

orgacell sc 5/10

Optimizing ruminal functions with live yeast plus valuable protein



- stabilizes the rumen – especially **advice** important if animals are stressed
- reduces the risk of acidosis
- provides a high-quality protein source for rumial microbes
- increases ruminal vitamin and biotin production
- reduces amount of feed residue in the manure
- GMO free



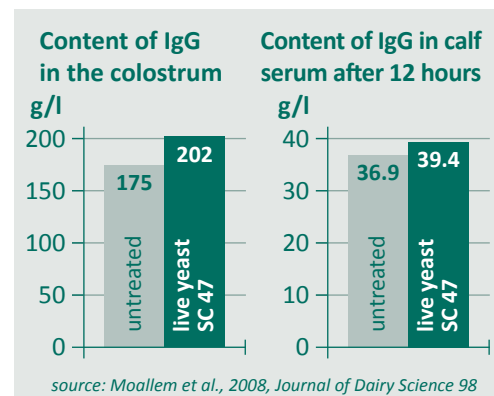
Improves feed conversion and animal health

orgacell sc® 5/10 contains a probiotic live yeast encapsulated within a protective shell, prebiotic inactive yeast and vegetable oil. Encapsulation of the live yeast is vital as it protects the yeast from air, moisture and fermentation acids to ensure that it is not activated before it reaches the rumen. Inactive yeast contains readily digestible protein for the ruminal microbes; vitamins and organically bound micronutrients; as well as cell wall components supporting the immune system. Thanks to a special technique, vegetable oil renders the product dust-free and ensures that it can be mixed into other dry components and the into the feed ration without any problems.

Packaging: 20 kg bag

Application: Mix 20 g of **orgacell sc® 5/10** per animal per day into the TMR or into a dry feed component such as cereal.

Our advice: In situations when the animals are stressed – as is the case with a high milk yield, feed conversion or heat – a short term increase to 30 g per animal per day is advisable. Due to its high volume, the inactive yeast used in **orgacell sc® 5/10** ensures an exact application despite its low weight. Main application of **orgacell sc® 5/10** should start 4 weeks before calving and be continued throughout lactation. Trials have shown that the feeding of live yeast before calving increases the amount of immunoglobulin in the calf's blood. Thus, live yeast is not just beneficial for the cow, but for its offspring as well.



Live yeast will of course work in every rumen – meaning also in the rumen of beef cattle or heifers. Therefore, **orgacell sc® 5/10** is not wasted in the leftover feed fed to offspring. As always, these leftovers need to be of impeccable quality.

Live yeast application – average effects of two trials

1. Field trial in France, 541 dairy cows on 22 farms
2. University of Utrecht, 67 dairy cows

production of milk fat & -protein				milk yield	
milk fat (g/day)		milk protein (g/day)			
untreated	live yeast	untreated	live yeast	untreated (kg/day)	live yeast
1. 1199	1254 (+ 55 g)	894	938 (+ 44 g)	27.1	28.6 (+ 1.5 kg/d.)
2. 1360	1380 (+ 20 g)	1170	1230 (+ 60 g)	33.8	35.7 (+ 1.9 kg/d.)

source: Lesaffre Feed Additives

Yeast has long established benefits in animal feeding. Numerous trials confirm its effects on animal health and perfor-

mance. The combination of live and inactivated yeast ensures the maximum beneficial effect (see last page).

Sieve test

Using the simplest of means, the sieve test provides the easiest way to see the effects of feeding live yeast. Put a sample of manure in a common kitchen sieve and rinse until the water runs clear.

The undigested feed components will remain in the sieve. The amount and type of the residue shows the digestion's intensity.

After 3 - 4 weeks of feeding **orgacell sc[®]**, repeat the test.

Feeding of live yeast is clearly visible in a reduced amount of residue – especially the amount of maize kernels is significantly reduced.



feed ration **without** live yeast



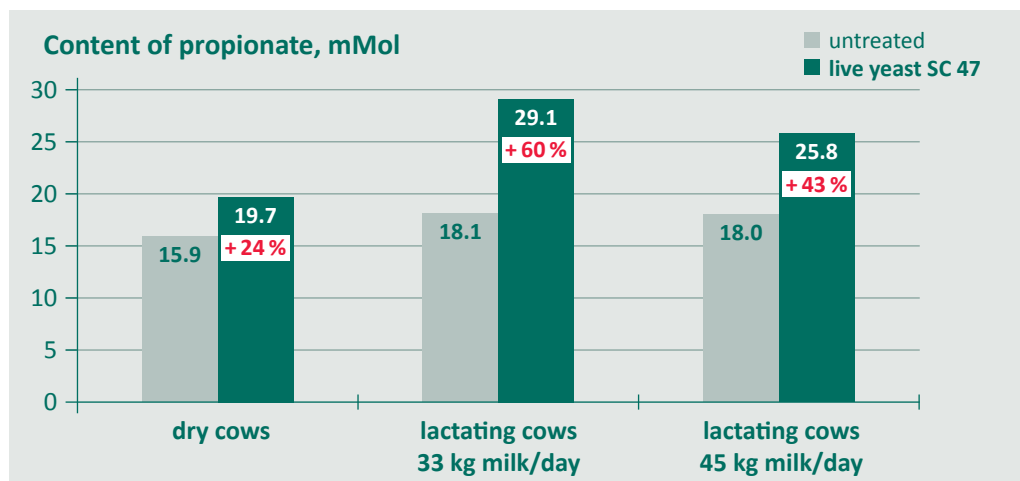
feed ration **with** live yeast

Effects of the live yeast used in orgacell sc[®] 5/10, *Saccharomyces cerevisiae*, on the rumen

Live yeast consumes ruminal oxygen

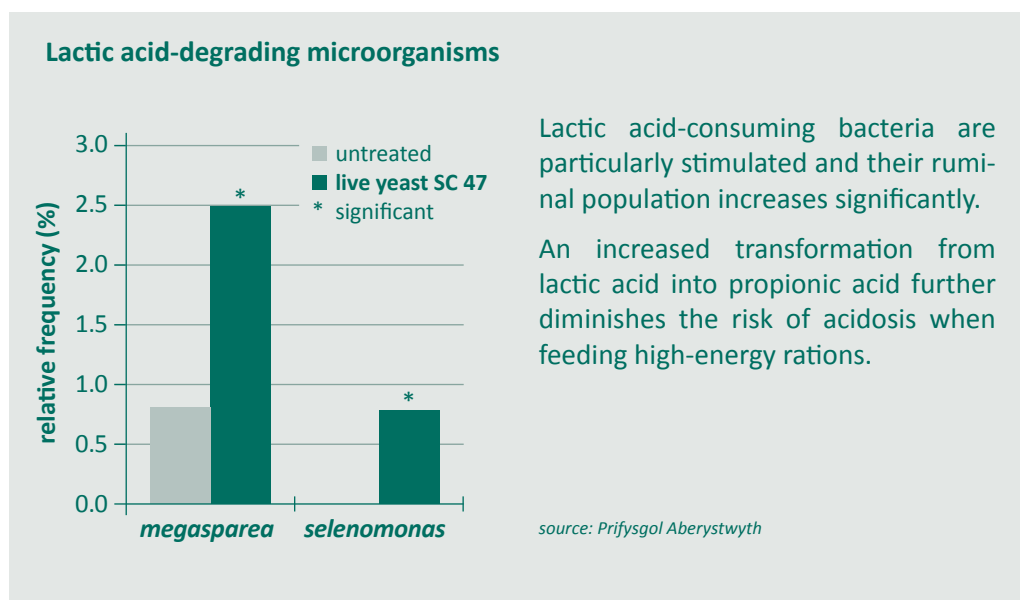
Oxygen is toxic for most ruminal microorganisms. Live yeast reduces oxygen, so the number of cellulose-degrading microorganisms increases. This may be observed in the animals' manure after just a short period of time (see pictures on the left): fibre and kernel residue is reduced. As live yeast binds the oxygen, a higher

amount of free hydrogen will be available for the formation of propionic acid. In the dry period as well as during lactation, feeding low-energy rations results in an increased production of propionic acid in the rumen. In the liver, this acid is subsequently transformed into the energy source glucose.



source: Lesaffre Feed Additives

Live yeast keeps rumen pH at optimal level



source: Prifysgol Aberystwyth

Lactic acid-consuming bacteria are particularly stimulated and their ruminal population increases significantly.

An increased transformation from lactic acid into propionic acid further diminishes the risk of acidosis when feeding high-energy rations.

Stabilizing the pH

In high-energy rations, stabilizing the rumen pH is of special significance (see chart). If the milk yield is low, a high-fibre feed ration will satisfy the cow's energy requirements (see upper curve).

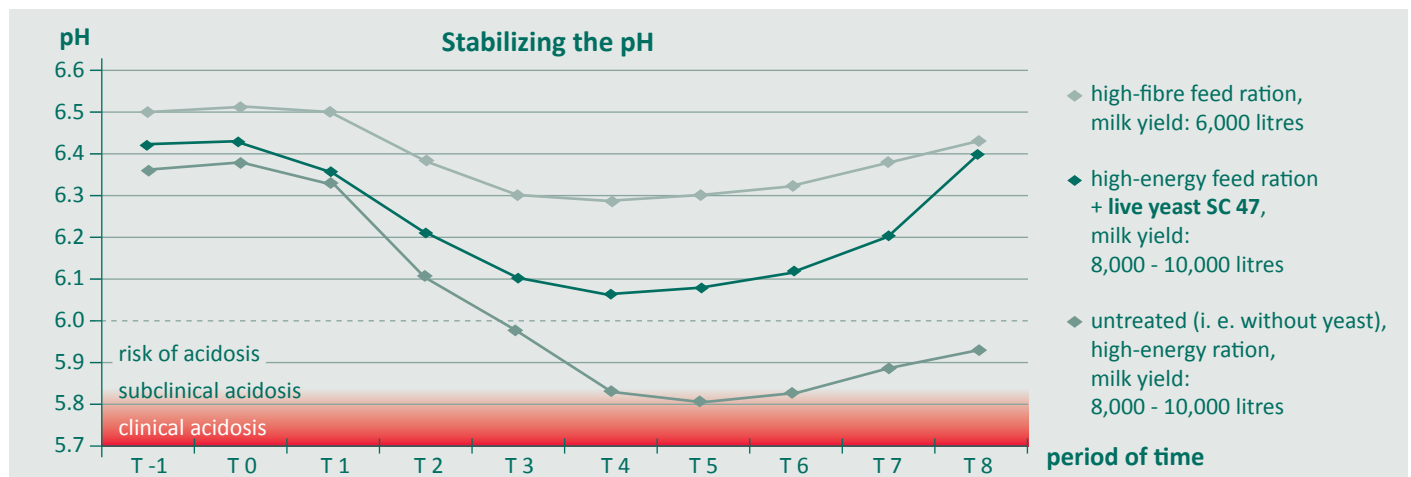
Increased milk yield requires high-energy rations containing starchy feedstuff / concentrate. These also result in an increased production of lactic acid in the rumen and a subsequent lowering of the pH when starch/carbohydrates are degraded (see lower curve).

A pH-level below 5.8 bears the risk of irreversible damage to the ruminal mucosa caused by the acid as well as the risk of killing a great number of ruminal bacteria. When degrading, bacteria release endotoxins which cause symptoms of poisoning like laminitis. This development may be avoided by feeding live yeast, keeping the pH at a safe level above 6 (see middle curve). This protects both ruminal bacteria and ruminal mucosa.

Ruminal cross-section



A high-capacity rumen features a dense "lawn" of villi.



source: Lesaffre LFA

A well-functioning rumen is the basis for healthy, high-yielding dairy cows. Ruminal microorganisms work anaerobically. The more microorganisms are active in the rumen, the better the feed conversion. Therefore, each ration should aim to provide the bacteria with an optimal rumen environment. **orgacell sc® 5/10** increases the ruminal microbial population. The inactive yeast contained in **orgacell sc® 5/10** feeds these ruminal microbes and supports their development. Thus, **orgacell sc® 5/10** ensures a more efficient feed conversion and an increased feed intake.

Please note: detoxification function ceases!

If the pH drops below 6, a vital function of the rumen will falter: The degradation of toxins by single cell organisms like protozoa. Protozoa degrade complicated molecules such as mycotoxins but require a higher pH level for main-

taining their vital functions. Thus, a rumen with frequently low pH levels bears the high risk that toxins are not degraded; and further on in the intestinal tract, will get into all organs via the bloodstream.

Yeast – a feed all-rounder

Living yeast cells can stay alive in their dried form without any problems and will only re-activate if they come into contact with moisture and warmth. To ensure that this doesn't happen on the feeding table, jbs uses live yeast encapsulated within a protective shell. Yeast can only survive for a few days inside the cow's rumen and they cannot multiply in the ruminal environment. Therefore, daily administration is essential. Each gram of dried live yeast contains 10 billion yeast. As only a few grams of live yeast (3 - 6 g) per animal per day are required, further components are needed to facilitate accurate dosing.

Inactivated (dead) yeast comes as a dry, dusty powder, in which the yeast cells will not re-activate. Physiologically speaking it is of higher value than vegetable components such as cereal or rapeseed. A special technique involving vegetable oil ensures that **orgacell sc® 5/10** is a dust-free, non-sticky feedingstuff which is easily mixed into other components.

High-quality nutrition for ruminal microbes

Ruminal microbes use the yeast's easily digestible protein as a food source. Even though they are able to build amino acids using nitrogen, ruminal microbes have special requirements regarding their protein supply. The better the food source the higher the growth of their population and the better the ratio of feed conversion.

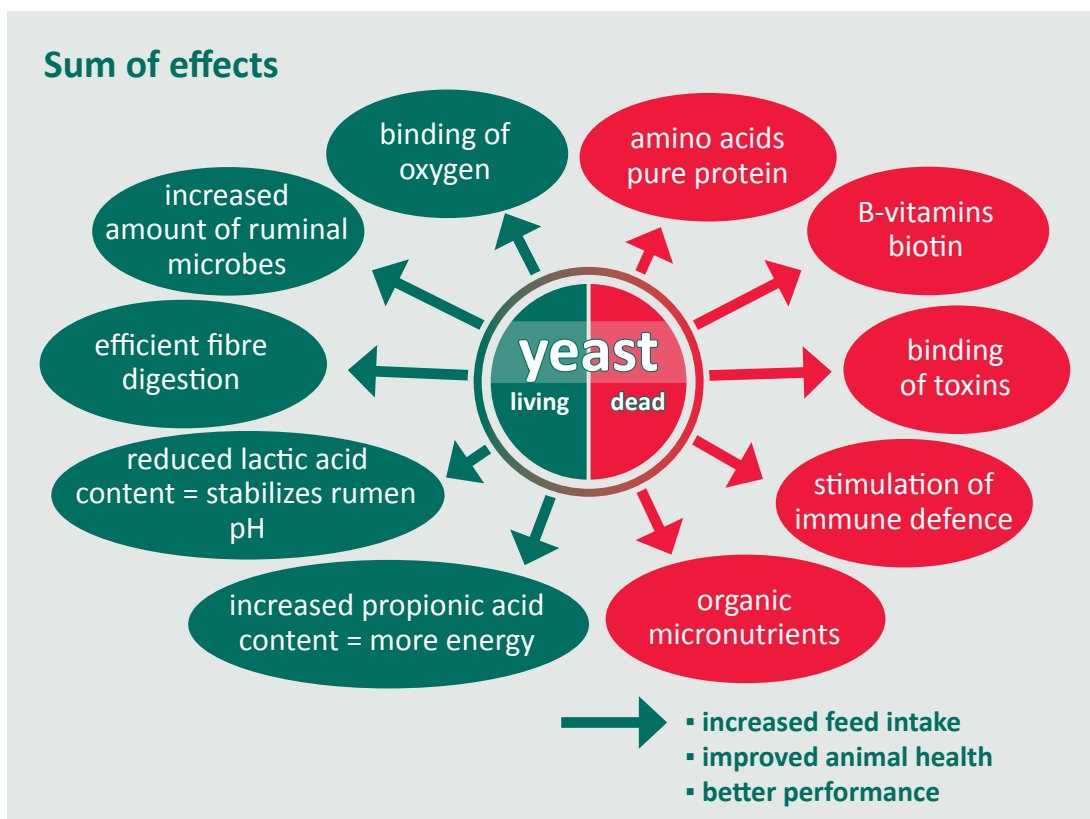
Inactivated yeast is more than just a protein source

Inactivated yeast provides many benefits for the rumen microflora.

Yeast cells store micronutrients in such a way that they are organically bound to amino acids. This facilitates the animal's absorption of micronutrients into the bloodstream. Yeast cell walls bind toxins and pathogens, and activate the immune system.

A winning team

In **orgacell sc® 5/10**, live yeast and inactivated yeast combine to provide the whole range of positive effects of yeast cells on animal health and performance.



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