

MEETING REPORT

Lallemand Animal Nutrition's Swine International Technical Meeting, Madrid (Spain), 19th of June 2024

Modern swine production: main challenges through the different stages

MADRID, SPAIN – June 19th, 2024 – The Swine International Technical Meeting, held in Madrid last week, brought together around 150 industry experts from 26 countries to discuss the main issues impacting swine modern production. A successor to the "LEVUCCELL SB International Technical Meeting", this seminar maintained its predecessor's commitment to scientific discourse and global expert interaction, while showcasing Lallemand's expanded range of microbial solutions. The seminar's agenda was comprehensive, ranging from the sow to the fattening period. After an overview of some of the main issues impacting pig production nowadays, it began with a focus on sow microbiota management, emphasizing its critical role in providing piglets with beneficial maternal imprinting. Presentations then moved to weaning piglets with a focus on post-weaning diarrhea and potential solutions to this common problem, as well as the importance of managing nutrient digestion kinetics for optimal absorption. The seminar concluded with a focus on heat stress and strategies to enhance energy metabolism in growing and finishing pigs. The well-known probiotic yeast *Saccharomyces cerevisiae boulardii* CNCM I-1079 (LEVUCCELL SB), a recently launched specifically developed hydrolyzed yeast (YELA PROSECURE) and an innovative association of synergistic yeast fractions (YANG) were presented as effective solutions in the context of modern pig production.

Overview of current swine industry's main challenges

Alberto Morillo, a Pig Production Veterinarian, Nutritional Coach & Biostatistician, highlighted some of the main economic challenges. Production is slowing down in high production regions worldwide due to destocking resulting from economic losses in recent years. However, lower feed prices are expected to reduce production costs, thus improving the economic situation for farmers and integrators. Diseases such as African Swine Fever (ASF) and Porcine Reproductive and Respiratory Syndrome (PRRS) pose significant threats. He also addressed piglet diarrhea, a widespread problem that is difficult to trace back to its origin and resolve effectively, and the increasing mortality rate among sows, which is leading to significant economic losses worldwide.



Alberto Morillo

In addition, Morillo emphasized the human resource challenge with a noticeable decline in the labor force, affecting all levels of operation from management to non-specialized roles. This shortage of manpower is emerging as a significant obstacle for producers, adding another layer of complexity. Morillo also highlighted the importance of regulating welfare measures and sustainability efforts based on studies demonstrating their efficacy without compromising production or economy.

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Luis Sanjoaquin

In the context of a rational use of antibiotics and medicinal treatments, **Luis Sanjoaquin**, Swine Veterinarian Advisor and Co-founder of ThinkingPig, focused on the management measures to obtain high-quality piglets at weaning. He emphasized the importance of working from a multifactorial perspective, paying more attention to the sow peri-partum period, the colostrum quality, the environmental conditions, the management of nurse sows, as well as investing in piglet feeding and health status.

The power of sow nutrition: maternal imprinting

Fernando Bravo de Laguna, Swine R&D Project Leader at Lallemand Animal Nutrition, discussed the concept of maternal imprinting. He explained how feeding sows with probiotics during gestation and lactation has positive effects on the piglets, making them better prepared for the weaning challenges. In the studies presented by the scientist, beneficial effects of sow microbiota modulation when supplementing the sows with *Saccharomyces cerevisiae boulardii* CNCM I-1079 were observed even 20 days after weaning, translating the profound impact of the sow microbiota on the microbiota profile of its offsprings. This positive microbiota modulation was reflected in the post-weaning piglet growth after weaning. Another study gave more insights into the connection between the lungs and the gut microbiota. Supplementing sows with the specific probiotic yeast had a beneficial effect on lowering the inflammatory response in the piglets lungs. These results constitute an additional proof of the maternal influence on the gut microbiota and the immune capital of the piglets.



Fernando Bravo de Laguna



Ignacio R. Ipharraguerre

Ignacio R. Ipharraguerre, Senior Scientist at the Institute of Human Nutrition and Food Science at the University of Kiel (Germany), highlighted new discoveries on the metabolic imprinting in young piglets. He explained how bile acids, traditionally understood as detergent molecules involved in lipid digestion, absorption, and cholesterol homeostasis, have a broader role as regulatory molecules influencing the interplay among the host, diet, and gut microbiota. In his study, Ipharraguerre demonstrated that the observed increase in piglet weight gain, driven by the supplementation with *S.c. boulardii* CNCM I-1079, was accompanied by significant alterations in the fecal bile acids profile and specific hormone plasma concentrations involved in energy expenditure. This pioneering discovery is casting new light on the potential metabolic pathways that exist between the gut microbiota and bile acids. More importantly, it underscores their pivotal role in influencing the maturation of the microbiota in young piglets. This research opens up new avenues for understanding and enhancing the health and growth of young animals.

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Addressing post-weaning piglet diarrhea

David Saornil, Swine Applications Manager at Lallemand Animal Nutrition on behalf of **Prof. Shiyao Qiao** from China Agricultural University presented a comprehensive study on the effects of *S.c. boulardii* CNCM I-1079 (LEVUCCELL SB) and an association of specific yeast fractions (YANG) on the growth performance and diarrhea incidence of weaned piglets. The study, conducted in three experiments, demonstrated the beneficial effects of the use of the combination of LEVUCCELL SB and YANG either before or during a ETEC K88 infection on:



David Saornil

- Serum immune indicators and lipopolysaccharide levels
- Intestinal barrier function, intestinal tissue morphology and inflammatory response
- Colonic microbiota composition and short chain fatty acids release
- Feed intake, growth performance
- Diarrhea incidence

LEVUCCELL SB and YANG offer a multifaceted approach to addressing the challenge of post-weaning diarrhea in piglets. By enhancing immune response, mitigating the risk of infection, and lowering inflammation, these supplements represent a promising solution for this common and significant health issue in piglet rearing. Their use could lead to healthier piglets, improved productivity, and more sustainable pig farming practices.

Towards a kinetic and functional approach to piglet digestion

Walter Gerrits, Professor of Animal Nutrition at Wageningen University, provided insight into nutrient absorption kinetics in pigs. He emphasized the importance of considering the kinetics of digestion in addition to the extent of nutrient digestibility. Indeed, the kinetics of digestion affects the metabolic fate of nutrients after absorption, and relative functionalities modifying physiology of the animal. He explained that kinetics gives a better understanding of the digestion process, the synchronization of nutrients and of the adequate feeding of the colon microbiome, which may have several health implications. He reminded the risk of protein fermentation in the hindgut and emphasized the role of dietary fibers on digestion process.



Walter Gerrits



Bruno Bertaud

Bruno Bertaud, Swine Technical Manager at Lallemand Animal Nutrition, highlighted the protein absorption kinetics and fermentative properties of YELA PROSECURE and its impact on weanling piglet's performance and microbiota. YELA PROSECURE is a specifically designed hydrolyzed yeast that offers highly digestible and functional nutrients supporting animal performance, digestive health, and feed appetibility while contributing to the feed-protein balance. It helps manage dietary amino acids to optimize intestinal homeostasis, which is essential during stressful periods. YELA PROSECURE is also a valuable source of insoluble fibers that supports the development of positive hindgut fermentations, representing an additional source of energy (butyrate, acetate,

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propionate) for the colonocytes and the host. Providing a source of functional and highly digestible nutrients to the young and immature piglets will help sustain performance during the post-weaning phase. YELA PROSECURE has also demonstrated its technical and economic interest in feeds formulated with total or partial replacement of soybean meal, fish meal and blood plasma.

Enhancing energy metabolism in fattening pigs

Dr. Aira Serviento, a Post-doctoral Researcher from ETH Zurich, presented her recent study titled “Effect of live yeast supplementation and feeding frequency in male finishing pigs subjected to heat stress”. The study, published in the British Journal of Nutrition, highlighted that heat stress is a significant limiting factor in pig production, especially with the increasing global temperatures. Heat stress reduces feed intake, leading to reduced growth performance in growing pigs.



Aira Serviento

The study aimed to determine if the previously reported positive effects of the live yeast *S.c. boulardii* CNCM I-1079 supplementation in heat-stressed pigs were due to a modified feeding behavior or energy metabolism, and if these could be replicated by imposing an increased meal frequency. The results showed that live yeast supplementation and increased meal frequency improved feed intake and retained energy in pigs during heat stress. Moreover, live yeast supplementation improved insulin sensitivity, modified feeding behavior and improved thermoregulation response of pigs during heat stress. This resulted in improved energy retention.



Pierre Lebreton, Category Manager Monogastric at Lallemand Animal Nutrition, presented on the nutritional approach in fattening pigs with *S.c. boulardii* CNCM I-1079 (LEVUCCELL SB). He emphasized that the fattening period is critical for pig production, with significant impacts on the environment and economy and accounts for 50-60% of the production cost.

Lebreton suggested that further economic improvements are possible with investments in feeding accuracy and better control of fattener physiology. He highlighted the potential of "physio nutrition", a new area of investment for Lallemand Animal Nutrition. Research with LEVUCCELL SB has shown its significant impact on gut microbiota and intestinal inflammation regulation, leading to nutrient and energy savings and better animal growth and production.

LEVUCCELL SB also improves nutrient retention, especially during stress, and enhances the valorization of potentially fermentable fibers, offering new formulation opportunities. These benefits have led to the inclusion of LEVUCCELL SB in the formulation process. The economic value of such rational nutritional valorization of LEVUCCELL SB is confirmed by scientific evidence and large scale commercial conditions.

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In conclusion

Recently appointed General Manager, Mathieu Castex, concluded the seminar by presenting the commitment of Lallemand Animal Nutrition to its partners and the swine industry. In a fast-changing world that requires constant adaptations, Lallemand Animal Nutrition affirms its position to help its partners through knowledge acquisition and generating new and practical experiences. It aims to innovate and provide solutions to current and future trends and challenges the industry is facing, and to continuously invest and develop its network. The spirit of Lallemand Animal Nutrition transpires through science but always with a "hands-on" approach as also reminded during the introduction by Yannig Le Treut, Vice President and Special Advisor at Lallemand Animal Nutrition, who spent more than 35 years visiting swine farms, understanding pig producers challenges and helping think "out of the box". The Swine International Technical Meeting is at the forefront of this spirit: uniting swine experts from around the world to share new knowledge, favor exchanges, and open up minds. Microbial ecosystems are a critical interplay between nutrition, physiology, and sustainability and constitute the further lines of development of Lallemand. As Castex said, "Sustainability is also about trying to do something different". Lallemand is heavily investing in people, bioprocessing, and research facilities to further expand its knowledge and develop the solutions and services to drive forward the success of its partners.



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About Lallemand Animal Nutrition

Partnering in microbial solutions for a changing world

We are Lallemand Animal Nutrition – a global leader in the science of fermentation – and a primary producer of yeast and bacteria. Our passion is harnessing microorganisms to improve performance and maintain animal health, optimize forage management, and the animal microbial environment. We remain unwavering in our commitment to helping our industry partners and farmers sustainably feed a growing global population through improved animal performance – and supporting the health and well-being of aquaculture, livestock and companion animals.

We provide a very broad range of innovative microbial products, services and solutions for customers around the world. We deliver tailor-made services according to your specific needs and offer expert technical support to ensure the optimal application and efficacy of our solutions.

Leveraging the natural power of yeast and bacteria, we develop, produce and market highly technical products including probiotics, silage inoculants, and microbial derivatives. Using sound science, proven results and knowledge from experience, we apply the right strains for the right applications.

Lallemand Animal Nutrition is Specific for your Success!

For more information, please visit www.lallemandanimalnutrition.com



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