



YEASTSOLUTIONS

ISSUE 39 - WINTER



“We added Actisaf to our milking cow diet to help deal with diet changes and rumen function. We saw a big difference in behaviour, manure and, more importantly, yields. Our butterfat levels have risen from 3.9% to 4.1%!”

Simon Davies
Castellhyfryd Holsteins, Camarthenshire



“Milk from forage stacks up economically for us and I need to know the cows can utilise the pasture and silage I put in front of them. The Actisaf yeast in the diet gives me that confidence and allows me to challenge the cows by reducing bought-in feed without sacrificing performance.”

Jon Barber
Friends Farm, Shropshire



“After seeing a lot of grains passing through the cows one winter, we started feeding Actisaf to improve rumen function and fibre digestion. We quickly saw improvement in the digestion, butterfats increased and it also helped us ease through the transition onto grass later in the spring.”

Nigel Williams and Joy Smith
Parcymarl Farm, Pembrokeshire



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**FINE TUNING RUMEN FUNCTION =
INCREASED FEED EFFICIENCY =
HIGHER PROFITS**

FEED EFFICIENCY AND THE RUMEN

Cereal and protein prices are rising, which translates into higher purchased feed costs for herds this winter. In an environment like this, optimising use of home-grown forage and maximizing feed efficiency in your herd is going to be crucial to ensuring your margins are maintained.

Feed efficiency is not a new term to the dairy industry – it's been around for a few decades - but it is not something commonly or routinely measured by dairy farmers. In simplest terms it means the amount of milk produced per kilogram of feed or dry matter intake and is typically standardized to 'energy corrected milk'.

The feed efficiency of a herd has a large impact on whether a dairy operation is profitable or not and can also reflect environmental efficiency through reduced carbon footprint, as more efficient cows require less feed to produce the same volume of milk. Efficient cows will also utilise protein more effectively and convert more of it into milk, resulting in fewer losses through urine and faeces, reducing ammonia emissions as a result.

In recent years, the dairy industry has focused on genetics to improve herd efficiency, but there are many environmental, management and dietary factors that also play a pivotal role. These influencers include stage of lactation, whether the cow is grazing or housed, stocking rates in sheds, number of calvings, diet mix quality, feeding consistency, housing conditions and diet formulation, to name but a few.

Several critical nutrients such as protein, starch and sugars play a vital role in diet formulation, but forage digestibility is key in determining how much milk can be produced from home grown forages.

High quality forage is the cornerstone of any profitable dairy system, forming more than 50% of a cow's diet. Typically, the higher the quality of your forage, the more milk that can be produced from

it and less concentrate required for a given level of yield. However, the inclusion level of silages in a winter-based diet is largely dictated by the digestibility of the forage and the neutral detergent fibre (NDF) content.

Silages of lower digestibility will limit performance as these forages typically have a higher stem-to-leaf ratio and take longer to be digested by the rumen bugs. This results in a slower passage rate of feed through the rumen of the cow, which in turn limits dry matter intakes and negatively impacts feed efficiency. This is wholly undesirable for high performing herds, especially during early and mid-lactation when feed intake is critical to support higher milk production.

Dairy diets are typically formulated to an overall NDF level of 32-35% NDF for both forage and concentrate, and 24-26% of this will come from forage. In simple terms, the lower the NDF level of a forage, the higher volume of that forage can be included in the diet without exceeding the overall diet threshold. As a guide, forages that have an NDF level of 42-44% or a digestibility value of greater than 72 allow for relatively high inclusions and will typically feed quite well.

Measuring feed efficiency

While measuring feed efficiency precisely at farm level is difficult, monitoring forage dry matter and overall herd intake on a daily basis (including both from the diet feeder and parlour feeding) can give us a good idea of efficiency levels within the herd.

If a cow consumes 23 kg of DM per day and yields 41 litres of energy corrected milk, her feed efficiency is 1.8 kg ECM per kg of DMI. As a rule of thumb, this is a good level of feed efficiency during peak milk yield, while a feed efficiency of 1.5 is good for a herd at 180 -200 days in milk.



Recent trial work from the University of Nottingham has proven **Actisaf®** to:

- ↑ Feed efficiency by 5.5%
- ↑ Energy corrected milk yield by 5.9%
- ↑ Butterfat %

Adding **Actisaf® live yeast** to your dairy ration can return up to **8x your investment** through improved milk yields.

ActiSaf Sc 47

TOP TIPS FOR MAXIMIZING FEED EFFICIENCY

- 1 Maximise cow comfort: Include 60 cm feed space, 1 cubicle bed and 20 cm of water trough space per cow, adequate lighting and ventilation, head feed rails adjusted to the appropriate height.
- 2 Ensure the diet is correctly balanced, properly mixed and consistently fed. Don't overfill diet feeders and ensure feed passages are clean with mouldy, rotten or heating feed removed. Make changes between forages over 2-3 weeks. Introduce concentrate gradually to post-calving cows.
- 3 Analyse forages on a monthly basis.
- 4 Monitor cow signals: Monitor dung for consistency and digestion of fibre and look for cows to spend 12-14 hours per day lying down in their bed and to ruminate for more than 8 hours per day.

Feed efficiency should be measured alongside body condition score and conception rate to first service, particularly for cows in the first 100 days of lactation because we don't want high levels of milk yield to lead to bodyweight loss, as this will negatively impact on fertility. We ultimately want high levels of feed intake and digestibility to drive milk yield, thereby driving feed efficiency and actually minimizing bodyweight loss in early lactation.

The role of the rumen bugs

Feeding a balanced diet is essential to maximise rumen function and, by extension, optimise feed efficiency. The rumen is essentially the engine room of the cow, packed with billions of microbes that work together to extract nutrients from the diet, including 80% of the energy and 65% of the protein that is required for maintenance, milk production and fertility. Without a balanced diet, the rumen environment for these microbes is not optimised, which can cause digestion and cow performance to suffer hugely.

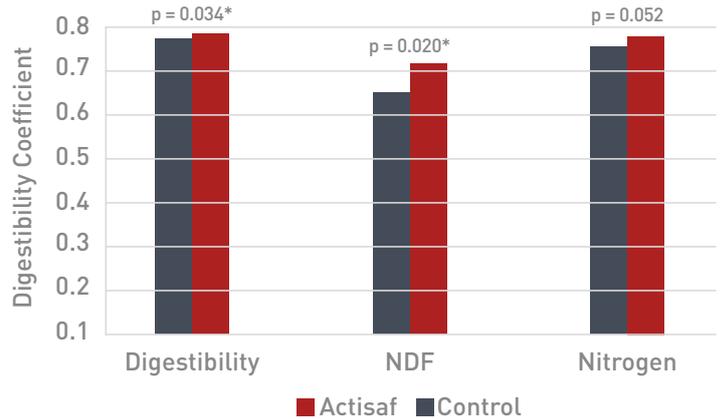
Recent research into the rumen microbiome has identified specific microbes that are linked with high levels of feed efficiency in dairy herds. One study found that early lactation cows with higher levels of key rumen bacteria, who utilise lactic acid and digest fibre, had up to 2.6 kg DM lower feed intake than in comparable cows of similar age and size, for the same level of milk production.

With other research confirming these findings, it is now thought that the population of microbes in the rumen has a significant effect - possibly more than 50% - on the feed efficiency of dairy herds.

Improving efficiency with Actisaf live yeast

Actisaf creates a more favourable rumen environment and stimulates the key lactic acid utilising and fibre digesting bugs, the exact same categories that are highly correlated with feed efficiency in the study previously outlined.

This leads to increased digestion of fibre and more milk from forage. This was recently evidenced in a study from the University of Nottingham, which found that Actisaf increased feed efficiency by 5.5% of a high performing (13,000 litres/cow/year), early lactation herd. This was achieved primarily through increased digestion of fibre, which yielded an extra 5.9% of energy corrected milk with no change in feed intakes.



	Control	Actisaf	Diff.	p-Value
Milk yield, kg/d	47.5	50.1	+2.6	0.033
Energy-Corrected Milk, kg/d	47.7	50.5	+2.8	0.009
Fat-Corrected Milk, kg/d	46.3	49.2	+2.9	0.008
Fat, g/d	1823	1945	+122	0.022
Protein, g/d	1521	1593	+72	0.06
Lactose, g/d	2236	2342	+106	0.066

By improving feed efficiency of even the highest performing herds, Actisaf can provide a return on investment of up to 8 times the cost of adding it to your herd's diet.

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