

ISSUE 59, SUMMER 2022

SPECIFIC  
FOR YOUR  
SUCCESS

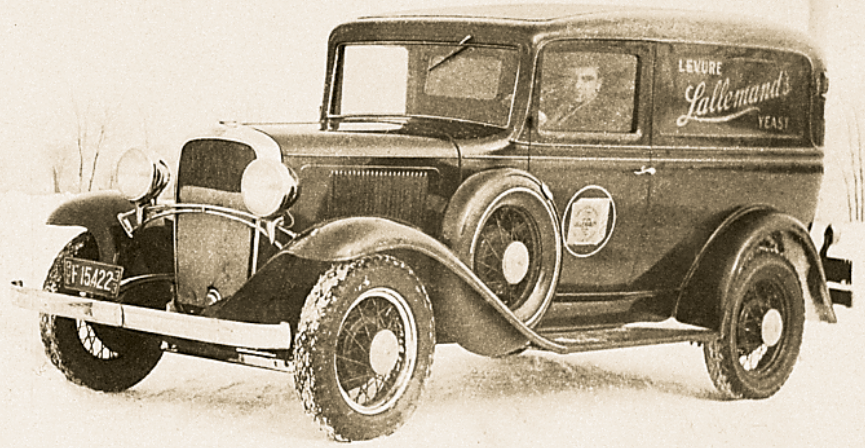
# IN THE MIX



ProTernative helps  
to relieve **BRD stress**



RIGAUD  
OTTAWA



In 2023, Lallemand's historic yeast plant in Montreal will be 100 years old!

**SPECIFIC  
FOR YOUR  
SUCCESS**

**IN THE MIX** ISSUE 59  
SUMMER 2022



## LALLEMAND HOLIDAY HOURS

The office will close from 12 noon on December 23rd, and will reopen the 3rd January, 2023. Ensure orders are placed before Friday 16th December to ensure delivery prior Christmas (on the east coast).

# Welcome

Happy festive season to all. Well the threepeat of La Niña is well on the way and delivering what can now only be called a "green drought" across Eastern Australia. It's remarkable for a wide range of reasons. We've gone from the mega dry of 2019 to enormous falls of water across the eastern seaboard. Its simply extraordinary. Crops are failing, we can't harvest or plant in massive areas of Australia. And to top it off the rain just keeps coming. Then at the end of November we have snow in the VIC Ranges and 35 degree's in Brisbane. Well I am sure the crazy times will continue across our climate, our supply chains, inflation, and interest rates. So more than ever the time to reflect across the Summer should be spent thinking "what can I do different next year". Whether its using less antibiotics, enhancing rumen function, monitoring your cattle, planning for more silage to future proof your operation, Lallemand has the solutions and the people the people to help you. All the very best to close our 2022 and may your 2023 be filled with every success. Thank you once again for your continued support.

**Alex Turney - Country Manager**

For general enquiries:

+61 (07) 5451 0125

PO Box 6122, Maroochydore BC QLD 4558

LAN-Aus@lallemand.com

www.lallemandanimalnutrition.com

*In The Mix is Lallemand Australia's newsletter intended for professionals of the feed and livestock industry. This publication and its contents including any research data is, unless otherwise specifically attributed, the intellectual property of Lallemand Australia Pty Ltd, a trading division of Lallemand Inc ("Lallemand") and may not be copied or reproduced or distributed, in whole or in part, without the prior consent of Lallemand.*

## DID YOU KNOW?

## Yeast cell wall's are not limited to MOS

Yeast cell wall (YCW) are the insoluble fraction of autolyzed or hydrolyzed yeasts, obtained after the separation from the cytoplasmic content. They are sometimes referred to as "MOS", but it is a misnomer! YCW are not limited to mannan oligo-saccharides (MOS), which represent the external layer of the YCW, there is also the internal layer rich in  $\beta$ -glucans.

YCW products have four main modes of action that strongly depend on the production process and the strain background.

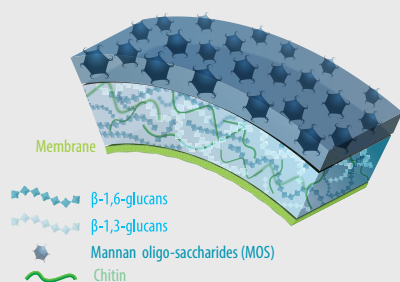
They:

1. Help limit the development of undesirable bacteria thanks to their binding capacity.
2. Favour the development of beneficial microorganisms (prebiotic effect).
3. Modulate the innate immune system of animals.
4. Help reduce the negative impact of mycotoxins from the feed thanks to specific interactions between certain mycotoxins and YCW polysaccharides.

YCW are therefore particularly indicated in all animal species to help maintain digestive health, support feed utilisation and growth performance, help reinforce immune system and natural defenses, adsorb certain mycotoxin and support skin health/protection of fish.

**Want to know more about our YCW solutions?**

**Discover AGRIMOS and OPTIWALL.**



Yeast cell wall composition and architecture

## A passion for agriculture



### Lallemand Animal Nutrition is pleased to announce the appointment of Phil Lines as Technical Services Manager for Northern Victoria.

Phil has more than 30 years' experience in agribusiness and farming. Raised on a wheat-sheep property at West Wyalong in central NSW, he commenced his career as stockman with Victorian Producers before landing a job as a trainee office clerk. He quickly rose through the ranks to become merchandise manager at branch, state and national levels with Elders, Landmark and National Rural Independents.

In 2020, he was approached by an old friend to help with the harvest. "I was asked to stay on afterwards and I realised this was an opportunity to change direction from corporate life to something I'd always wanted to do," Phil says.

The property was later acquired by the investment firm, goFARM, and Phil ended up managing 'Yarrabee Park', a 11,200-hectare property south-west of Narrandera. At the time, the property was growing more than 7000 ha of winter cereals and 3000 ha of vetch hay each year. In 2010, Phil moved to Boort, Victoria, where he operates a 600 ha cropping and livestock enterprise.

Phil brings a passion for agriculture and people to his new role with Lallemand Animal Nutrition.

"Fundamentally, agriculture is a people business and I know I wouldn't be here if I wasn't a good fit with Lallemand and vice-versa," he says.

"Alex Turney puts a lot of effort into appointing people that will get along as a team and more importantly, with our customers. I spoke with Alex on multiple occasions and met the whole team before I was offered this position."

Phil recently graduated with a prestigious Executive Masters of Business Administration degree from the University of Sydney. "I left school when I was 17 years old and I hadn't done any formal studies until this opportunity came along," he says.



## ProTernative helps to relieve BRD stress

### ProTernative

Specific live yeast for gut health

**Bovine respiratory disease (BRD) is a leading cause of sickness and death in feedlot cattle. In Australia, it is estimated that BRD is responsible for 64% of morbidity and illnesses. Besides having a direct impact on animal health, BRD can quickly overwhelm livestock and economic performance.**

Stress is a precursor to BRD. Recent-arrived cattle are subject to a range of stresses during transport and induction; as they adjust to unfamiliar surroundings and new pen mates; and as they transition from a forage-based diet to a concentrate-based diet. While these challenges are largely unavoidable, steps can be taken to support immune function, particularly against BRD.

The lower gut helps to power the day-to-day immune function and health of any animal. It hosts a robust and dynamic bacterial community that help the animal to promote a positive, systemic immune response. With the help of these microbes, the lower gut of cattle can signal the rest of the body to promote the production of antibodies to fight disease challenges.

Probiotic live yeasts (also called direct-fed microbials) are a relatively recent addition to the arsenal against bovine respiratory disease complex (BRD). One such example is ProTernative, which contains the strain-specific live yeast, *Saccharomyces cerevisiae boulardii* CNCM I-1079. ProTernative has been scientifically proven to maintain a beneficial microbial population in the rumen, thereby promoting feed intake, improving growth rates and boosting immune function.

A recent U.S. study evaluated the impact of ProTernative upon the incidence of BRD and livestock performance under commercial feedlot conditions. A total of 1,274 heifers (average 248 kg liveweight) with unknown health, vaccination and nutrition history were purchased from regional saleyards over a two month period.

Heifers were randomly assigned to two treatment groups. The first group was fed a ration that contained ProTernative in accordance with the label directions for the first 45 days on feed. ProTernative was removed for the remainder of the feeding period (average 232 days). The second group were fed the same yeast-free ration throughout the feeding period.

The two groups were then consigned to 16 pens, ranging from 80 to 100 head per pen. Heifers were fed twice daily throughout the study. All cattle received the same induction program, including vaccination, a metaphylaxis antibiotic therapy and implanting. Animal health was evaluated by pen riders daily.

In this study, cattle fed ProTernative had 28.4% lower incidence of BRD in the first 45 days on feed ( $P < 0.01$ ).<sup>2</sup> The beneficial effect on the immune system remained in place after the probiotic was removed from the ration. There was numerical reduction in overall mortality and total 'outs' (i.e. deads plus other cattle removed from the pen) in the ProTernative group.

Cattle fed ProTernative recorded 4.5% higher average daily gain ( $P = 0.05$ ) and 5% improved feed conversion ( $P = 0.02$ ) than the control group, resulting in a 4.7% lower cost of gain ( $P = 0.04$ ).<sup>2</sup> There was minimal difference in the dry matter intake between the two groups.<sup>2</sup>



These benefits translated into improved carcass quality, with cattle fed ProTernative having a 45.9% lower incidence of A+ liver abscesses and a 9.7% higher incidence of grading USDA Choice.<sup>2</sup>

These results can be generalised to grassfed cattle. Supporting immune function early in the feeding program helps to avoid illness and keep calves in peak health. A sound animal health program, adequate nutrition and good management are all critical for powering the immune system.

Besides boosting the availability of energy, protein, vitamins and minerals required for muscle growth, frame development and ongoing beef and milk production, supplementary rations are an excellent vehicle for adding probiotics that help support the lower gut of the animal.

References: 1 February 2020. Preview: Economic Effects of Bovine Respiratory Disease, *J Animal Sci*, Volume 98, Issue 2, skaa042, <https://doi.org/10.1093/jas/skaa042>. 2. Theurer, M.E., et al. (2019). Effect of live yeast (*Saccharomyces cerevisiae boulardii* CNCM I-1079) feed additive on health and growth parameters of high-risk heifers in a commercial feedlot. *The Bovine Practitioner*, 53(2), 117-127. <https://doi.org/10.21423/bovine-vol53no2p117-127>.



Lallemand Animal Nutrition Australia had the pleasure of hosting Dr Angel Aguilar, Technical Services Manager North America, at BeefEx 2022.

It was a great week catching up with new and existing customers and specifically discussing probiotic feed additives, as producers, processors and consumers alike search for natural alternatives to antibiotics

to maintain rumen stability and gut integrity in intensively-fed livestock.

Hot on the agenda was ProTernative and Levucell SC. The team also got to touch on Manure Pro to help manage the animal environment and MAGNIVA for all things silage related.

**Want to take  
control of your  
silage quality?**

[www.MAGNIVA.com](http://www.MAGNIVA.com)



## Management and expectations of corn silage this coming season

**The 22/23 corn silage season is shaping up to be a challenging year, due to excessive spring rain and flooding in some areas – resulting in heavy, saturated soils. The cool, wet spring has delayed planting and resulting in a late harvest for some areas. Silage makers may have to make tough decisions on the best time to ensile their forages in 2023.**

It is vital to keep in mind the challenging growing and harvesting conditions experienced when the silage stacks are opened at feed out. It will help producers manage expectations of the corn silage and correctly balance rations accordingly, allowing for the best performance possible for their livestock.

### Late corn planting

Delayed corn planting and irregular growing conditions can cause variations within crop, maturity, plant quality in the field and expected yields, which are typically reduced. Potentially the corn silage will have less grain and, consequently, lower starch (energy) content.

The initial question from delayed planting is: Would there be enough growing degree days for the plant to reach desired maturity? The late planting and lower temperatures experienced in some areas could extend the usual days needed from silking to silage harvest maturity. Additionally, the time of harvest will be later, which could result in harvesting in wet fields if rain comes early, immature corn and/or frost-damaged corn.

### Weather effects during harvest

The risk of wet conditions when accessing the field at harvest present difficult operating conditions, additional expense, and often extended harvest times.

Soil contamination in the silage, is often evident, coming from many different sources during harvest, such as on tires from the field, dirt pads for the storage area and more. This results in higher than usual ash values shown on the feed analysis. Corn plants have internal ash levels of about 4% dry matter (DM), and each extra percentage point represents 10

kilograms of soil contamination per tonne of corn silage.

As well as increasing the ash level, soil also harbors undesirable microorganisms such as clostridia, fungi and enterobacteria, which can negatively impact the silage fermentation. For this type of scenario, a proven, effective heterolactic forage inoculant should be used to minimize activity of the unwanted microbes and to efficiently drive fermentation – saving nutrients and reducing shrink.

### Corn harvest

The recommended dry matter (DM) for whole-plant corn for silage ranges from 32 to 38% DM (62% to 68% moisture). Early harvests, with DM levels lower than 30%DM (higher than 70% moisture), can lead to increased effluent seepage and a prolonged fermentation. This can result in a high acid load that may depress feed intake. Clostridial growth is rarely an issue in corn silage, even if wet, but the extra moisture may stimulate microbial activity in general. These silages typically have a low ratio of lactic- to-acetic acids and a higher degree of protein breakdown expressed as soluble protein and ammonia-N. In turn greater levels of other fermentation products, such as alcohols and esters, some of which may have a negative impact on intake and performance.

In addition, seepage loss during ensiling results in the loss of soluble, digestible nutrients (sugars, soluble-N and soluble minerals).

These immature plants will have greater sugar content and lower starch levels because the plant sugars did not have the time to be converted into starch. In addition, producers can expect higher fibre and crude protein contents. Thus, the energy value of immature corn silage will be 85% to 90% of regular corn silage.

If harvesting extremely immature corn before the reproductive growth of the plant has started, it's treated like a grass forage. Corn plants are mowed during the vegetative phase, wilted, and ensiled.

### Corn harvested after frost

Frost can have varying impacts on a corn plant. If a severe frost has killed the plant, it can lose moisture rapidly. Harvest timing is then

based on whole plant DM to avoid ensiling too dry. If silage is dry, ensure to check particle size and packing density to ensure good compaction. Trapped air will encourage plant respiration, moulding and heating. This delays fermentation and results in significant DM and digestible nutrient (sugars and true protein) losses.

A quick frost should not be too detrimental; although the plants appear dry, there is still plenty of moisture in the stalks. If the portion of the plant above the cob is alive (green colour compared to brown) after a frost, it will advance in maturity, and the kernels will still accumulate starch from soluble sugars.

Additionally, frosted kernels and other parts of the plant are susceptible to fungal infestation and could possibly lead to production of mycotoxins. This situation again calls for a proven, effective microbial inoculant to ensure a good ensiling fermentation.

Mature corn will have a high starch content, but it will have lower digestibility due to starches being imbedded in a prolamin-protein matrix. The rate and extent of starch digestibility in the corn silage is influenced by hybrid type (e.g., flourey vs vitreous kernel varieties), moisture content and storage time.

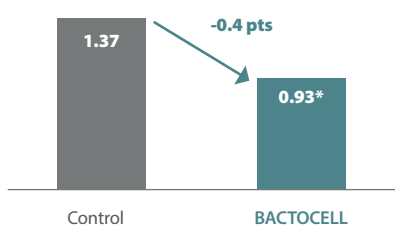
Nitrates may be a concern for frost-damaged plants. If feeding straight after ensiling – almost like a green chop – be careful with the nitrate risk at feeding. A nitrate test is highly recommended prior to feeding. The fermentation process reduces the nitrate level in the silage by 40% to 50%. To ensure worker safety, be aware of the increased risk of toxic nitrogen dioxide gas during feed out – especially any orange fumes.

### Sampling and analysing corn silage

Considering all the challenges during a growing and harvest season, sending representative samples to a forage testing laboratory for nutrient and fermentative profiles is a good investment, especially if the corn plants in the silage came from different fields. Representative samples should be taken, being careful to minimize microbial activity during handling and shipping. Freeze samples and ship express post.

## BACTOCELL supports calcium metabolism in mature laying hens

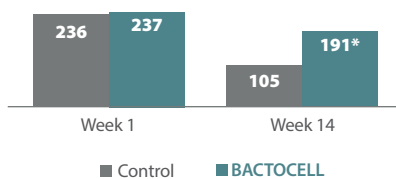
Rejected eggs/total eggs  
(wk 1-14; %)



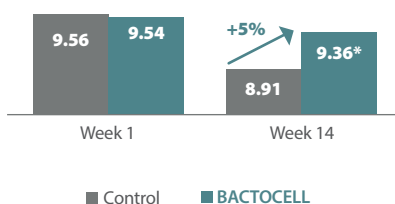
**Figure 1**

Effect of BACTOCELL on the rejected rate ( $p=0.072$ )

Calcitriol  
blood concentration (pg/mL)



Ca  
blood concentration (mg/dl)



**Figure 2**

Effect of BACTOCELL on blood markers of the Ca metabolism ( $p<0.05$ )

As the laying cycle progresses, eggs get bigger while the hens' calcium (Ca) metabolism becomes disrupted. The capacity to keep hens well beyond 90 weeks emphasises the necessity to manage eggshell quality all along the cycle to avoid some end-of-lay disorders. All the Ca deposited on the eggshell comes from the feed. Therefore, its assimilation and mineralisation also rely on the bird's digestive health status. This is where BACTOCELL probiotic comes into action.

### ■ A demanding mineralisation process

Ca requirements grow with the age but should be carefully managed from the pullet stage, a critical moment for the medullary bone Ca reservoir constitution. During egg production, this reserve is mobilised into the uterine gland for shell mineralisation. When blood Ca levels become critical, a **Ca resorption from bones** process is initiated.

Ca metabolism in laying hens is a dynamic process highly regulated by environmental (light) and biochemical (minerals, vitamins, and hormones) stimuli. The Ca pathways are regulated by the calcitriol hormone and by the parathyroid hormone. Both act jointly to increase the circulating level of Ca by triggering the mobilisation from the bone, kidney, and intestinal origin (from feed) when Ca is needed.

### ■ BACTOCELL benefits eggshell quality

A trial performed at Dankook University (South Korea) has investigated original parameters such as hormonal and mineral blood and bone markers in relatively mature hens (50-week old Hy- line). BACTOCELL and control hens were fed a standard diet with 10% suboptimal level of Ca and Phosphorus (P) levels.

Results confirm the previously observed positive incidence of the probiotic supplement on egg production (Figure 1) and egg weight (+1%;  $<0.05$ ).

This higher production partially comes from a significant reduction of the rejected eggs criteria, and notably a positive incidence on the broken percentage.

### ■ BACTOCELL and Ca metabolism

Starting with similar retentions at week 1, both the **Ca and P retentions were improved** after the 14-week BACTOCELL supplementation as compared to control. This reflects a better utilisation of the dietary mineral sources, which supports eggshell quality.

Hormonal activities related to Ca metabolism have been also analysed. The calcitriol blood concentration was increased by 83% after the 14-week treatment duration when compared with the control group (Figure 2).

In this trial, probiotic supplementation showed stimulation of the calcitriol activity in the advanced hen laying cycle (>50 weeks) (Figure 2). This resulted in a better Ca dietary absorption without affecting the bones, and mineral content.



## Two bites at the same cherry

**QUEENSLAND silage contractor and beef producer, Wayne Roche, is amazed by the quality of silage from a bun that has been opened twice in the past five years.**

Wayne and Tanya Roche produce more than 100,000 tonnes of high quality silage for dairy and beef producers throughout southern Queensland and northern NSW each year.

They also operate a grain and beef enterprise, including a 150-head opportunity feedlot that's used to grow out Angus weaners to 380-400 kg liveweight, on their 240 ha property outside Warwick.

Wayne sealed a 500 tonne stack of barley silage in 2017. "We opened it up the following March and fed it until September that year," he says. "Cattle prices took a dive so we finished the pen and closed the feedlot.

"We'd only fed about a third of the stack, so we cleaned the face, put the plastic back on it and weighed it down with tyre walls as we normally do. We put some cattle back into the feedlot this July and we reopened the stack.

"I was really surprised at how little wastage there was. We scraped about 150 mm off the face and it was as good as the day it went it – it's perfect in terms of colour, smell and palatability. A lot of people believe that once you open a pit, you have to feed it all but I would have no hesitation in resealing this pit a third time if I had to."

Wayne attributes the outcome to the rapid advancements in inoculant and sealing technology over the past decade. "You need a good inoculant to control the fermentation process, good rolling and compaction to get the oxygen out and good sealing to keep it out," he says.

Wayne is a staunch advocate of MAGNIVA Platinum inoculant and the Silostop sealing system from Lallemand Animal Nutrition. "MAGNIVA Platinum is easily the best inoculant I've used," he says. "It really does keep the face of the stack cool once you open it up, which gives you more time to feed the silage out."

MAGNIVA Platinum is a 'next generation' inoculant that combines a patented bacterium strain, *Lactobacillus hilgardii* CNCM I-4785, with the current industry benchmark, *L. buchneri* NCIMB 40788. This unique combination provides fast-acting 'front end' fermentation with proven 'back end' aerobic stability, allowing silage to be opened earlier and last longer after opening.

Silostop is an oxygen barrier film that prevents the entry of oxygen into silage, thereby limiting the growth of spoilage-causing yeasts and moulds. Independent testing has confirmed that Silostop is up to 100 times more effective than conventional polyethylene film in preventing the entry of oxygen. Silostop is used in combination with SilageKeeper UV covers, which protect the undercover against sunlight or potential damage

"This bun has been out in the open for five years and there's no way conventional black and white plastic would have lasted this long," Wayne says. "Black-and-white plastic is fine for short-term storage but I recommend Silostop and SilageKeeper UV covers on everything that's going to be stored for longer than two seasons.

"The only thing I wouldn't recommend is baled silage. It's uneconomic, labour intensive and it doesn't last – and I know this first-hand because I've tried it."

Wayne says there has been a marked increase in the use of silage by beef producers as part of their drought preparedness plans. "If you're considering silage, then remember that your silage will only be as good as the crop you grow," he says.

"Prepare your ground properly, apply a pre-emergent herbicide and adequate fertiliser to grow a good, clean crop as if you were going to harvest it for grain. Talk to your silage contractor about placement and preparation of your pit/stack. Cover your silage properly and don't take any shortcuts on sealing.

"The other thing I'd say to beef producers who are considering getting into silage is to keep everything simple in terms of the ration and equipment until you are confident. We might make silage for a living, but here on our farm, we're only using a bucket and a front-end loader. The trick is not to disturb the face of the stack and let oxygen into the bun."

Raised on a dairy farm at Tannymorel, between Warwick and Killarney, Wayne has been making silage for more than 25 years. His business now employs six full-time staff and casual workers and boasts a fleet of high performance harvesting equipment, including two CLAAS JAGUAR 950 forage harvesters, fronts, tractors, prime movers and trailers.

Contact Lallemand Animal Nutrition for more information about how home-grown silage can help to 'future proof' your beef enterprise.

# Levucell SB and Maternal imprinting in piglets

## DEFINING MATERNAL IMPRINTING

Maternal imprinting, also defined as maternal programming in the literature, refers to the process by which an acute or chronic stimulus, in utero, establishes a permanent response in the fetus that impacts physiologic function later in life.

Depending on the nature and timing of the stimulus, various physiological systems can be differentially affected.

It is common to say that weaning is a challenging phase for piglets. Nevertheless, one of the most critical phases in the life of good performing pigs starts much before, during gestation, until the neonatal phase, a period during which maternal imprinting is key. The early influence of the sow on their piglets, occurring even before piglets' birth, can produce a profound and long-lasting impact on the offspring, that goes much beyond weaning. This includes the beneficial effects of feeding probiotic *S. cerevisiae boulardii* CNCM-I-1079 (LEVUCCELL SB) to the sow.

### ■ Shaping sows and piglets microbiota

Early microbiota establishment is key for the development of the intestinal functions.

Le Floc'h et al., in 2022, showed that sows supplemented with LEVUCCELL SB will have a different microbiota profile than non-supplemented sows.

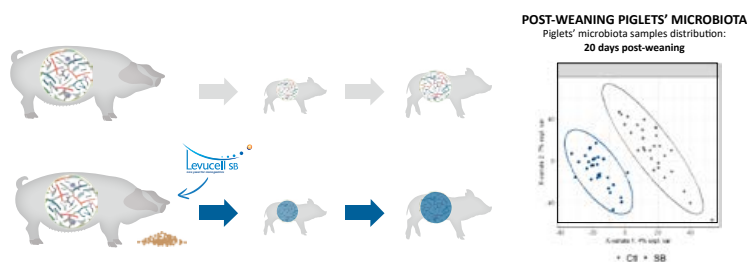
Piglets born from sows supplemented with LEVUCCELL SB will also exhibit different microbiota profiles. Another study, conducted by Achard et al., in 2019, showed that this maternal microbial imprinting has a **long-lasting effect in piglets**, that can still be visible 20 days after weaning (Figure 1).

Other researchers have shown that the probiotic yeast, when supplemented to the sows diet, also positively influenced the offspring's immunity through several distinct mechanisms, such as improved **colostrum quality** and **piglet immune** response modulation. These effects are also proof of the maternal imprinting.

### ■ Long-term benefits on piglet's performance

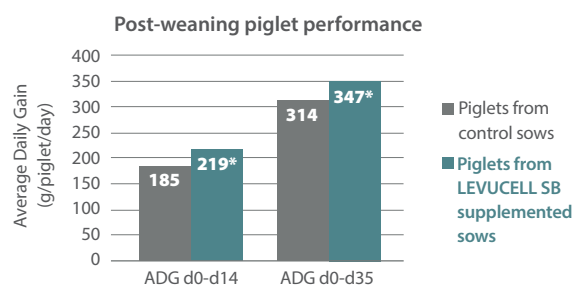
In the trial by Achard et al, growth performance of piglets born from LEVUCCELL SB-fed sows were also improved several weeks post-weaning (Figure 2).

In conclusion, by positively affecting the gut microbiota from the sow to her piglets and supporting their immune system development, probiotics, such as, *Saccharomyces cerevisiae boulardii* CNCM-I-1079, are interesting tools to support piglet quality and reducing antibiotic use.



**Figure 1**

Piglet microbiota modulation 20 days after weaning when supplementing sows with *S.c. boulardii* CNCM I-1079 – Achard et al., 2019



**Figure 2**

Influence of *S.c. boulardii* CNCM I-1079 supplementation to sows on the average daily gain of their piglets after weaning - Achard et al., 2019

# Rev up your cow's rumen to prevent SARA during heat stress

**Have you ever felt like it's too hot to eat? During periods of heat stress, cows can feel the same way. Just like humans, cows often change their feeding behaviour as temperatures and humidity rise. But, while most people can skip a lunch or two without serious consequences, high-producing dairy cows shouldn't miss a meal if you want to keep peak performance.**

"When the temperature-humidity index rises, dairy cow meal frequency generally goes down, and meal size often increases," explains veterinarian Andy Skidmore, Lallemand Animal Nutrition Technical Services – Ruminant.

"These behavioural changes can affect rumen pH and function, leaving cows vulnerable to sub acute ruminal acidosis (SARA), which cuts into ration and milk component performance," he adds.

Adding a live yeast probiotic like *S. cerevisiae* CNCM I-1077 to dairy rations can help slash SARA's influence on your herd.

Here's what you need to know:

## Decrease the effects of SARA

SARA is a common condition occurring when rumen pH stays lower than 5.8<sup>1</sup> for a prolonged period. It's tricky to diagnose because cows move in and out of SARA and usually do not show clinical signs of illness. But you can see the impact as depressed fibre digestion associated with SARA translates into lowered milk component production.<sup>2</sup>

"SARA can occur even in well-managed herds, but it's especially problematic in early lactation and high-producing cows," says Skidmore. "It's characterised by daily episodes of low ruminal pH that last several hours. The remedy to overcoming SARA is to reduce the time cows spend in these low rumen pH conditions."

## Data-driven results

More than 20 years of research shows adding the live yeast probiotic *S. cerevisiae* CNCM I-1077 to rations helps improve cow performance reducing SARA incidence, even during heat stress<sup>4</sup> For instance, animals fed rations without the live yeast probiotic *S. cerevisiae* CNCM I-1077 spent more than double the time under SARA conditions than those receiving rations including *S. cerevisiae* CNCM I-1077<sup>5</sup> (240 minutes versus 78 minutes per day).

That's because this feed additive helps increase fibre digestibility and improve rumen function, which enhances rumen pH and microbial activity.

In turn, these improvements increase diet utilisation to boost milk component production and cow productivity. In fact, *S. cerevisiae* CNCM I-1077 has been shown to improve milk components by up to 6% and feed efficiency by 7.6%, even during severe heat stress.

"Rumen-specific probiotics like *S. cerevisiae* CNCM I-1077 help stabilise rumen pH and fermentation, influencing meal patterns as a secondary effect," says Skidmore. "Cows feel more apt to eat and production benefits are seen from the more consistent fermentation pattern, improved fibre digestibility and a quicker return to the feed bunk."

Additionally, cows supplemented with *S. cerevisiae* CNCM I-1077 modified their feeding behaviour to more favorable patterns.<sup>6</sup> Instead of fewer, larger meals which are common during heat stress, the pattern for supplemented cows included more frequent meals that tended to be smaller and occur more closely together, making for more consistent total dry matter intake levels.

Cows supplemented with *S. cerevisiae* CNCM I-1077 also tended to ruminate longer and

have fewer periods of elevated rumen temperature.<sup>4</sup>

## Optimise herd productivity

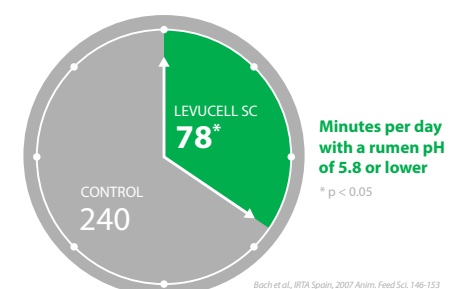
Along with the adoption of heat abatement strategies, adding *S. cerevisiae* CNCM I-1077 to rations, frequently pushing up feed and delivering feed during cooler times of the day work together to maintain feed intake and mitigate the effects of SARA in your herd.

"All of this means dairies can protect their herd against summer production losses, and the time and effort spent to carefully formulate and deliver rations pay off," Skidmore concludes.

Rev up your cow's rumen with rations formulated with LEVUCCELL SC to help protect against SARA during heat stress.

- [1] Kleen JL, Cannizzo C. 2012. Incidence, prevalence and impact of SARA in dairy herds. *Animal Feed Sci. and Tech.* 127:4-8. <https://doi.org/10.1016/j.anifeeds.2011.12.003>.
- [2] Mishra M, et al., 1970. Effect of diet and ambient temperature on ruminal pH, oxidation potential ammonia and lactic acid in lactating cows. *J Animal Sci.* 30:1023-1028. <https://doi.org/10.2527/jas1970.3061023x>.
- [3] Enmark J. 2008. The monitoring, prevention and treatment of sub-acute ruminal acidosis (SARA): a review. *Vet J.* 176 (1):32-43. <https://doi.org/10.1016/j.tvjl.2007.12.021>.
- [4] Perdomo MC, et al. 2020. Effects of feeding live yeast at 2 doses on performance and feed behavior of dairy cows under heat stress. *J. Dairy Sci.* 103(1):325-339. <https://doi.org/10.3168/jds.2019-17303>.
- [5] Bach A, et al. 2007. *Animal Feed Sci.* 136:146-153. <https://doi.org/10.1016/j.anifeeds.2006.09.011>.
- [6] DeVries TJ, Cheveau E. 2014. Modification of the feeding behavior of dairy cows through live yeast supplementation. *J. Dairy Sci.* 97(10):6499-6510. <https://doi.org/10.3168/jds.2014-8226>.

📌 Time experiencing SARA is significantly reduced with *S. cerevisiae* CNCM I-1077.





## Thomas Foods International Feedlot **takes out the 2022 ALFA Community Heroes Award**



Thomas Foods International Feedlot from the Murray and Mallee region of South Australia have been awarded the 2022 ALFA Community Heroes Award for their Rural Pathways program closing the city/county divide.

Sponsored by Lallemand Animal Nutrition, this award recognises and rewards those feedlots that are actively nourishing their local communities and environment by going above and beyond to support their community, that 'give-back' and better the environment around them.

The Thomas Foods Rural Pathways initiative was born out of a need to attract staff to fill exciting new opportunities at a thriving, expanding feedlot in the South.

Established in 2021, the program aimed to seek out young, enthusiastic people that were looking for an entry level opportunity in the agricultural industry, an untapped resource for both the feedlot and our rural entities. Urban school leavers with minimal experience were their primary target, believing that there are many young individuals based in the city that, if given the opportunity, would thrive in a rural setting and career. In turn, the program would create a strong foundation to gain experience in all areas of the Feedlot which would lead to a successful career with Thomas Foods and in turn, contributing to our local economy.

As one of the largest employers in Tintinara, the Thomas Foods Feedlot, is currently expanding from 17,000 to 30,000 head which will create a number of exciting employment opportunities in the community.

Attracting employees has become not only an industry challenge but an Australia wide problem which has required Thomas Foods International to think outside the square to employee staff. And so, the Rural Pathways Program was born.

Being located in a community with a small population and being the largest employer in the area, bringing new people to the area for employment is not a new challenge. Where this program is different is that we are attracting bright, enthusiastic, young individuals to the industry that would have never considered a career at a Feedlot.

The Rural Pathways program was implemented in 2021 with employees commencing in February 2022. They are currently advertising for their next cohort for 2023 and hope to replicate the program throughout other Thomas Foods entities.

In addition to the Rural Pathways Program, Thomas Foods have also been keen advocates and supporters of community based organisations such as camp draft and sporting club sponsorship, educational tours for local schools and universities, and building relationships with future breeders and handlers in the local agricultural community.

### TECHNICAL SERVICES TEAM



Jordan Minniecon  
0428 027 266



Nathan Lister  
0438 190 388



Alison Leary  
0488 715 151



David Lewis  
0427 715 939



Kurt Stein  
0427 715 001



Scott Atkinson  
0436 344 712



Phil Lines  
0499 947 715

# 10 billion good reasons to choose **TITAN** technology



## In both intensive and extensive grazing systems across Australia, molasses supplements are commonly used to promote the dry matter intakes of grasses and counterbalance some nutritional deficiencies.

It is believed the addition of a live yeast in molasses will cause a fermentation, and therefore is not a feasible option. This is not the case utilising TITAN technology.

Testing conducted by Lallemand Animal Nutrition has demonstrated the viability of Levucell SC TITAN and ProTernative TITAN when mixed with molasses blends for beef, dairy and sheep rations.

Lallemand Animal Nutrition technical services manager, Nathan Lister, says the testing opens up a new delivery method for the two products.

Levucell SC and ProTernative contain the strain-specific live yeast, *S. cerevisiae* I-1077 and *S. cerevisiae boulardii* I-1079.

"For a probiotic to be effective, a significant proportion of the microbial population included in the feed must remain active until it reaches the digestive tract of the animal," Nathan says.

"Specifically, a concentration of 10 billion colony-forming units is required for the yeast to have a beneficial effect.

"As a live yeast, *S. cerevisiae* is sensitive to manufacturing stresses, including high moisture, temperature, pressure and processes such as pelletisation. Also incorporation into molasses can also affect both survivability of the probiotic and the need for re-mixing to keep the yeast in suspension."

Developed by Lallemand Animal Nutrition, the patented TITAN

microencapsulation process protects yeast from extreme heat, pH and pressure.

Lallemand recently conducted testing on Levucell SC and our TITAN technology protected the live yeast when mixed into molasses blends.

Levucell SC TITAN was mixed in six different molasses blends according to the recommended feeding rates.

In this trial, all blends were within acceptable tolerance levels for three weeks.

In five of the blends, the yeast population remained at acceptable levels for another two to four weeks.

Likewise, ProTernative TITAN was added to 12 different molasses blends.

Again, all blends were within acceptable tolerance levels for four weeks.

Some blends maintained adequate CFU levels for up to six weeks, remaining in suspension.

In contrast, any ingredients that are commonly put into liquid molasses require re-circulation for 15 minutes each day to avoid falling out of suspension.

"The results of these tests indicate TITAN yeast probiotics can be used with confidence in most liquid molasses suspension applications," Nathan says.

To see where TITAN suits your application, contact your local technical services manager.


## IN THE MIX

In The Mix is published three times a year by Lallemand Animal Nutrition.

To subscribe, visit <http://lallemandanimalnutrition.com/en/australia/knowledge-center/in-the-mix/>

For more information on any product or service featured, call (07) 5451 0125.

## FOLLOW US ON SOCIAL MEDIA

 [showcase/10495696](https://www.linkedin.com/showcase/10495696)

 [LallemandAustralia](https://www.facebook.com/LallemandAustralia)

 [channel/UCCtR4ktTqB4FnsFBqwgllBg](https://www.youtube.com/channel/UCCtR4ktTqB4FnsFBqwgllBg)

