



SPECIFIC
FOR YOUR
SUCCESS

IN THE

MIX #52



Proven probiotics
show their worth

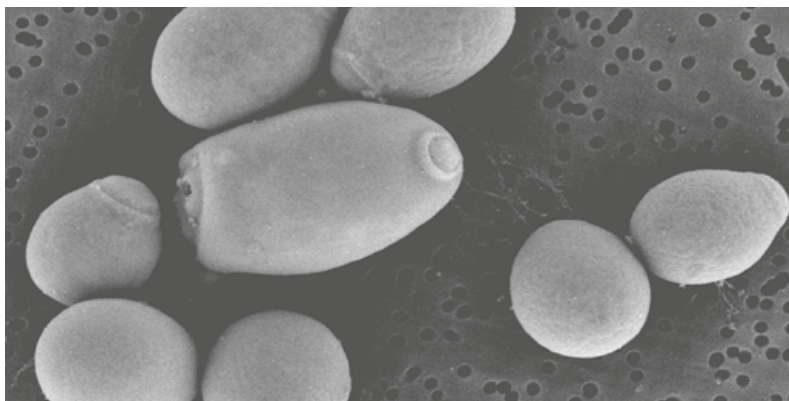
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SPRING 2020

#PASSION FOR FERMENTATION



▲ *Saccharomyces cerevisiae* bouldardii CNCM I-1079 has widely shown its benefits on gut function thanks to unique properties on microbiota regulation.

1995

Twenty-five years ago, the probiotic live yeasts *Saccharomyces cerevisiae* CNCM I-1077 and *S. c. var. bouldardii* CNCM I-1079 were registered for the first time as feed additives in the European Union. Today, more than 35 strains have been commercially developed for animal nutrition and registered worldwide!

For general enquiries:

+61 (07) 5451 0125

PO Box 6122, Maroochydore BC QLD 4558

LAN-Aus@lallemand.com

www.lallemandanimalnutrition.com

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DID YOU KNOW?

Every part of yeast is the best part!

Every part of yeast is the best part!

While live yeast cells are used as probiotics, inactive dry yeast can be used for many different applications. Inactive dry yeasts can be **whole inactive yeast, yeast fractions**, obtained from the separation of **yeast cell wall (YCW)**, or a **yeast extract (YE)**. What's more, inactive dry yeast can be a combination of all the above. This forms the **yeast derivatives** family.

In animal nutrition, yeast derivatives can be used either as nutritional supplements, and/or for their functional role:

- YCW are rich in mannan-oligosaccharides (MOS) and β -glucans. They are documented for their ability to **bind with undesirable bacteria** in the animal's gut and **modulate immunity**.
- YE are rich in protein, nucleotides, vitamins and minerals. They can be used as a source of **nutrients** and as **palatability** enhancers.

Such a small thing (μ m) with so many benefits!

Nowadays, many products are available on the market. It is essential to keep in mind that product sourcing is linked to quality and, therefore, efficacy.

With more than a century of expertise in yeast production, Lallemand is able to use cutting-edge technologies to produce yeast derivatives that meet the highest possible quality standards.



Alison Leary joins the team



Lallemand Animal Nutrition is delighted to announce the appointment of Dr. Alison Leary to its technical services team to support our service delivery in the feed ingredient space. Based in Boonah, QLD, Alison will work in the microbial feed additive sectors with a strong focus on poultry and swine.

Alison has 20 years' experience in the animal feed industry, with 12 of those years spent travelling and living in Asia. Throughout much of her career Alison has worked within the poultry industry offering technical support on nutritional solutions, but in recent years her experience has extended to the pig and dairy industries.

Alison graduated from the University of New England in Australia with a Bachelor of Science (Honours) in the area of animal physiology and nutrition. Dr. Leary furthered her studies, obtaining a PhD where she completed her thesis titled "Factors affecting egg and egg shell quality in various strains of the laying hen". She also achieved her Masters in Business Administration in 2004.

Chopper parts for sale

Graham Hinze has been at the forefront of the silage industry since its inception in the early 70's. Being part of the industry growth, he has amassed a huge amount of machinery and chopper parts and components that he is looking to offload. Inventory includes:

- Wear plates, feed rolls, cutterhead knives for John Deere 6000 and 7000 series SPFH
- Knives for the old model, small drum Kemper Headers

- Transition for 6000 John Deere,
- Complete 250 m long arch spout for John Deere with liners

If you are interested in any of the parts or components give Graham a call on 0428 751 476 or email him at hinzey15@bigpond.com.

Proven probiotics show their worth **in calf rearing program**



A commercial demonstration conducted in a large Australian dairy herd has shown that a combination of strain-specific live and inactivated yeast products can significantly improve the health and survival rate of calves.

The trial compared the performance 2019 drop calves to those of the previous year. The two cohorts, totalling more than 11,000 calves, were reared using exactly the same management practices.

At birth the calves were fed colostrum and housed individually for 10–14 days in a calf barn. During this period, calves were fed 2.5 L/day of milk replacer twice daily. Calves were then moved into group housing in a separate barn and fed with calf milk replacer via robotic calf milkers until 56 days of age.

The 2019 cohort received 0.25 g/day of ProTernative and 4 g/day of Yang in their milk replacer for the first 17–20 days. Developed by Lallemand Animal Nutrition, both products help to create a healthy rumen environment by maintaining a favourable gut microbiota balance and stimulating immune function.

ProTernative is a single strain-specific live yeast (*Saccharomyces cerevisiae* boulardii CNCM I-1079). Yang is a unique formulation of three specific and complementary strains of inactivated whole yeast cell and cell components, including *Saccharomyces cerevisiae* and *Cyberlindnera jadinii*. The specific strains were selected for their strong pathogen binding and immune stimulation properties.

Treatment rate for scours and mortality were compared between the 2019 and 2018 cohorts. The incidence of scours was significantly reduced compared to the same time in the previous year.

The incidence of mortality caused by digestive issues (e.g. scours, *E. coli*, salmonella, cryptosporidiosis, bloat, twisted gut and ulcers) was 4.6% lower in the 2019 cohort compared to the previous year.

Lallemand Animal Nutrition Country Manager, Alex Turney, says the trial confirms that probiotics can provide an effective alternative to antimicrobials in intensive production.

“The first two months of life have a critical impact on future performance and health,” he says.

“The calf’s digestive tract undergoes significant and extensive changes as it transitions from liquids to solid feeds. Early maternal separation can also lead to poor digestive microflora establishment, balance and function.

“Digestive disorders in young calves are a heavy burden in every herd. Intervention is not only expensive in terms of labour, but can be very expensive in treatment and veterinary costs.

“Good nutrition and management are essential to limit the impact of digestive and pathogenic challenges during the calf rearing phase. The goal is not just about promoting consistent feed intake and growth but helping to establish a functional rumen and immune system that puts calves on the path to lifetime of productivity.”

The findings are consistent with other studies conducted by leading research institutions throughout the world. A commercial demonstration conducted in Spain in 2014 found that one-month-old Holstein calves fed Yang for six weeks had a +1.2 kg liveweight advantage (35.5 kg vs 34.3 kg) and a more uniform liveweight range (SD 7.3 kg vs 9.6 kg).

Another trial conducted by the University of Bologna in Italy in 2017 found that Yang-fed calves had a four percent liveweight gain advantage (1.21 kg/day vs 1.16 for control group) after 120 days.

In both trials, the number of Yang-fed calves that had to be treated for enteric diseases or treated with antibiotics was significantly lower, leading to lower treatment and veterinary costs.

Yang has a scientifically-documented mode of action. “Each different fraction in the formulation interacts with different receptors of the immune system,” Alex says.

“Stimulating multiple receptors induces a stronger and synergistic immune response than the use of a single yeast fraction alone. Besides stimulating the immune system, Yang binds strongly to undesirable bacteria and kills them via agglutination.”

Yang was developed by Lallemand Animal Nutrition in partnership with leading research institutions throughout the world. “Yang is the result of many years of research to identify the specific yeast strains that have a beneficial effect on gut microflora and immune system response,” Alex says.

“Lallemand researchers used cutting-edge techniques, such as atomic force microscopy and single-molecule force spectroscopy, to examine the cell surface properties to identify strains with optimal binding capacities.

“This research has shown that different strains and even different production processes produce different levels of stimulation. All told, Lallemand screened hundreds of yeast strains before determining the optimal combination.”

Scientific trials conducted by have found Yang has beneficial effects on gut health in a number of species, including cattle, poultry, pigs, companion animals and even fish.

ProTernative and YANG trial summary available on request.

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



Katrina Hubeek
0436 344 712

Future proof your property with silage

Excellent seasonal conditions in many regions of Australia means many farmers may have a once-in-a-decade opportunity to replenish their stocks of farm-grown fodder.

Lallemand Animal Nutrition Technical Services Manager, David Lewis, says his company has received a marked increase in inquiries about making cereal silage this spring.

"There are plenty of cereal crops in livestock areas and farmers have the option of taking these crops through to harvest and possibly selling into a softening market or they can cut some of these crops for silage in spring.

"Any cereal crop, including wheat, barley, triticale or oats, can be ensiled with good management.

"Cereal crops to be cut for silage are managed the same as if they are being grown for grain – it's just a different harvesting and storage process.

"We're talking to lots of producers who have never made silage."

David says silage can help 'future proof' any livestock enterprise.

"Many livestock producers only think about hay when it comes to conserved forage, but cereal silage is a very real option for anyone who has crops in the ground," he says.

"It's relatively easy to produce a nutritional and readily palatable feed that can be stored for a considerable number of years with good planning and preparation.

"Silage gives you control of your feeding program – you've got the resource locked in at a fixed price, ready for when you need it.

"By comparison, if we return to dry times in the future you could be having to purchase feed that sees you competing for a resource that is increasing in price and decreasing in quantity and quality."

David says ongoing improvements to harvesting technology and the introduction of strain-specific inoculants and oxygen barrier sealing systems have revolutionised silage production over the past two decades.

"The principles of producing silage haven't changed much, but our knowledge of how to control each step of the process has increased enormously," he says.

"One of the biggest things is how to control the fermentation process and to prevent oxygen from entering the silage mass.

"Ideally, the crop should be harvested at 30 to 35 percent dry matter but crops with higher dry matter can be successfully managed with the use of strain-specific bacterial silage inoculants suited for the job.

"Cereals have hollow stems by this stage, so achieving a chop length of 8 to 15 mm is vital to ensure a packing rate of about 250 kg of dry matter per cubic metre.

David says it is essential to use a scientifically-proven, strain-specific inoculant to reduce wastage caused by the growth of undesirable yeasts and moulds.

"Cereal crops contain high levels of fermentable carbohydrates, which help to drive fermentation but can leave residual sugars in the silage," he says.

"These sugars can become food sources for aerobic yeasts that cause loss of nutrients and spoilage during storage and feeding out.

"This is compounded by the fact that cereal crops often carry a higher load of native yeasts and moulds if harvested at a later stage of growth.

"The combination of a readily-available food source and oxygen can cause stability and spoilage problems during storage and feeding out."

David says the 'best' storage method is usually determined by the anticipated length of storage and management experience.

"Dedicated concrete bunkers are definitely a great option for producers who use silage in their nutrition program every year," he says.

"Above-ground stacks sealed with a conventional polyethylene film and an oxygen barrier film are fine for silage that is going to be stored for one or two years.

"The use of an oxygen barrier film and a heavy duty woven protection cover is recommended for longer storage periods of say, three or four years.

"This can provide some longer term durability without covering with dirt."

David says inground pits or walls are probably the best option for long-term storage, however they require a bit more planning and machinery to prepare.

"Drainage is very important," he says.

"Walls should be slightly angled to allow better packing and earthen walls should be lined with plastic film to prevent the entry of undesirable bacteria, air and water into the silage, all of which can increase spoilage.

"If covering with soil, the silage should be covered with an extra heavy duty film first to prevent moisture or vegetation penetrating the silage.

"The extra cost of the film is minimal when you consider the long-term benefits of keeping water from leaching spoilage compounds down in to the silage and degrading its feed value and quantity.

"There is no 'one size fits all' solution when it comes to silage.

"It often takes a bit of sound planning to figure out how to best incorporate silage into your nutrition program.

"We often see producers that start with silage as part of a future-proofing strategy end up incorporating it into their nutrition program every year."

Lallemand Animal Nutrition is Australia's leading supplier of silage inoculants, sealing systems and technical support for forage-based feeding systems.

Want to take control of your silage quality?

www.QUALITYSILAGE.com



What a difference a year makes

Toowoomba-based Technical Services Manager, Nathan Lister, has completed his first year with Lallemand Animal Nutrition. Nathan joined the team after spending more than a decade in animal health, ruminant nutrition and livestock management via his roles with a feed ingredients supplier and a rural supplies distributor.

Nathan has thrown himself 'boots and all' into learning all aspects of silage production. One of his biggest learnings over the past 12 months has been the significant damage that oxygen can cause to silage. "Aerobic spoilage is one of the main causes of losses in silage production," he says.

"Oxygen is the enemy of high-quality silage and opening the stack re-introduces oxygen into the silage mass. Even if producers have done everything right up to this point, there can be significant losses during feed-out without proper management practices.

"During feed-out, exposure to oxygen allows spoilage yeasts to become active, which causes the silage to heat, reducing dry matter and nutrient content and potentially leading to mould growth, spoilage and mycotoxin production."

Nathan recommends the following management practices to minimise losses:

- Using a strain-specific inoculant that is scientifically proven to minimise heating and spoilage at ensiling
- Using a high quality oxygen barrier film, UV-protected cover and gravel bags to minimise the entry of oxygen into the stack during storage

- Opening the stack immediately before anticipated feed-out
- Keeping the face as flat and tight as possible
- Feeding out at a rate fast enough to avoid heating
- Minimising the time between silage removal and feeding out
- Not allowing silage to sit in loose piles, and
- Discarding all spoiled or mouldy silage

"These practices can help minimise yeast growth and help you to feed more tonnes of quality silage for increased productivity and profitability," Nathan says. "Importantly, most of these practices only require greater effort rather than money."

"Always remember our main focus should be the forage outcome. So setting this up will ensure a successful animal outcome."



Take control of silage quality and flexibility

MAGNIVA Platinum is a new generation forage inoculant that significantly improves 'front-end' fermentation and 'back-end' aerobic stability of silage after just 15 days, allowing it to be safely fed to livestock much sooner.

It combines a patented bacterium, *Lactobacillus hilgardii* CNCM I-4785, which is registered with the European Food Safety Authority (EFSA), with the industry's current 'gold standard', *L. buchneri* NCIMB 40788.

Lallemand Animal Nutrition Technical Services Manager, David Lewis, says controlling feed costs is crucial for optimising the profitability of any livestock enterprise.

"Feed costs often fluctuate within the season and from year to year, making planning difficult," he says.

"However, one area where all producers can control their costs is to produce the best quality silage possible.

"Consistently producing better quality silage can make a significant difference to livestock health and production, and ultimately, farm profitability.

MAGNIVA Platinum is the result of nine years of research and development conducted by Lallemand Animal Nutrition in association with leading agricultural research centres in Europe, North America and South America.

"*L. buchneri* 40788 is highly regarded for its ability to reduce waste and dry matter losses while ensuring the feed value of a variety of silage types," David says.

"However, it required at least 60 days of fermentation to achieve these benefits.

"While 60 days doesn't pose a challenge when silage stocks are abundant, it can severely limit feeding options for producers whose feeding inventories are tight.

"The unique combination of *L. hilgardii* 4785 and *L. buchneri* 40788 significantly improves the rate of fermentation and aerobic stability in a range of different crops and silages and conditions."

Independent scientific trials have confirmed MAGNIVA Platinum provides greater aerobic stability at 15 and 30 days than silage treated with *L. buchneri* alone after 100 days.

Aerobic stability after 15 days of fermentation is 18 hours longer than silage treated with *L. buchneri* alone.

At 30 days, it was 24 hours extra stability.

It has also been shown to significantly improve long-term silage stability.

"Being able to utilise silage at just 15 days with high aerobic stability and silage fermentation quality gives producers much greater flexibility on how they manage their silage stocks," David says.





Loose cow at grass are not inevitable!

Levucell SC supplemented cow



Unsupplemented cow



We all know that when cows are grazing lush grass, they go 'a bit loose', which is a real inconvenience at milking time. Loose manure can also indicate poor rumen digestion due to Sub Acute Ruminant Acidosis (SARA), particularly if gas bubbles and undigested fibres are visible. The financial implications of compromised rumen function are significant. Milk quality can be reduced, and cows will not milk to their potential.

One farming couple who know all about the challenges of managing cows at grass are Kevin Gleeson and Anne Sugrue in Borrisoleigh, Ireland. They run 147 mainly spring-calving Holstein cows, averaging 7,500 L/year and 570 kg milk solids per year from 1300 kg of concentrate. For the 2019 grazing season, they took part in a live yeast supplementation trial.

■ Live yeast grazing trial

Of the 55 robot-milked cows, 27 were allocated to receive *Saccharomyces cerevisiae* CNCM I-1077 (LEVUCCELL SC) at the standard dose (1×10^{10} CFU/h/d). The remaining 28 received no additional supplementation to their 5 kgs of 14% cereal-based dairy diet. In addition to the robot's recorded performance data, key indicators of rumen efficiency were measured on three occasions during the four-month trial.

■ Visible indicators of rumen digestion

During the trial, the producers noticed a difference in manure quality among the robot-milked cows. Cows not receiving the supplement had much looser manure. Conversely, the supplemented cows were considerably cleaner throughout the trial. This is confirmed by key indicators of rumen efficiency assessments (Figure 1).

■ Higher milk yield

The live yeast supplemented cows produced more milk with significantly higher fats and

proteins than the non-supplemented cows (Figure 2). This led to an increase of **+1.14 kg of fat-corrected milk**.

■ A 6:1 return on investment

"Once we saw the difference, we made the decision to put our other herd on LEVUCCELL SC," says Kevin. "It didn't take long for these cows to start presenting much cleaner in the parlour, confirming the results seen in the robot trial. Having completed the trial and run the figures, the additional milk solids versus the cost of the yeast gave an overall return on investment of about 6:1, and we've asked our feed supplier to include LEVUCCELL SC TITAN in our dairy feed for this year."

This field trial confirms, under grazing conditions, the effect of *S. cerevisiae* CNCM I-1077 on rumen function improvement (rumen pH and fiber digestibility) and milk performance enhancement.

Manure consistency and cleanliness scoring could indicate SARA, diet imbalances with excess of nitrogen during grazing.

	Control	Levucell SC
% clean cows	47	81
% manure with good consistency	62	100

Figure 1

Effect of Levucell SC on practical indicators of rumen efficiency

	Control	Levucell SC
Milk yield (kg/d)	28.70	29.22 (+0.52)*
Milk protein (%)	3.39	3.43*
Milk fat (%)	3.97	4.14*
4.0% Fat-corrected milk (kg/d)	27.70	28.84 (+1.14)*

Figure 2

Effect of the live yeast supplementation on dairy production



Dairy future

We aren't dairy farmers anymore; we are crop growers who milk cows.

That's according to Mitchell Lumsden, the latest Lallemand Animal Nutrition and Australian Fodder Industry Association (AFIA) GenAg Scholarship winner.

The 21-year-old will use the \$3000 scholarship to investigate transitioning his family's pasture-based, grazing dairy operation in northern Victoria to a housed-cow total mixed ration system.

His research will focus on the viability of TMR farming, especially in low farmgate milk price seasons.

Mitchell said water availability and cost determined dairy profitability in recent years and he didn't think this would change.

"The irrigation water reliability isn't here anymore, it has changed with environmental flows and foreign buyers," he said.

"Water is hard to come by, this means to run a successful business we are going to have to think differently and farm differently."

Mitchell is a third-generation dairy farmer at Leitchville where his parents milk up to 800 cows.

Running the family farm is his dream, but since finishing school he has furthered his skills and education working at other dairy farms, for a forage contracting business in Canada and is currently employed by Eades Forages in northern Victoria.

Managing seasonal and price risk through forage conservation and planning was something he learnt in Canada.

Mitchell wants to use the GenAg Scholarship to further explore this in an Australian context where farmgate milk prices fluctuate.

"In NSW, they have almost already gone through this transition period – between grazing and TMR – where we are at," he said.

"They are more of a dryland operation which can get water sometimes. Last year they got 0 per cent allocation and we, in Victoria, got 80 per cent. We are only 100 metres away from NSW, there's every possibility that could happen in Victoria."

"I want to meet those people and see what changes they have made to their businesses, what they think the key points are now with their business, and what their focus has changed too."

"We all know grazing is the cheapest form of feed, but if water is over \$250-\$300 a megalitre, it is not viable, and you can't get the quantity of milk out of the cows."

Mitchell anticipates his research will discover the extra cost of TMR – up to \$100 a dry tonne to chop silage, feed it out and labour – would mean the business would have to produce more milk to cover costs.

Feed planning and the development of a self-sufficient dairy farm is also something Mitchell wants to explore.

Lallemand Animal Nutrition is proud to support the next generation of professionals in the forage industry, Lallemand Animal Nutrition Managing Director – Australia, Alex Turney said.

"As a global leader in natural microbial products, Lallemand is committed to working with and supporting the future industry leaders," he said.

"Mitch demonstrates a commitment to growth and has specific interests that will contribute to the forage industry for years to come."

"Lallemand is happy to have a small part in supporting his success."

"The future of agriculture is in good hands."

AFIA Chief Executive Officer John McKew said the GenAg Scholarship has aided with many young people in the fodder industry to develop their careers.



Vale Ken Rich

Much respected silage industry leader Ken Rich passed away in June, after a lengthy battle with cancer.

Ken will be missed by many across the agricultural industries of Australia, as well as those in New Zealand, Indonesia and China where he also frequently worked.

A passionate agriculturalist, business man and road cyclist, his passion and deep knowledge about forage and silage and his contribution to the fodder conservation industry will be long remembered.

Ken was a pioneer from the 1990s in bringing the forage grower, user and contractor together. He became universally known throughout the Australian feedlot industry, as well as dairy and broader cattle sectors. Not only did he grow the Australian silage industry from the ground up, he helped introduce new technology including inoculants, sealing systems and ensuring specific KPIs for silage making delivered real value to clients across the Asia-Pacific region.

After building up his successful silage consultancy business, Quality Silage Systems, over many years, Ken and wife Trudy sold to Lallemand Animal Nutrition in 2012. Ken continued to mentor and advise others in the industry for years afterwards.

"Ken's ability to network across the wide range of the Agriculture sector was seriously impressive," said Lallemand Animal Nutrition Country Manager, Alex Turney.

"With a large network, it was a complete marvel how Ken knew so many people and retained such knowledge of them, as individuals, their families, and their businesses.

"Ken had a particular knack for meeting people and finding out information to drive a business forward. His consistent development of ideas and concepts was astonishing.

"Ken will be long remembered for such a positive impact on people and the agriculture industry, especially silage, across Australia and beyond."

For those wishing to make a donation in Ken's honour, please visit www.carriesbeanies4braincancer.com.

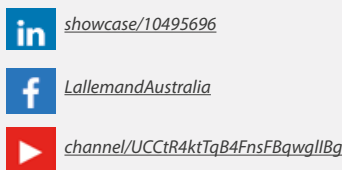
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