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LALLEMAND ANIMAL NUTRITION

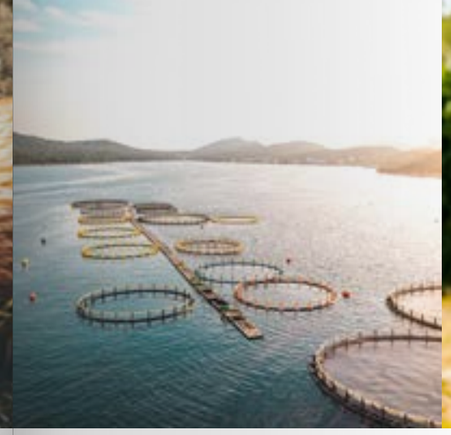
FEED UPDATE

OCTOBER 2025

EXTENDING HERD LONGEVITY TO MITIGATE ENTERIC METHANE EMISSIONS

Plus : **Biofilms Boost Pig Biosecurity • Decoding Canine Emotions • Physio-Nutrition for Pigs • Stronger Poultry Bones • Sow Welfare in a Dutch Trial • Heat Stress Solution in Czech Dairy**



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Lallemand Animal Nutrition In the Wild

- Pet Fair Southeast Asia (Bangkok, Thailand) – Oct. 29-31, 2025
- Asian Pig Veterinary Society Congress (Fukuoka, Japan) – Nov. 9-12, 2025
- International Production & Processing Expo (IPPE) (Atlanta, GA, USA) – Jan. 27-29, 2026
- Journées de la Recherche Porcine (JRP) (Saint-Malo, France) – Feb. 3-4, 2026
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- Vietshrimp (Ho Chi Minh City, Vietnam) – March 11-13, 2026

QUICK PULSE

Lallemand Scholarships: Building the Future of Agriculture in North America

In North America, Lallemand Animal Nutrition awarded $14,000 in scholarships to five outstanding students, reinforcing its commitment to supporting the next generation of agricultural leaders. Now in its eleventh year, the program recognizes both undergraduate and graduate students for their passion and achievements in areas such as agriculture, veterinary medicine, animal nutrition and food safety. By investing in young scholars, Lallemand continues to champion innovation and sustainability while empowering the future stewards of agriculture.

EXTENDING HERD LONGEVITY TO MITIGATE ENTERIC METHANE EMISSIONS

Growing concerns about climate change and food security have heightened scrutiny of the animal feed industry, particularly because enteric methane accounts for 45.4% of livestock-related greenhouse gas emissions.[1] As farmers seek paths towards improving sustainability of milk production, part of the solutions may lie in fundamental herd management.

Nico Vreeburg, a veterinarian and technical services manager for ruminants at Lallemand Animal Nutrition, suggests that focusing on animal health delivers multiple benefits. "Maintaining healthier cows isn't just economically sound; it's also proving to be a crucial strategy for farmers looking to reduce the carbon intensity of dairy production," he says.

The Link Between Longevity and Sustainable Production

Longevity is a keyword in dairy farm sustainability. According to research, dairy cow productivity increases with each lactation cycle until reaching a plateau around the fifth lactation (**Table 1**). This increased lifetime production leads to lower methane emissions per unit of milk. By investing in herd health to extend productive lifespans, farmers can optimize their environmental impact per liter of milk.

Table 1. Methane exhaust per lactation (Van Laar e.a., 2004, Van Straalen, 2006, CRV 2010)

Milk production per lactation	kg milk	gr methane per kg milk
Lactation 1	8.399	14.72
Lactation 2	9.499	14.00
Lactation 3	10.067	13.00
Lactation 4	10.220	13.60
Lactation > =5	9.952	13.80

"Doubling a cow's lifetime lactations from 2.5 to five reduces the need for herd replacements while typically increasing milk output, with older cows generally producing more milk," Vreeburg explains. He points to farms where exceptional longevity resulted in replacement rates of just 12-15% over eight years, equivalent to six to seven lactations per cow.
"Measures often focus on daily production per cow, but lifetime production serves as a more meaningful sustainability indicator."

While 50,000 kg is considered sustainable production, many farms consistently achieve 60,000 to 70,000 kg, significantly reducing milk's carbon footprint. During the 23 months it takes to raise a heifer and the dry period before calving, cows eat feed and produce methane but don't make milk (**Table 2**). Minimizing these unproductive phases can help increase overall output while reducing emissions per kilogram of milk.

Table 2. Milk production related to first calving age (Van Laar e.a., 2004,Van Straalen, 2006)

Calving age heifers in months	Production 1st lactation (kg)	Lifetime production (kg)
21	8.888	21.330
22	10.075	31.230
23	10.363	38.345
24	11.298	36.154
25	10.026	32.085
26	9.332	21.465
27	9.504	19.960

Building the Foundation: Health Management

Extending cow longevity requires comprehensive health management that addresses problems before they force early culling. From his veterinary experience, Vreeburg observed an overemphasis on treating sick animals rather than maintaining animals healthy, hence preventing illness. "The focus should shift toward reducing health risks through preventive measures," he notes.

This health management approach starts with basics: good quality bedding and promoting beneficial microorganisms in the direct animal environment. However, even the healthiest farm environment won't extend herd life if cows can't reproduce successfully.

Reproductive issues are a leading cause of cow culling, making fertility management crucial for extending herd longevity. The critical window lies in those first 100 days of lactation, when a cow's nutritional status can make or break her reproductive future. During early lactation, maintaining optimal body condition becomes a delicate balancing act.

"Farmers understand that a cow cycling regularly and conceiving on schedule represents the successful orchestration of dozens of interconnected management practices," Vreeburg observes. "Each one contributes to her ability to maintain both peak milk production and reproductive readiness simultaneously."

Maximizing Feed Efficiency for Improved Sustainability of Milk Production

While reproductive success keeps cows in the herd longer, the nutritional foundation that supports both reproduction and overall cow performance centers on feed efficiency, particularly during the challenging transition from dry cow to peak lactation.

Research has shown that rumen-specific live yeast can stabilize the rumen microbiota during the dramatic dietary shift from dry cow to lactation rations.[3] These specialized yeasts promote beneficial bacteria growth and help buffer rumen pH, which can help reduce the risk of acidosis that commonly disrupts feed intake during early lactation.

Studies also quantified these benefits, showing that live yeast supplementation can reduce bodyweight loss by up to 30kg in the first 60 days of lactation - representing 5% of a typical 600kg dairy cow's total bodyweight. This benefit in the maintenance of body condition translates to fewer health problems and enhanced reproductive performance, while simultaneously boosting feed efficiency by up to 7%, allowing cows to extract more energy from the same ration.[2] The combined effect creates a positive cycle where optimized rumen health drives improved overall cow performance.

Imagine unlocking the hidden potential in every kilogram of feed that cows consume. The sustainability implications are significant: farmers can either maintain current milk production while reducing feed costs by up to 6%, or achieve the same remarkable efficiency gains in reverse turning existing feed into additional milk output.

"When we can help cows extract more energy from every kilogram of feed, we're not just improving economics, we're reducing the environmental cost per liter of milk produced," Vreeburg explains. "It's a perfect example of how nutritional precision supports both longevity and sustainability goals."

Quality Forage is a Cornerstone of Enhanced Milk Production

Even the most advanced nutritional supplements can't make up for poor-quality silage, which forms the foundation of every high-quality ration. Maximizing the use of homegrown forages is central to profitable dairy farming and plays a key role in producing milk more efficiently.

Improving silage quality begins with excellent crop and bunker management—skills that many dairy farmers have already mastered. "However, taking shortcuts in these processes, such as skipping the application of silage inoculants, can compromise quality and undermine overall silage goals. This not only leads to suboptimal nutritional outcomes but also negatively affects production performance and the farm's sustainability targets," he warns.

Using forage inoculants supports better preservation and reduces the risk of heating and spoilage in the bunker — key to minimizing losses and avoiding poor-quality silage that can impair cow performance. Whether preserving silage or whole crop cereals, consistent conservation practices lead to improved production and longer herd longevity, directly supporting farm sustainability goals.

The Path Forward: Integration for Impact

By investing in optimizing herd performance through proper nutrition and management, farmers can increase the proportion of cows who remain productive for longer, maximizing the potential of every animal. The key lies in understanding how each management decision contributes to the ultimate goal of extending productive herd life.

"When we focus on maintaining optimal cow performance, we're not just thinking about today's milk production, we're adapting our herd management to more sustainable practices," says Vreeburg. "Every day a cow stays productive in the herd is a win for both farm economics and milk carbon intensity."

The path to more sustainable dairy production doesn't require revolutionary changes, but rather the disciplined application of proven strategies that keep cows healthy, productive, and in the herd longer. In an industry facing increasing environmental scrutiny, the solution may be as straightforward as helping every cow reach her full productive potential for longer.

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Healthy silage

POSITIVE BIOFILMS: A GAME-CHANGER FOR BIOSECURITY IN PIG FARMING

Biosecurity in pig farming is critical for securing animal welfare, health, and performance. While standard biosecurity protocols are well-established, recent research suggests that more can be offered. Lallemand has developed a complementary tool to those standard biosecurity practices: positive biofilms.

Traditional disinfection leaves farm surfaces nearly sterile, but residual microbiota can rapidly recolonize, potentially leading to unfavorable microbial conditions. The positive biofilm approach inoculates disinfected surfaces with beneficial bacteria capable of forming protective biofilms and occupying vacant ecological niches, stabilizing the microbial environment on farm surfaces.

Innovative Solution for Positive Biofilm Inoculation

The positive biofilm solution (marketed as Lalfilm Pro) contains a carefully selected consortium of bacterial species chosen for their biofilm-forming abilities and synergistic action. This formulation has been validated through partnership between Lallemand Biofilm Center of Excellence and the INRAE Micalis Institute, plus numerous on-farm trials.

Lallemand Biofilm Center of Excellence

Large-Scale Trial Results

In 2024, Lallemand Animal Nutrition researchers conducted a comprehensive trial involving 438 Danbred sows across four successive batches.[1] The study compared standard biosecurity protocols to enhanced protocols incorporating beneficial bacterial applications after cleaning and disinfection —before sow entered the barn and 24 hours after farrowing.

Microbiological Analysis

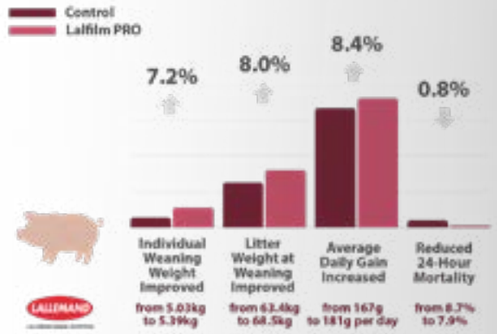
Advanced genetic sequencing techniques revealed that positive biofilm applications beneficially impacted environmental microbiota, with effects extending to sow udder skin microbiota and piglet surrounding at birth . Through sophisticated statistical analysis, researchers identified significant changes in 32 out of the 91 bacterial families analyzed.

Sows of the treated nursery barns showed reduced presence of potentially undesirable bacteria, including *Staphylococcaceae*, *Porphyromonadaceae,* and *Fusobacteriaceae* on day 1; *Helicobacteraceae* from days 1-7; and *Corynebacteriaceae* and *Dietziaceae* on day 7. This reduction indicates that an enhanced biosecurity approach can influence environmental microbial balance in key areas of swine production.

Performance Improvements Reflect Microbial Benefits

As a result of reduced microbial pressure, piglets born in farrowing pens receiving the positive biofilm demonstrated significantly better performance compared to control:

Figure 1. Piglet performance boost with positive biofilm application



Performance advantages continued post-weaning, with treated piglets averaging 21.2kg versus 20.7kg at 35 days.

Implications for Modern Pig Production

This study confirms that positive bacterial consortia in maternity areas rooms provide real benefits on the microbial environment. These beneficial effects contribute to maintaining welfare, health, and performance of both sows and piglets, offering significant economic and operational advantages while providing a science-based enhancement to traditional biosecurity protocols.

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[1]Achard, C. Study B16 – Effects of Spraying a Bacterial Inoculant in Maternity Rooms on the Performance of Sows and Piglets, trans. from the original presented at the JRP 2025 Conference (Paris: Journées de la Recherche Porcine, 2025), https://www.journees-recherche-porcine.com/texte/2025/posters/b16_Achard.pdf

FROM BODY LANGUAGE TO MOOD STATES: UNLOCKING THE HIDDEN LANGUAGE OF CANINE EMOTIONS

***Francesca Susca**, Global Category Manager Pet*

What if we could decode the complex emotional world of our canine companions with the same precision we use to measure their physical health? Lallemand Animal Nutrition has developed Pet Well-being Assessment Guide (**PetWAG**), an innovative tool that transforms subtle canine facial expression and body posture into quantifiable emotional data. Created in partnership with Dr. Robert Falconer-Taylor, a veterinary educator and formerly head of education of the Centre of Applied Pet Ethology (COAPE) with over 20 years of experience in animal behavior and clinical nutrition, this innovative approach bridges the gap between cutting-edge behavioral science and practical companion animal care.

The Expertise Behind Emotional Assessment

The PetWAG methodology applies ethological principles to systematically interpret canine communication (**Figure 1**). Animals express emotional states through nuanced changes in facial expression and body posture that can be misinterpreted without proper expert guidance. The classic example of belly exposure illustrates this complexity while commonly interpreted as submission or play invitation, research shows it can also indicate stress-related displacement behavior or conflict avoidance.

The tool employs a structured observational protocol using a numerical wheel system to quantify behavioral observations. Pet owners record multiple daily observations over four weeks, generating data used to calculate the Rolling Average Mood State (RAMS). This metric provides quantitative assessment by comparing time spent in positive versus negative mood states, enabling determination of whether emotional needs are being adequately met.

Learn more about PetWag

The Gut-Brain Axis Connection

PetWAG's scientific foundation extends beyond behavioral observation to incorporate emerging research on the gut-brain axis (**Figure 2**), the bidirectional communication pathway between the enteric and central nervous systems. This connection has profound implications for animal behavior and emotional regulation, as the gut microbiome influences neurological function through production of neuroactive compounds including serotonin and dopamine. The enteric nervous system contains more neurons than the spinal cord, highlighting the gut's role as a "second brain". This neurological complexity demonstrates how gastrointestinal health directly impacts behavioral and emotional states in companion animals.

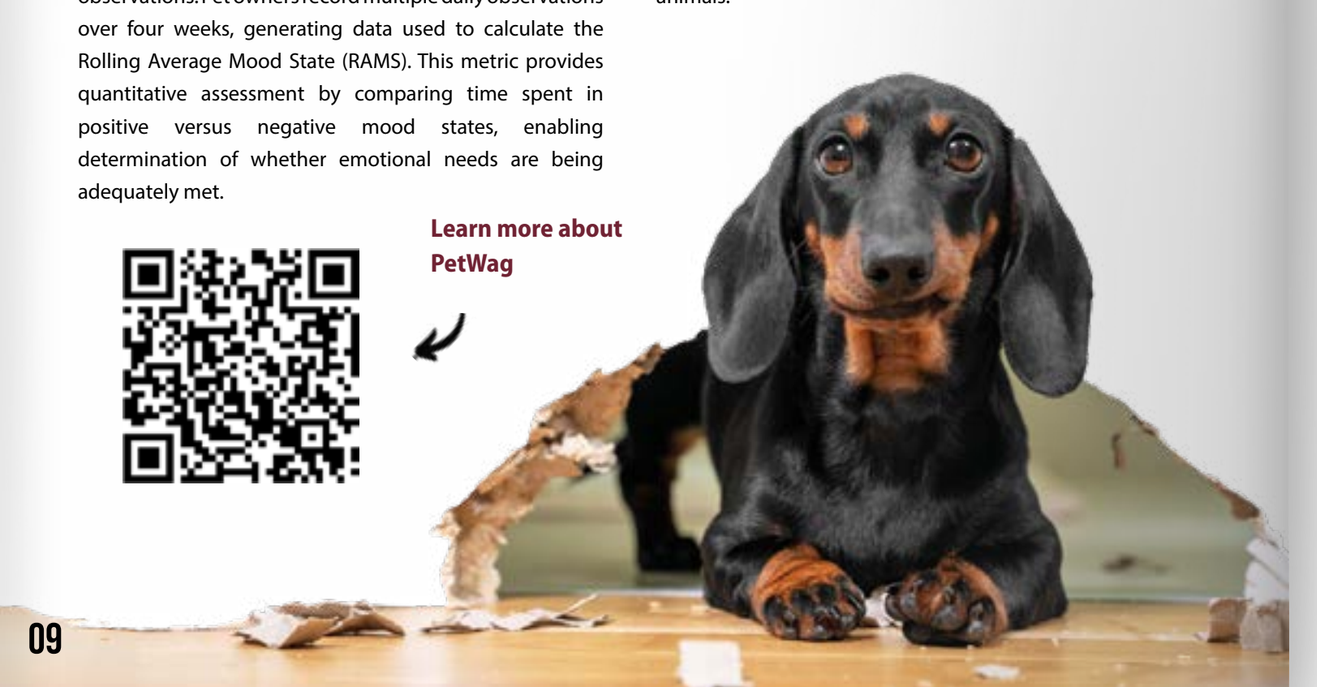


Figure 1. Four steps to measure and control pets' emotional well-being

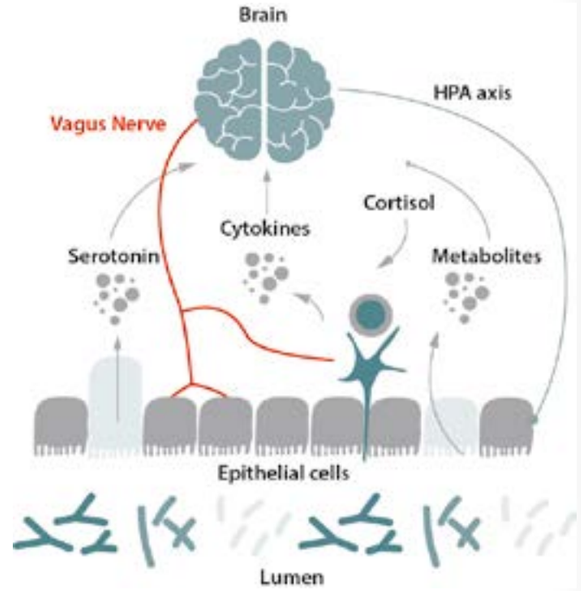
Nutritional Interventions for Emotional Well-being

Maintaining a healthy gut microbiome depends on a wide variety of microorganisms existing in balance, with no one type overwhelming the others. Nutritional support, like probiotics and postbiotics can help maintain or even improve this balance. Probiotics are beneficial live microorganisms, such as specific strains of bacteria or yeast, that can help restore a healthy gut microbiome. Postbiotics are inanimate microorganisms, or part of them, that still play an active role in supporting a healthy gut environment, and much more.

A New Era of Canine Care: Supporting Behavior and Gut Health Together

The integration of behavioral assessment with microbiome-targeted nutrition represents a paradigm shift in companion animal care. By providing quantitative measures of emotional well-being alongside evidence-based nutritional interventions, PetWAG offers veterinarians and pet owners a comprehensive approach to maintaining canine health outcomes, establishing new standards for holistic companion animal well-being assessment.

Figure 2. The Gut-Brain Axis: a complex bidirectional communication network



PHYSIO-NUTRITION FOR MODERN PIGS: UNDERSTANDING ENERGY METABOLISM, PROTEIN KINETICS OF ABSORPTION AND FIBER FERMENTATION IN SWINE FEEDING

***David Saornil**, Global Swine Application Manager*

In today's swine industry, optimizing animal health and performance while maintaining sustainability and profitability is more important than ever. Understanding the physiological processes that drive efficiency and resilience in pigs is essential as producers face increasing pressures from rising feed costs, evolving regulations, and consumer demands for responsible farming.

To address these challenges, we focus on interconnected pillars of swine nutrition and health: energy metabolism and gut inflammation, protein kinetics of absorption, and fiber fermentation and the role of the microbiota. These pillars are not just academic; they are practical levers for productivity and animal welfare.

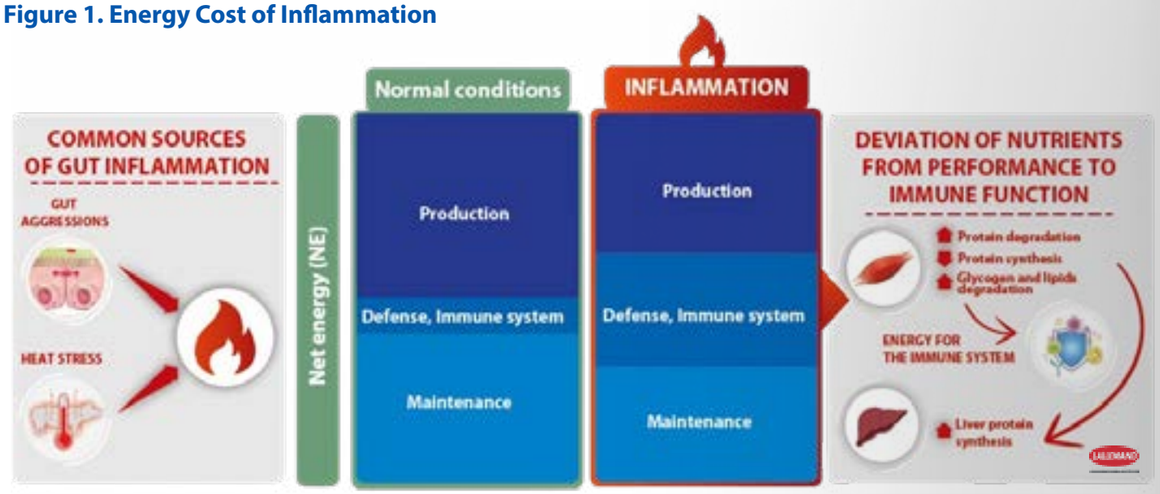
Energy Metabolism and Gut Inflammation

Energy metabolism in pigs is a complex process involving nutrient breakdown for reproduction, health, and muscle synthesis. However, gut inflammation significantly impacts this process. Various factors trigger inflammation, from pathogens and toxins to heat stress, which redirects blood flow to the periphery, reducing nutrient availability to the gut.

Under healthy conditions, feed energy supports maintenance, growth, and milk production. During inflammation, energy is diverted from productive functions, which compromises growth, reproduction, and feed conversion efficiency.

The cost extends beyond energy. In healthy animals, only 0.5-2% of dietary lysine supports immune function. In animals with activated immune systems, this increases to 9% for acute phase protein synthesis. This demonstrates why maintaining animals under healthy conditions and avoiding chronic inflammation is crucial (**Figure 1**).

Figure 1. Energy Cost of Inflammation



Lochmiller and Deerenberg, 2003;

Protein Kinetics of Absorption

The kinetics of protein digestion, the speed at which proteins are broken down and absorbed, is particularly critical for piglets around weaning (**Figure2**). Their developing digestive systems require easily digested, quickly absorbed proteins to prevent digestive disorders and nutritional deficiencies.

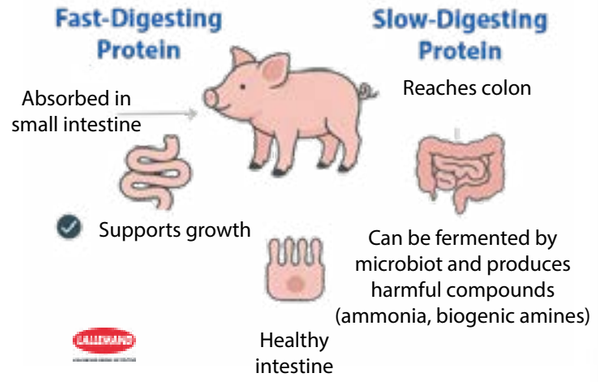
While protein digestibility indicates global availability, it doesn't reflect absorption timing in the gastrointestinal tract. When proteins aren't digested quickly enough, they reach the large intestine undigested. There the gut microbiota breaks them down through a process called proteolytic fermentation, which produces harmful metabolites like biogenic amines and ammonia. These substances damage the gut barrier, impacting piglet health and increasing disease susceptibility.

Figure 3. Feeding the microbiota : how fiber shapes gut health

Expert Advice

Prioritize gut health as your foundation. A healthy gut is a prerequisite for efficient energy metabolism and protein utilization. Consider nutrient delivery timing, particularly during weaning when digestive capacity is limited. Invest in strategies that support beneficial microbial populations while managing fiber fermentation. Monitor systematically beyond growth performance to include gut health and metabolic efficiency indicators. Think of nutrition as a connected system, changing one part of the diet can affect many others. That's why integrated feeding strategies are essential to get the best results in animal welfare, performance and efficiency.

Figure 2. Why timing matters : protein digestion in piglets



Fiber Fermentation and Microbiota

Dietary fibers significantly influence pig performance, affecting welfare, digestion speed, and genetic potential expression. Microbiota plays a crucial role in fiber valorization through complex cross-metabolic processes. Specific cellulolytic bacteria utilize enzymes to degrade the complex carbohydrate structure of fiber, producing short-chain fatty acids (SCFAs), acetate, propionate, and butyrate, which serve as an energy source.

The fiber family includes soluble and insoluble types with different properties. Soluble fibers slow gastric transit and create gel-like texture that can decrease digestibility. Insoluble fibers speed digestion and provide bulk effects with water-holding capacity. Balancing these fractions is essential for optimal gut function (**Figure 3**).

BUILDING STRONGER BONES IN POULTRY THROUGH ORGANIC SELENIUM SUPPLEMENTATION

Monika Leukert & the Poultry Application Team
Product Manager for Antioxidative Solutions and Yeast Derivatives

Bone health in modern poultry production has become increasingly critical as genetic selection for rapid growth and high egg production places tremendous skeletal demands on both broilers and laying hens. While selenium's role in antioxidant defense and immunity has long been recognized, emerging research highlights its equally important function in maintaining bone integrity, a finding that could reshape our approach to supplementing key trace minerals.

Organic vs. Inorganic: Quality Matters

Not all selenium sources deliver equal results. Recent comparative studies demonstrate that high-quality selenium-enriched yeast (commercially known as ALKOSEL) significantly outperforms traditional sodium selenite supplementation. Research trials with broiler chickens showed that organic selenium delivered 24% more selenium to leg bones (tibia) compared to inorganic selenium sources.[1,2]

The superior performance stems from the organic form's composition: over 63% selenomethionine content, with an additional ~37% represented by selenocysteine and other organic selenium compounds. This composition supports efficient utilization of selenium within metabolic processes and functional protein incorporation.

The Selenium-Bone Connection

Selenium operates through selenoproteins, which serve as the exclusive delivery mechanism for this trace element within bone tissue. These specialized proteins are essential for osteochondroprogenitor activity, one of the key cellular processes responsible for bone formation. When birds experience selenium deficiency, it leads to reduced bone mineral density, decreased bone volume, and compromised structural integrity.

The mechanism is fascinating: reactive oxygen species (ROS) naturally cause the death of bone-building cells (osteoblasts) and at the same time increase the activity of bone-resorbing cells (osteoclasts). This leads to the destruction of bone tissues. Selenium-dependent enzymes, particularly glutathione peroxidase, neutralize these damaging ROS molecules, creating a healthier environment for bone growth and maintenance.

Bones and Eggshells That Don't Crack Under Pressure

The benefits translate directly to production parameters of both growing and adult birds. Broilers receiving organic selenium supplementation showed 20% higher tibia resistance (**Figure 1**), while laying hens demonstrated 43% improvement in bone (tibia) strength (**Figure 2**). These broiler birds also exhibited 6% higher ash content and 7% increases in both calcium and phosphorus deposition within bone tissue.

Most importantly, egg shell resistance improved by 4% in laying hens receiving organic selenium, a finding with significant benefits for reduced cracked eggs and improved hatchability.

Figure 1. Tibia resistance (stiffness) in broilers supplemented with selenium-enriched yeast or sodium selenite (SS)

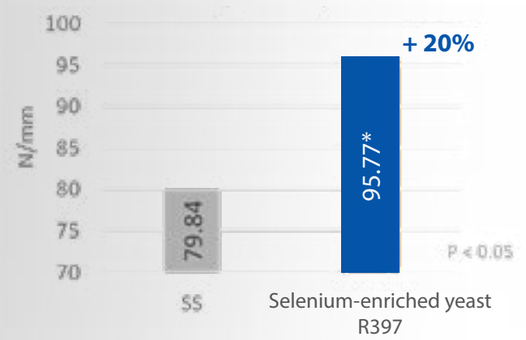
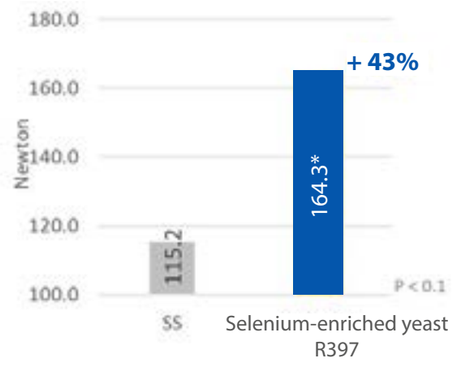


Figure 2. Tibia resistance of laying hens (maximum force)



Make the Move: Stronger Bones Start with Organic Selenium

Consider transitioning from inorganic to high-quality organic selenium sources, ensuring the products contain 97-99% organic content with minimum 63% selenomethionine. This investment in skeletal health pays dividends through reduced lameness, improved bird welfare, and enhanced production longevity.

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MICROBIAL DUO SHOWS PROMISE FOR SOW AND PIGLET WELFARE IN DUTCH TRIAL

***Jacob Verdoold** , Territory Manager, The Netherlands*

In the high-stakes world of commercial pig farming, farrowing represents a critical juncture where the health and welfare of both sows and their offspring hang in the balance. Each birth carries the potential for complications, stress, and losses that can significantly impact farm productivity and animal welfare. But what if the solution lies not in traditional interventions, but in harnessing the power of beneficial microorganisms?

A Dutch commercial pig farm recently put this theory to the test, exploring whether microbial tools could enhance sow welfare and piglet outcomes during farrowing. Working with Lallemand Animal Nutrition, the strategy was straightforward yet firmly based on science: the use of two complementary microbial solutions, one aimed at supporting the sow's internal digestive system and the other focused on shaping the microbial environment within the farrowing pen.

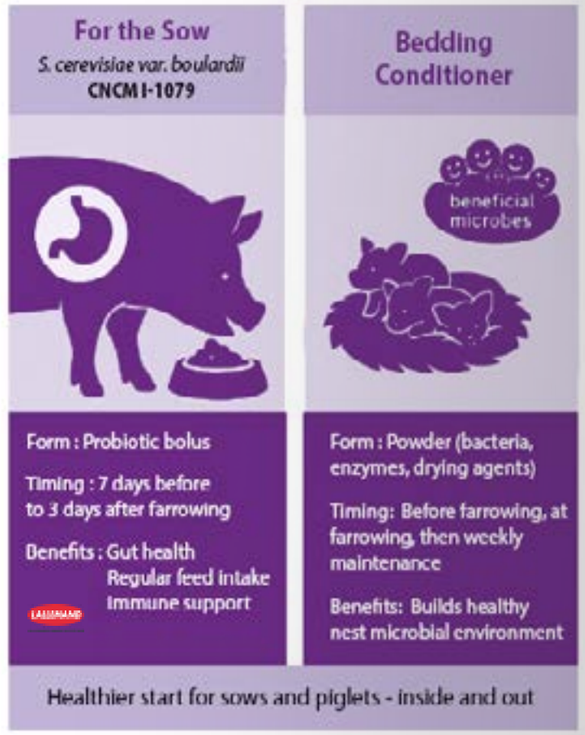
The Microbial Duo: Internal and External Support During Farrowing

The first intervention was a probiotic feed supplement based on *Saccharomyces cerevisiae var. boulardii* CNCM I-1079, a specific probiotic live yeast with a proven track record for promoting gut health, stimulating feed intake, and supporting immune resilience. The second was a bacterial bedding solution containing beneficial bacteria and enzymes, formulated to help maintain a favorable microbial environment in the pen and nest, offering piglets exposure to balanced flora immediately after birth.

Thirty sows participated in the on-farm observational study with 15 assigned to the test group. Test sows received daily probiotic feed supplement boluses starting seven days pre-farrowing through three days post-farrowing. Their pens and nests were treated with the bedding conditioner at strategic intervals: 200g before sow arrival, 400g at farrowing, and 200g weekly thereafter.

Farm staff monitored key indicators related to sow health and behavior, including repetitive stress behaviors, farrowing assistance needs, feed intake and udder condition. Piglet data included total born, stillbirths, pre-weaning mortality, and incidence of neonatal diarrhea.

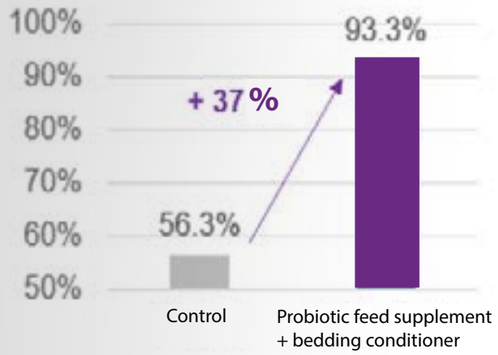
The test group demonstrated meaningful benefits compared to the control group. Sows showed calmer behavior, required less farrowing interventions (**Figure 1**), maintained consistent feed intake, and had visibly improved udder tone. Piglets in this group experienced a lower stillbirth rate, slightly increased live born piglets and fewer cases of neonatal diarrhea (**Figure 2**), with pre-weaning mortality similar to controls.



While not a randomized controlled trial, the results align with the documented modes of action of both microbial solutions.

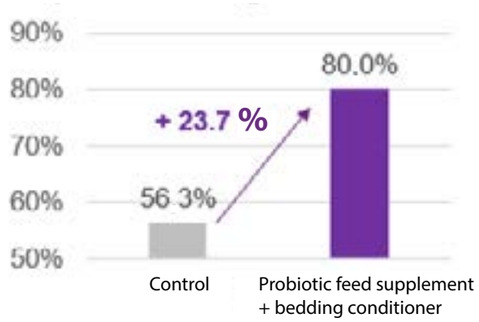
The probiotic feed supplement is associated with enhanced digestion, nutrient absorption, and colostrum quality, while the bedding conditioner is known to reduce pathogen pressure in farrowing environments, supporting early-life health.

Figure 1. Sows farrowing unassisted



This practical field case suggests that combining targeted microbial support for both the internal (gut) and external (pen) environment may offer synergistic benefits during the peripartum period. Additional controlled studies are needed to validate these findings and to determine how well they apply under a wider range of production contexts, such as different farm management practices, herd sizes, and environmental conditions.

Figure 2. Litter w/o neonatal or pre-weaning diarrhea



WHEN THE HEAT HIT HARD: A CZECH DAIRY FARM'S SMART SOLUTION

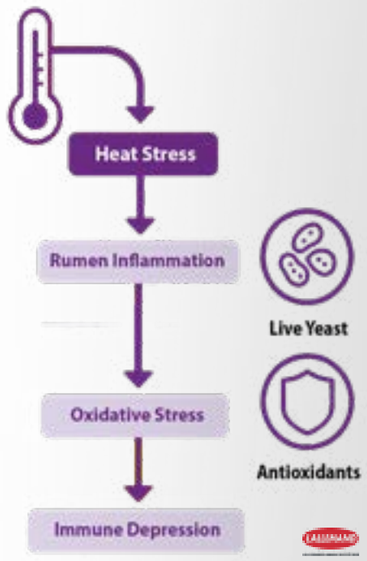
Aurelien Piron, *Ruminant Technical Manager*

In August 2023, the thermometer was climbing toward dangerous territory at a 500-cow dairy operation in Tatenice, Czech Republic. As the Temperature-Humidity Index soared to 82 during what would become a punishing two-week heat wave, the farm manager watched his production numbers with growing concern. While control cows suffered devastating milk losses of nearly 7 kilograms daily, their supplemented counterparts lost less than 4 kilograms. The difference wasn't better ventilation or misting systems -- it was a revolutionary understanding of heat stress as a biological cascade.

The Heat Stress Challenge

Traditional approaches have long focused on environmental cooling through fans, misters, and shade structures. While these remain essential, the technical team from Lallemand confirmed what the mast advanced research had recently discovered that heat stress creates a domino effect of biological disruptions that environmental controls alone cannot address. Heat stress begins negatively zaffecting dairy cows at just 21°C, with production losses starting at 18°C, ultimately costing producers €120 annually per cow once THI values exceed 72. [1,2]

These periods lead to reduced feed intake and more standing time, resulting in less milk and poorer-quality milk.[3,4] Plus, there are long-term side effects of heat stress that aren't revealed until years later, including diminished mammary gland tissue development and poor calf health in offspring of heat-stressed cows.[5,6] The wide-ranging effects of heat stress on dairy cows indicate this challenge involves multiple systems within the animal.



A Real-World Trial

This study began in June 2023 with a comprehensive design on a commercial 500-lactating cow herd dairy farm. Researchers evaluated the impact of a three-ingredient feed solution during the transition period under heat stress conditions in a randomly selected subgroup of 40 dairy cows.

The first ingredient targeted rumen efficiency with *Saccharomyces cerevisiae* CNCM I-1077, a rumen-specific live yeast strain. The second ingredient, rich in enzyme superoxide dismutase (SOD), provided anti-oxidative cellular. The third ingredient helped maintain optimal selenium levels by providing 1.2 milligrams of organic selenium per cow per day through a seleniumenriched yeast source—equivalent to 0.05 milligrams per kilogram of dry matter intake (DMI).

The results were nothing short of remarkable. Over the first 100 days in milk, supplemented cows averaged 1.7 kg more milk per day than the control group (**Figure 1**). When the heatwave hit, their production losses were 45% lower (**Figure 2**). In addition to improved milk yields, treated cows showed lower somatic cell counts and better reproductive efficiency, requiring fewer inseminations per pregnancy. These findings make clear that this three-ingredient nutritional strategy can help enhance digestion while mitigating inflammation.

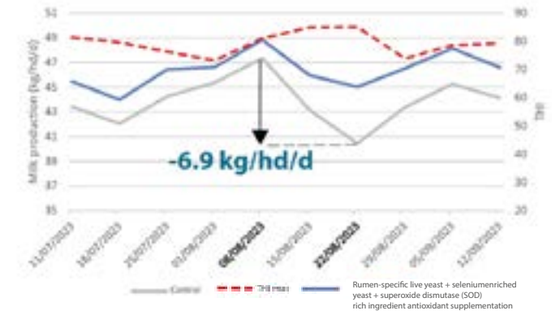
From an economic standpoint, the nutritional strategy is revealed to deliver a return on investment greater than 9:1, driven by higher productivity and reduced losses during heat stress events.

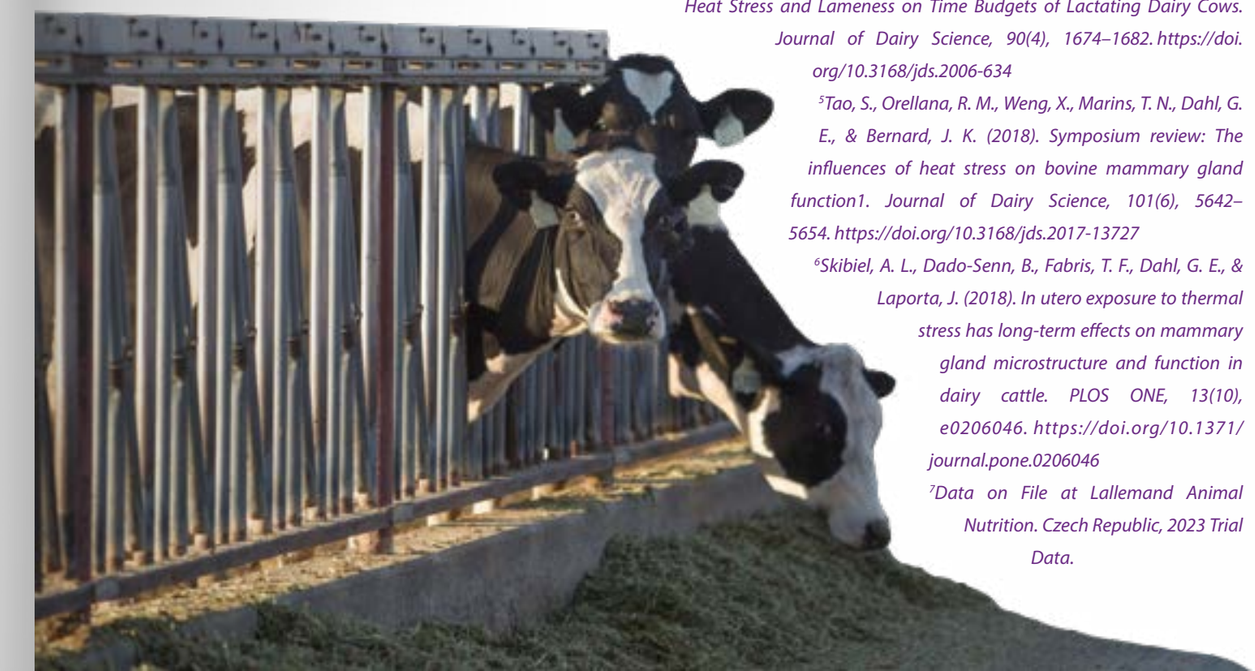
This case highlights a valuable shift in how producers can approach heat stress, not just as an environmental issue to manage, but as a biological challenge to be addressed from within. By supporting key physiological systems, producers can help animals stay more resilient through temperature and humidity spikes.

As climate extremes become more frequent, integrating targeted nutritional support into heat stress protocols is essential for maintaining both productivity and animal welfare.

Figure 1. Milk performance between control cows and cows supplemented with rumen-specific live yeast, selenium-enriched yeast, and superoxide dismutase (SOD) rich ingredient antioxidant supplement. Supplemented cows reached peak lactation earlier than the control

Figure 2. Milk production during moderate heat stress between control cows and cows supplemented with rumen-specific live yeast, selenium-enriched yeast, and a superoxide dismutase (SOD) antioxidant.[7]





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