was a 3% improvement in overall feed conversion efficiency, measured as kg fat-corrected milk yield per kg dry matter intake.”

The study used a small group of fistulated Holstein Friesians fed a 65:35 forage-to-concentrate ratio diet either with or without the addition of a metabolically active live yeast (Vistacell at 4g/cow/day) or a combination product (Vistacell AB) containing both the yeast and a calcareous marine algae-based slow-release rumen conditioner (Acid Buf at 88g/cow/day).

“What’s clear is that it’s no longer a simple question of whether a yeast or rumen conditioner is the best option to help maintain rumen function and milk fat synthesis,” Dr Walker states.

“For milk producers looking to maximise milk value and maintain butterfats during the summer grazing season, it appears there’s an advantage to using both at the same time.”

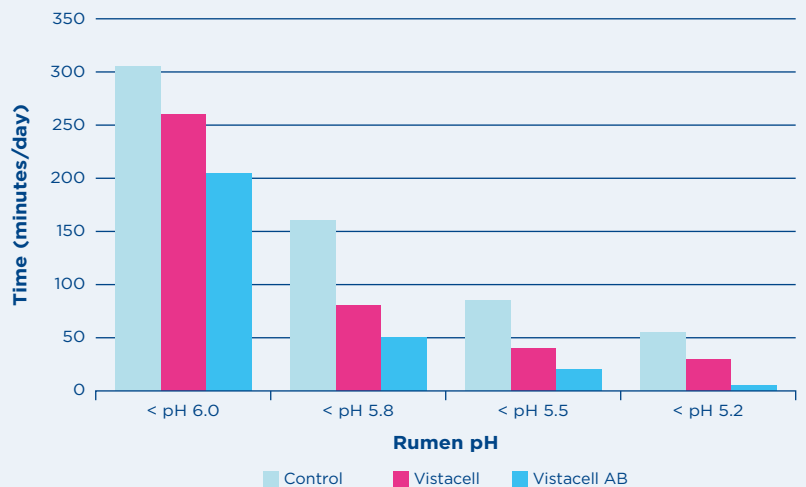


Figure 1: Effect on rumen pH (Source: Schothorst Feed Research, 2014)

*“To maximise milk value and maintain butterfats during the summer grazing season, it appears there’s an advantage to using a yeast and rumen conditioner at the same time.”*

## VISTACELL AB

Vistacell AB is a combination product containing full doses of both Vistacell live yeast and Acid Buf rumen conditioner. It’s a more convenient solution for those looking to benefit from both a live yeast and rumen conditioner.

## ACID BUF

Acid Buf is a highly efficient and effective rumen conditioner derived from marine algae that also contains high levels of calcium, magnesium and other minerals.

Acid Buf works in harmony with the cow’s own systems to help buffer excess acid in the rumen. The result is a more stable and productive rumen fermentation, improved fibre digestion and a lift in milk yield and quality.

**For more information on Vistacell yeast visit [www.abvista.com](http://www.abvista.com) or phone +44 (0)28 94 473 478.**

