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**INTERVIEW: Danisco Animal Nutrition Showcases Latest Insight into Gut Health and Poultry Nutrition**

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**10 May 2017 - The 21st European Symposium on Poultry Nutrition (ESPN 2017) in Tarragona, Spain is taking place this week. Considered to be a focal point of science, innovation and future trends in poultry nutrition, ESPN 2017 focuses on issues such as thermoregulation and heat stress, nutritional strategies, gastrointestinal health of birds, precision feeding and the optimization of ingredients and feeding sustainability.**

With a view to share the latest in-house and external knowledge on how various feed additives work together and can be optimally combined to address gut health challenges, Danisco Animal Nutrition organized a satellite workshop on May 8. Joining Danisco Animal Nutrition scientists were Prof. Filip Van Immerseel of Ghent University in Belgium and Prof. Rosalina Angel of the University of Maryland in the US. Together they delved deeper into the topic of gut health and feed additive synergies.

Feedinfo News Service caught up with Dr. Luis Romero (Global Innovation Lead at Danisco Animal Nutrition) on the sidelines to discuss the main findings of the satellite event and what the company's R&D team latest focus.

**[Feedinfo News Service] Dr. Romero, why was it important for Danisco Animal Nutrition to host a workshop at ESPN 2017?**

**[Luis Romero]** Danisco Animal Nutrition is a market leader in nutritional health products. For over 25 years, we have continuously invested in science and innovation and are building a knowledge powerhouse to address the emerging and increasing demand for nutritional health solutions. To date, we have developed ground-breaking solutions, such as Aextra® PHY, the fastest-acting phytase available in the market. We also want to help our customers cope with challenges such as production costs, healthy birds for healthy food, and reduced environmental impact. Today, our diverse team of experts have a vast understanding of nutritional health applications; in particular, we have made a great effort to uncover the synergies of how various additives work together and can be optimally combined to address gut health challenges. We feel it is our responsibility to work with our customers and industry thought leaders to understand the best way to apply nutritional health solutions in a market where complexity can be daunting. This customer workshop is a great opportunity for us to present the latest research in nutritional health to our customers, and to create a forum for idea exchange in order to best meet our customer needs and enable them to make the right decisions for their animal production and profitability.

**[Feedinfo News Service] In addition to being a platinum sponsor of ESPN, Danisco Animal Nutrition/DuPont Industrial Biosciences is a lead**

**sponsor of the upcoming Feedinfo conference in September, taking place in Frankfurt, Germany: "Feed Additives 2017". What is your criteria for association with such events?**

**[Luis Romero]** As market leaders, we are committed to sharing our most up-to-date knowledge. We look for events that we believe are relevant to the industry and at the same time provide us with the opportunity to better understand the trends, challenges and unmet needs in the industry. In this way, we can lead the discussion about nutritional health solutions and play an important part of the solution to meet the ever-changing demands of the market.

**[Feedinfo News Service] Gut health has increasingly become a key topic in animal nutrition in recent years ever since it was recognized that the gut is the second brain. For how long has Danisco Animal Nutrition been focusing on the matter and what solutions does the company provide for poultry?**

**[Luis Romero]** Since the beginning of Danisco Animal Nutrition, more than 25 years ago, we have worked on improving the nutritional health of animals. We understand the strong association between nutrition and intestinal health and developed a strong probiotic business 8 years ago to support that concept. We are currently the market leaders for probiotics in the US broiler market. We believe that nutritional health is more relevant than ever with the removal and reduction of antibiotics across the globe. We are taking a holistic approach to address this challenge by investing in our broad portfolio of nutritional animal health solutions - including probiotics, betaine, essential oils, and enzymes - ; by expanding our Microbiological Innovation Centers; in-field analysis and applied research - we have analyzed over 60,000 chicken guts from across 400 production sites; our world-class microbial genomics capability and in vitro gut simulators; as well as our formulation expertise. All of these capabilities amplify our collaborations with leading academic institutions to make sure that we are developing the right offerings to meet the most critical animal producers' challenges. We continue to invest in uncovering the most valuable synergies between various additives to enable antibiotic free and cost effective animal production.

**[Feedinfo News Service] What are the latest discoveries made by Danisco Animal Nutrition regarding the potential synergies between feed enzymes and probiotics in poultry? What are you seeing at in vivo level?**

**[Luis Romero]** We have accumulated a considerable amount of knowledge about the interaction between enzymes and probiotics. On one hand, enzymes hydrolyze substrates for direct absorption and produce prebiotics in-situ where on the other, probiotics create the right conditions for the absorption of nutrients by stabilizing the microbial communities and stimulating the maturation of the gut's immune system. One of the



**Dr. Luis Romero**  
Global Innovation Lead  
Danisco Animal Nutrition

exciting findings is that combinations of enzymes and probiotics consistently increase the intestinal integrity of animals, reducing the permeability of the gut epithelium. In a recent study at the University of Liverpool that we presented at the Poultry Science Association meeting last year, we saw a complete reduction of the translocation of *Campylobacter* from the intestine to the liver of chickens under challenged conditions in response to supplementation of enzymes and probiotics. This indicates an important role of these technologies to ameliorate the contaminations of the meat coming from the farm, additionally to their role in helping producers to remove antibiotics from their Companies' systems.

**[Feedinfo News Service] To what extent is it possible today to influence the chicken gut's microbial composition by nutritional modulation?**

**[Luis Romero]** The microbial position in the gut of chickens is very vulnerable during the first 21 days of the birds' lives. Chicks hatch in a relatively sterile environment with an underdeveloped immune system. Both microbial communities and gut immune system go through an inter-dependent process of development until they reach a high level of maturity and stability. But that happens at a very late stage of the commercial production cycle and is influenced by the early development of that ecosystem. There are different ways to influence the development of microbial communities and the immune system. One possibility is to reduce the availability of easily metabolizable nutrients in the hind gut which foster the growth of opportunistic pathogens. Another possibility is to increase the availability of fiber-oligosaccharides, which are molecules that enable the growth of beneficial bacteria and the production of short chain fatty-acids. The modulation of the chicken gut composition by nutritional means can clearly be demonstrated in situations in which the birds are under intestinal health challenges. Nonetheless, we believe there are still immense opportunities for new nutritional health additives to influence the gut maturation by modulating interactions between the host and the microbiome. Hence, we are continuously investing in research to understand the chicken gut metagenome and the dynamics of the intestinal microbial ecosystem, which will give us an immense opportunity for innovation.

**[Feedinfo News Service] What are the satellite workshop's take-home messages for your R&D team?**

**[Luis Romero]** One important take-home message for my team is that understanding the microenvironment in the gut and the interactions within the microbial communities and the host, is essential to deliver innovative solutions in the nutritional health space. This understanding will involve the use of metagenomics and metabolomics technologies, where we are heavily investing to lead knowledge in the nutritional health space. This knowledge will enable solutions to modulate the maturation of the gut ecosystem of the chickens and therefore maximize the utilization of the nutrients and prevent intestinal disease. A mature gut is a resilient gut. To our customers, that means a more productive poultry production system and less stress in their daily lives.