SELEKT®

nimrod

SELEKT Glycerol Plus:
We've made some changes - for 20 % more propionate!

We are proud that the SELEKT formulae are built upon strong evidence, with there being clear evidence for the inclusion of each ingredient, and for the quantity in which it is provided. We regularly review the formulations, considering any new evidence. This allows us to ensure that they are the best that they can be.

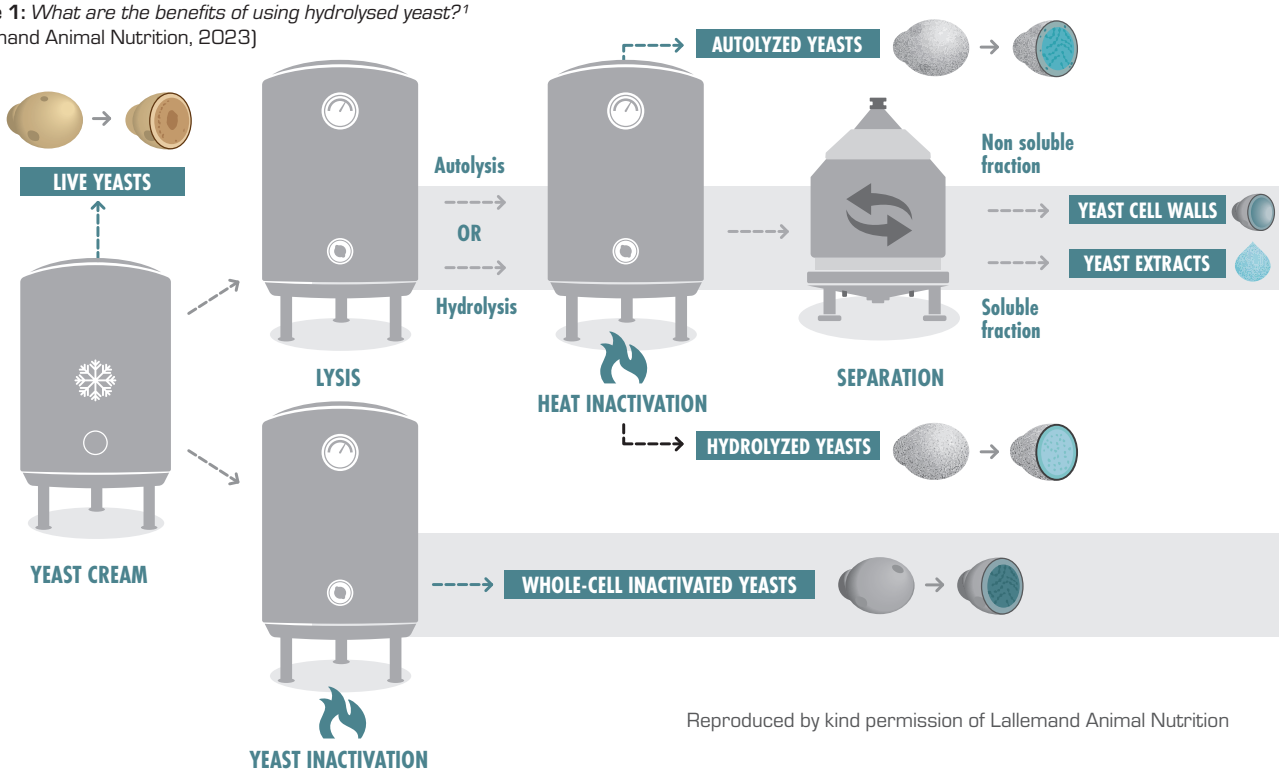
We have changed the yeast in SELEKT Glycerol Plus. Formerly it included 46 grammes of a whole-cell inactivated yeast (*S.cerevisiae*) per bottle. Now, it includes 46 grammes hydrolysed yeast, still *S.cerevisiae*.

"What is a hydrolysed yeast and how does it differ from a dry yeast?"

Not all yeast products are of equal benefit to the rumen flora, even if they are derived from the same yeast species. There are six types of pure yeast product available, and we now use a hydrolysed yeast (Figure 1). To produce hydrolysed S.cerevisiae (brewer's yeast) it is heat-inactivated and hydrolysed by selected enzymes. The proteins are broken into peptides, and vitamins are released from the cytoplasm[1]. This makes them more readily available to the rumen flora.

In a dry yeast, many of the beneficial proteins, nucleic acids, and vitamins remain locked in the cytoplasm, and are less available to the rumen flora.

Figure 1: *What are the benefits of using hydrolysed yeast?*[1] (Lallemand Animal Nutrition, 2023)



“What are the benefits of using hydrolysed yeast?”

Hydrolysed yeast benefits the rumen flora and so increases propionate production.

We have long known that yeast stimulates the growth of lactate-utilizing and cellulolytic bacteria in the rumen[2]. We also know that periods of inappetence and dehydration, even short ones, reduce the rumen-fermentative capacity and rumen-fermentative activity. It takes several days for the rumen to recover once feed and water intake resumes.

It has been demonstrated that the ruminal microbiome is altered in ketotic cows. Notably, there is a reduction in the number of propionate-producing bacteria (including *Megasphaera elsdenii*)[3]. Therefore, increasing the growth of these bacteria and their propionate production is valuable to the ketotic cow.

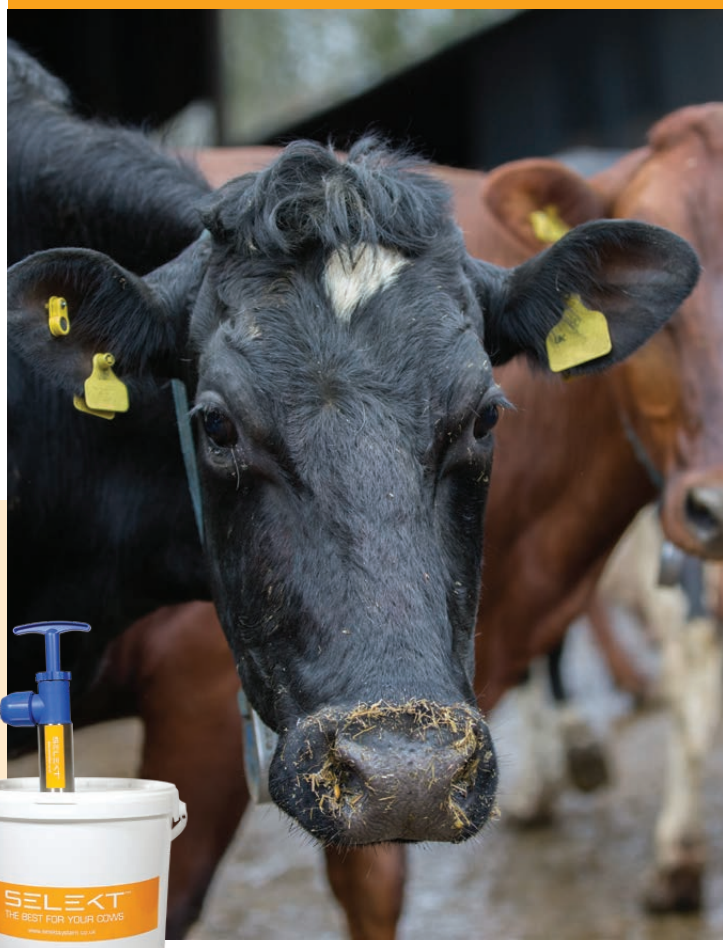
“Why not use a live yeast? Many farmers use live yeast in the TMR!”

Live yeast changes the environment of the rumen over time, optimising microbial balance. This makes it beneficial in a TMR when inclusion in regular meals provides the required daily dose.

If a product is to be given as a single dose for a quick response, a hydrolysed yeast is of greater benefit. It will feed the rumen microbes that are already there, increasing their activity and growth more quickly than a single dose of live yeast.

Key Facts:

- **Hydrolysed yeast increases the microbial biomass in the rumen.** In grass silage inoculated with rumen fluid, a hydrolysed yeast increased microbial biomass by 300 x10^6 cells/ml compared with rumen fluid alone[4].
- **Hydrolysed yeast increases the production of propionate by 20 %**[4]. This is useful for the hypoglycaemic animal, as propionate is rapidly converted to glucose in the liver.
- **Hydrolysing yeast makes its cell-wall components more readily available.** β-1,3- and β-1,6- glucans from the cell wall act as immunostimulants, antimicrobials and anti-inflammatories. Inflammation plays an important role in the development of ketosis by increasing insulin resistance[5].



If you would like to know more about the SELEKT formulae and equipment or discuss the benefits of the hydrolysed yeast further – please contact us at

Email nimrod@nimrodvet.co.uk
Call +44 1608 652593

References:

[1] Lallemand Animal Nutrition (2021) ‘Every part of the yeast is the best part – white paper 2021’

[2] Callaway, E.S., and Martin, S.A. (1997) Journal of Dairy Science, **80**, pp. 2035 – 2044.

[3] Wong *et al.* (2012) ‘Correlation between composition of the bacterial community and concentration of volatile fatty acids in rumen during the transition period and ketosis in dairy cows’, Appl. Environ. Microbiol., **78**(7), pp. 2386-2392.

[4] Kettunen, H. *et al.* (2016) ‘Yeast hydrolysate product enhances ruminal fermentation in vitro’, Journal of Applied Animal Nutrition, **4**(1). doi:10.1017/jan.2015.14.

[5] Bzducha-Wróbel, A. *et al.* (2014) ‘Evaluation of the efficiency of different disruption methods on yeast cell wall preparation for β-glucan isolation’, Molecules, **19**(12), pp. 20941–20961. doi:10.3390/molecules191220941