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Kemin Launches, Resilient Intestinal Health solution, ENTEROSURE™

A Promising Solution to South Asian Poultry Producers for Enhanced Enteric Pathogen Control

Source: Kemin Industries South Asia Pvt Ltd via Benison Media

"Maintaining 'Intestinal Health' is always a critical need for a poultry producer for better productivity with efficiency, thus it is required to build a resilient ecosystem inside the intestine, which will withstand the overall challenges. Building a resilient intestine is a critical job to be done for our customers. ENTEROSURE™ will help to build a resilient intestine helping the beneficiary for efficient protein production, with enhanced profitability by enhancing control on enteric bacterial pathogens aiming for reduced use of antibiotics"

Chennai, India, July 14, 2022, Kemin Industries, a global ingredient manufacturer that strives to sustainably transform the quality of life every day for 80 percent of the world with its products and services, has launched ENTEROSURE™, a novel intestinal health feed additive that joins the comprehensive line-up of poultry gut health solutions from Kemin Industries South Asia. ENTEROSURE™ is a novel anti-microbial solution helping users for building resilient intestines, for better performance with enhanced Enteritis & Colibacillosis control, and an additional spectrum of control on *Enterobacteriaceae*. ENTEROSURE™ minimizes the impact of enteric challenges on poultry performance, enhancing the profitability and efficiency sustainability of poultry producers.

In this customer-centric perspective, Kemin shares insights with Benison Media, to discuss the development of ENTEROSURE™ and how Kemin's global presence benefitted this process. From Kemin Dr. R. Chanthirasekaran (RC), Regional Technical Director, Dr. Santosh Vyas, Director R&D, Dr. Chandrasekar S, Sr. Marketing Manager, Health Platform, and Dr. Vaibhav Bhamare Product Manager Intestinal Health, Kemin South Asia, Chennai, we also look at the product's efficacy in addressing common intestinal health challenges in production birds and how this can impact bird performance and the efficiency and profitability of farmer operations.

[Benison Media] What are the current critical challenges faced by South Asia poultry producers?

[RC] Producers all over the world are at different stages in this journey of resolving the issues coming from enteric diseases through different solutions, which are similar for both low antibiotic users and non-antibiotic / alternative users. These users have been searching for relatively better gut health, through AGPs, probiotics, prebiotics, etc and the search is persistent. Also due to the end consumer's changing demands, there is a continuous drive in the industry to reduce antibiotics to an absolute minimum. In addition, the recent disruptions driving feed costs lead to the use of several additional alternative feed ingredients. These, in turn, overall increase the digestive and pathogenic challenges for our animals and lowered profitability. Thus, there is a critical need for a solution that will do a job for the poultry producer.

[Benison Media] and how do you think those challenges can be resolved with the help of enhancing intestinal resilience?

[RC] To fulfil the health & production demands from the poultry producers along with the elevated intensity of predisposing factors, we need to change the way we address intestinal health challenges, from a curative approach to a preventive approach. By proactively increasing the overall animal's intestinal resilience, we prepare them to face these challenges while safeguarding animal health, growth, and performance. Our aim at Kemin is to prevent the issues facing the industries we serve, rather than react to them.

We are and have been increasingly focused on addressing intestinal health through product innovation that addresses customers' critical job to be done. ENTEROSURE™ is in similar alignment and will customers' expectations for better & efficient gut health. It will help to reduce the disparity between expected outcomes, against these challenges.

[Benison Media] What's the drive behind the inspiration for the ENTEROSURE™, what approach you have considered from the customer point of view?

[Santosh Vyas] Poultry producers have been managing to maintain the annual profitability absorbing several impacts coming due to challenges from either raw materials or any other inputs affecting health & productivity. Kemin has always been a front runner in listening to customers and one of the biggest needs we saw as an opportunity to improve the bottom line of customer's balance sheet through building a resilient intestinal ecosystem, helping users for the benefit of control on enteric diseases and on the other hand improvement in profitability through elevated productivity.

We listened to the 'voice of customers', and they were very clear in the need, along with intensified clostridial challenges, the enteric Colibacillosis and Salmonellosis are of increasing concern for poultry producers. In countries with strict antimicrobial regulation, there is great pressure to use new tools for managing these *Enterobacteriaceae*. But this pressure also exists in regions with more liberal antimicrobial regulations, as we typically see more antimicrobial resistance both in *E. coli* and Salmonella sp. particularly in South Asian countries.

[Benison Media] How Kemin's global collaboration has helped to translate ENTEROSURE™ into a better poultry gut health solution?

[Santosh Vyas] To fully leverage the global strength of the organization and multiple talents from different business units, across the continents Kemin established a dedicated global research unit focused on Animal Nutrition and Health, built on a legacy of scientific research, thorough testing, and customer feedback. The purpose of this dedicated 'global IH Research team' is to conduct discovery research that results in the creation and launch of new molecules and product solutions to address long-term and emerging industry needs. Specifically for the development of ENTEROSURE™, this global approach enabled us to benefit from the full international network for choosing potential research subjects, leverage the research strengths of each region throughout the research and development phase, and validate our findings in diverse settings across the globe.

With ENTEROSURE™ we were able to isolate potentially effective anti-microbial strains from diverse geographies, use the *in vitro* and *in vivo* research expertise from various labs (both in-house and external academic research facilities), and test in the diverse field and in semi-field conditions. Perhaps even more important, the product has been designed and developed to address customer needs across global markets. This has been made possible through a deep understanding of our customer's needs in each geography and assimilating the learning through our commercial and technical teams.

[Benison Media] What are your findings from *in vivo* & *in vitro* research on ENTEROSURE™ against enteric pathogens?

[Chandrasekar S] During ENTEROSURE™ research, it was very clear to address the current enteric pathogens and health issues of poultry producers for intestinal health along with a major leap in performance outcome by delivering a solution with broad-spectrum action. Since we were targeting two unrelated groups of potential enteric pathogens: gram-positive clostridia and gram-negative *Enterobacteriaceae* with a specific interest in *Salmonella* and *E. coli*. The *E. coli* strains also differ between different geographies. Therefore, Kemin used its access to both laboratory and field strains of these pathogens. In the process of *in vivo* screening, it became very clear that the selected *Bacillus* strains have the highest activity against *E. coli* and high efficacy on Salmonella sp., separately. So, the effective combination of ENTEROSURE™ has patented *Bacillus sp.* strain (PB6) endorsed by 50+ peer-reviewed articles for efficacy against Clostridia, equipped with other 2 strains for *E. coli*, *Bacillus subtilis* FXA, and *Bacillus licheniformis* G3 for addressing Salmonella sp.

In nutshell, with the help of ENTEROSURE™, the intestine will be able to endure any external perturbations and maintain the eubiosis inside the intestine. Thus, higher control on the growth of opportunistic pathogens ultimately increased performance and efficient protein production, satisfying the highest goal of the hierarchy of needs for producers.

In parallel, we complemented our *in vitro* screenings with studies in broilers across different regions, because ultimately the product needed to be able to perform on a farm and not just in a lab. The science which was promised *in vitro* conditions was taken to the field, through Clostridia*, E. coli* & Salmonella sp. challenged trials, along with commercial R&D trials under controlled conditions. In parallel immersive field Beta-testing trials of ENTEROSURE™ with our broiler, layer, and breeder customers were conducted across several locations in South Asia.

[Benison Media] What are the actual field performance and outcomes on enteric pathogen control from the field conditions? What are the tangible benefits for users?

[Vaibhav Bhamare] a few years ago, most producers had a choice between antimicrobial solutions and alternative preventative approaches to maintain health and productivity. Today the production landscape is much more challenging. We need to produce with increased disease challenges and, at the same time, reduce antimicrobial usage. So, if we can maintain both the survivability of the birds and enhance the production parameters, it is a success.

The *in vivo* trials revealed the effect to be greater in the field than what we had seen under more controlled conditions with an ROI exceeding 4:1. For example, in our field trials across South Asia, where open-sided houses pose a greater challenge to bird health, we observed increases of about 4 points in FCR/kg and

approximately 50g in body weight. We are therefore confident that farm profitability will benefit from ENTEROSURE™.

But there is more to profitability than just FCR and extra body weight. By managing *Enterobacteriaceae*, we anticipate a reduced need to treat with antibiotics bringing additional economic benefit, independent of whether farms are integrated, buy feed from a feed mill, or use a business model that falls in between. Our microbiome studies (submitted for publication) indicate that ENTEROSURE™ increases intestinal resilience, meaning the flocks are in a better position to convert the diet into meat (evident in the effects on FCR and body weight) and face less risk for disease outbreaks compared to traditional antimicrobial strategies which reduced resilience.

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