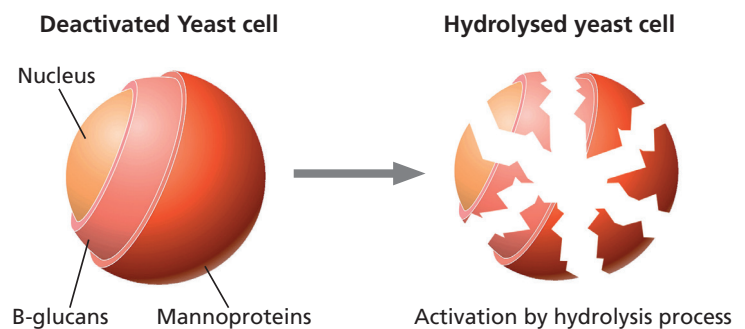


Hydrolysed Yeast for Extra Milk Yield and Immune stimulation

What is Progut® Rumen?

Progut® Rumen is a '3 in 1' yeast-based feed ingredient. Whole yeast cells are extracted from the brewing industry and processed in a way that enhances all the nutritional and health benefits of both the yeast cell wall and cell contents. It is rich in Mannoproteins, Betaglacans, nucleotides and peptides.



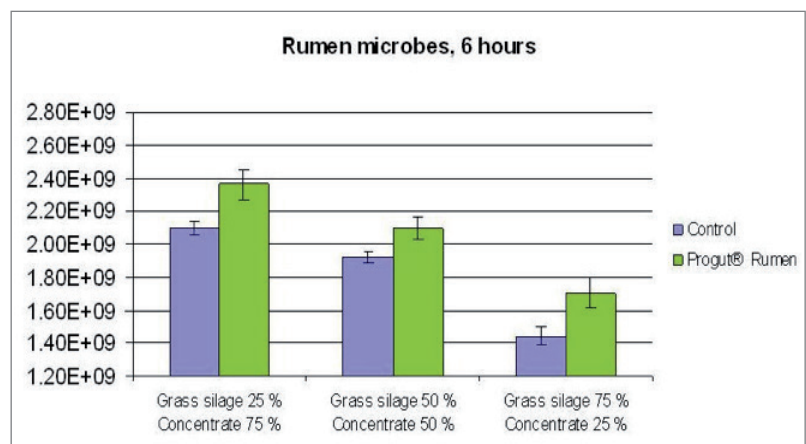
What makes it unique?

What makes Progut® Rumen unique is the **patented hydrolysis process** (EP 0946108) used to break down the yeast cell. Yeast cells from the brewing industry are first deactivated by heat treatment before being hydrolysed to release more effective **soluble, bioactive particles**. This is a controlled process which results in a more consistent product with consistent results.

How does it work?

(1) Acts as a Rumen Stimulant

In the Rumen, the bioactive particles of the yeast act as a natural antagonist to the rumen microbiota stimulating an increase in the numbers and activity of these microbes. This results in an enhanced fermentation process with a greater output of Volatile Fatty Acids in particular Propionic Acid and a reduction in Methane output.



More Rumen Microbiota – Better Rumen Fermentation – More VFA – More Propionic Acid – More Milk

(2) Stimulation of the Immune System

In the gut, the bioactive cell wall contents, particularly the Betaglacans, stimulate the immune system to generate more Immunoglobulin and respond quicker to an infection threat.

Enhanced Immune Response in calves – Reduced Somatic Cell Count in milk

Irish Dairy Trial on Portlaoise Research Farm

In a recent dairy cow study carried out on a research farm in Portlaoise, Ireland, Progut[®] Rumen was proven to significantly increase milk yield and reduce Somatic Cell Score across the herd. A total of 248 Holstein-Friesian cows were used in 2 separate but identical trials. Cows were divided into 2 groups, control and treatment. The cows were allocated to the groups based on previous milk yield, BCS, Days in Milk and a number of other factors to ensure that the only difference between the groups was that Progut Rumen was fed to the treatment group.

Progut[®] Rumen significantly increased milk yield by up to 1.79 kgs in cows averaging over 30 kgs

	Control	Progut	Difference	Statistical Significance
Milk Yield (Entire Group) kgs	25.32	26.09	0.77	p<0.01
Cows milking >24 kgs	28.36	29.65	1.29	p<0.01
Cows milking >30 kgs	33.19	34.97	1.79	p<0.03

The results in the table above show that **Progut[®] Rumen** can significantly improve milk yield across the entire herd and up to 1.79kgs extra milk per day from cows milking >30kgs. The BCS of the cows and the milk constituents were not negatively affected by the increased milk. This means that the extra milk came from better rumen fermentation caused by the Progut[®] Rumen.

Progut[®] Rumen significantly reduced the Somatic Cell Score of the entire treatment group

	Control	Progut	Difference	Statistical Significance
Somatic Cell Score (Entire Group)	2.17	2.05	0.11	p<0.01
Cows milking >24 kgs	1.93	1.81	0.11	p<0.05
Cows milking >30 kgs	1.76	1.52	0.24	p<0.05

In scientific trials SCC (Somatic Cell Count) is measured as Somatic Cell Score (Log₁₀(SCC)) due to the large numerical variation between cows. The SCC figures for the entire group of cows showed that the Progut Rumen group had a SCC 62,000 cells less than the untreated group (384,990 cells vs. 322370 cells). This indicates that **Progut[®] Rumen** can be a powerful force in helping to reduce SCC as part of your milk quality program.

Results from previous Trials with Progut[®] Rumen:

- Pro-Rumen fermentation – Up to 15% increase in Rumen
- Pro-Feed Efficiency – 5-8 % improvement in Feed Efficiency
- Pro -Milk Yield – 6 % extra milk yield across the whole lactation
- Pro-Immunomaturatation- in calves