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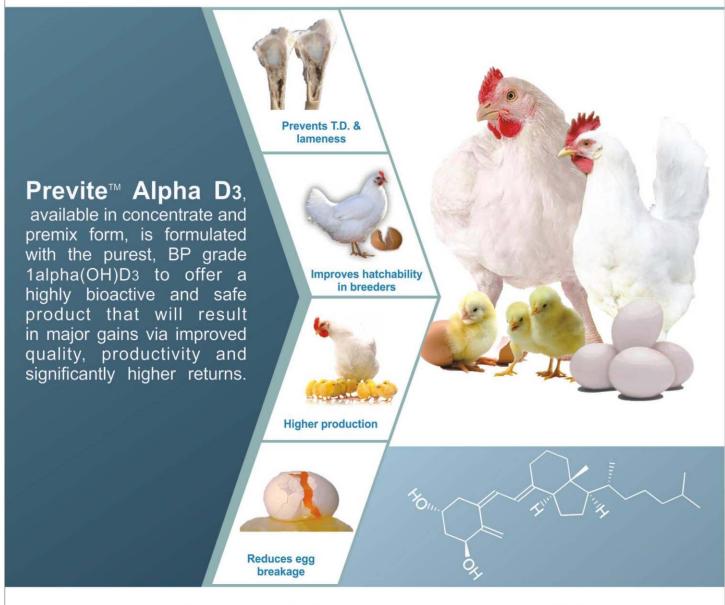
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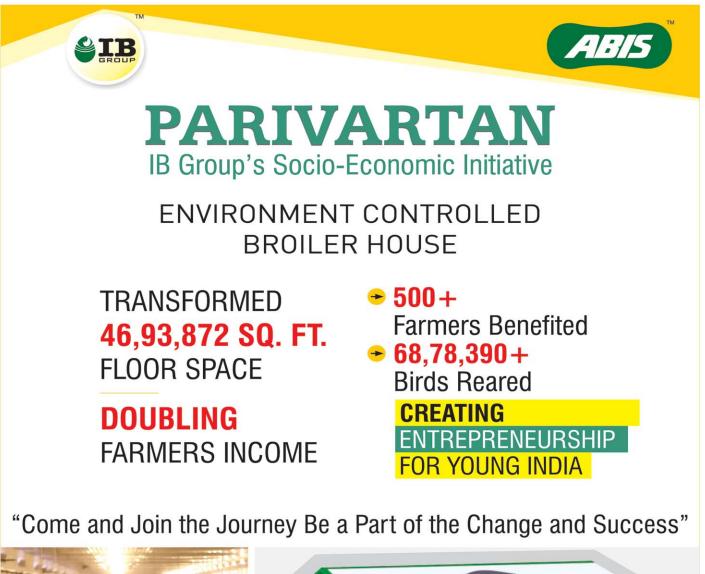
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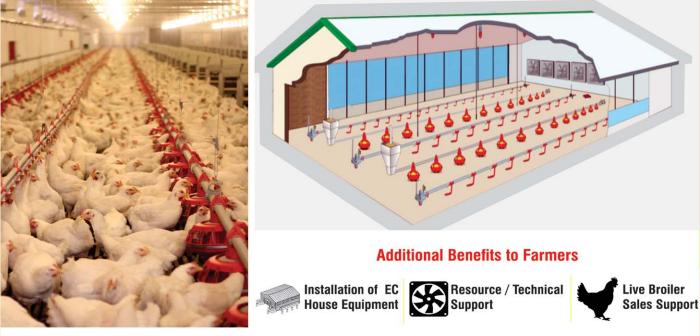


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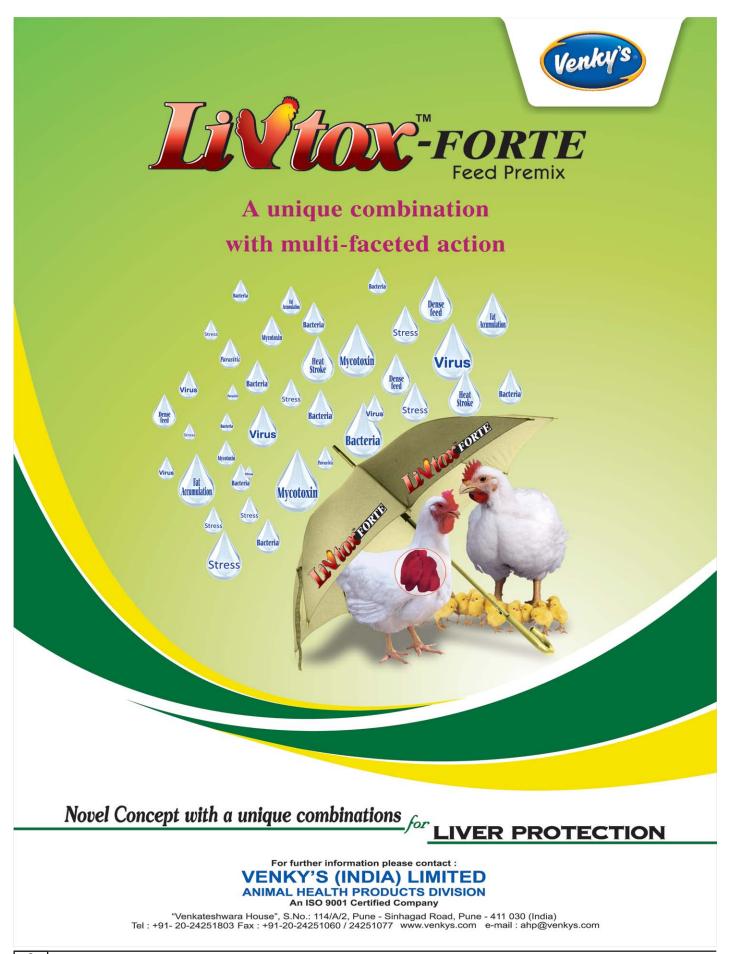




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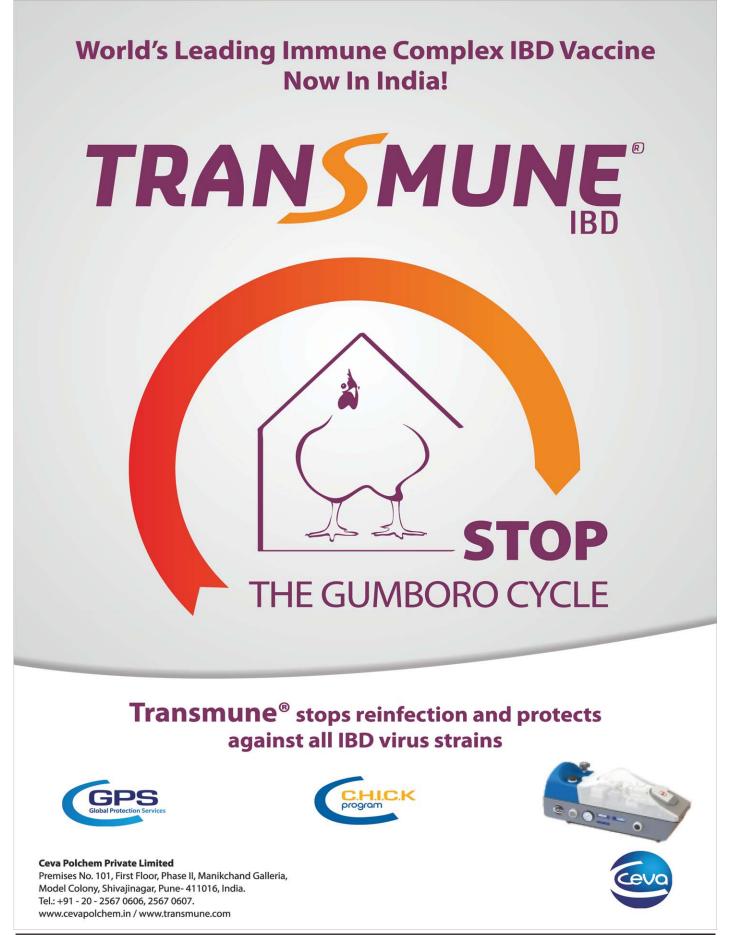
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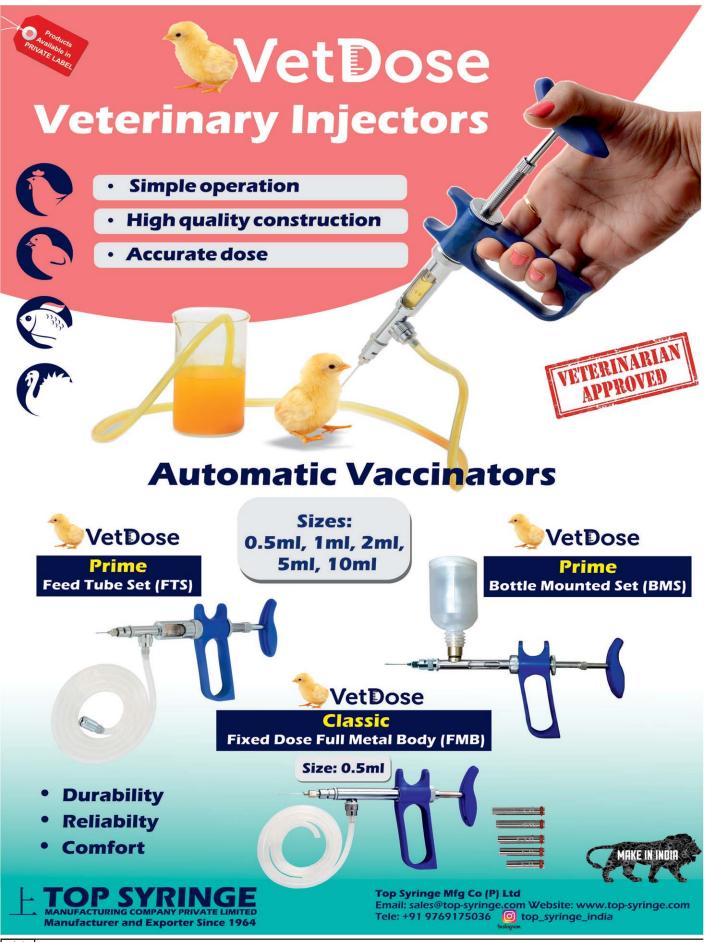
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PRESS RELEASE

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BIOMIN R&D Head Gerd Schatzmayr Named Among Highly Cited Researchers According to 2019 Web of Science Group List



Getzersdorf November 29, 2019 - Animal nutrition firm BIOMIN is proud to announce that Research & Development DirectorDr Gerd Schatzmayrhas been named a Highly Cited Researcher, according to the 2019 list from the Web of Science Group.

Dr Gerd Schatzmayrhas given more than 60 lectures at international scientific congresses and conferences and is author and co-author ofmore than 100 articles, publications and patents. He joined BIOMIN in 1999, and currently heads BIOMIN's worldwide research and development activities from the BIOMINResearch Center at the Campus Tulln.

"This recognition reflects well on the entire research and development team at BIOMINand the network of leading academic institutions that we work with globally. It is truly a pleasure to conduct research and publish with so many great scientists," commented Dr Schatzmayr.

Science at heart

Franz Waxenecker, Managing Director of BIOMIN, said "We are proud of the BIOMIN Research Center's activities under Dr Schatzmayr's leadership. Our longstanding commitment to scientific research forms the basis of our value proposition for the feed and food industry. It is what enables us to offer proprietary, innovative solutions for nutrition, gut performance and mycotoxin risk management. The practical application of these technologies supports healthy, profitable and sustainable animal protein production."

Dr Eva Maria Binder, Chief Research Officer of ERBER Group, added "Across ERBER Group –of which BIOMIN is a part— we conduct both basicand applied research in order to advance scientific knowledge that benefits the agriculture sector and supports a more sustainable future. Congratulations to BIOMIN."

Highly Cited Researchers list

The hotly anticipated Highly Cited Researchers list identifies scientists and social scientists who produced multiple papers ranking in the top 1% by citations for their field and year of publication, demonstrating significant research influence among their peers.

The methodology that determines the who's who of influential researchers draws on the data and analysis performed by bibliometric experts from the Institute for Scientific Information at the Web of Science Group.

David Pendlebury, Senior Citation Analyst at the Institute for Scientific Information said"Recognition and support of these exceptional researchers represents an important activity for a nation or an institution's plans for efficient and accelerated advancement. The Highly Cited Researchers list contributes to the identification of that small fraction of the researcher population that contributes disproportionately to extending the frontiers of knowledge. These researchers create gains for society, innovation and knowledge that make the world healthier, richer, more sustainable and more secure."

This year's list continues to recognize researchers whose citation records position them in the very highest strata of influence and impact as it includes 23 Nobel laureates, including three announced this year: Gregg L. Semenza of Johns Hopkins University (Physiology or Medicine), John B. Goodenough of the University of Texas at Austin (Chemistry), and Esther Duflo of the Massachusetts Institute of Technology (Economics). Also included are 57 Clarivate Analytics Citation Laureates individuals who, through citation analysis, we have identified as researchers 'of Nobel class' and potential Nobel Prize recipients

The full 2019 Highly Cited Researchers list and executive summary can be found <u>here</u>, and the methodology can be found<u>here</u>.

Photo:https://mediacenter.erber.group/Go/zll2j4uF

Photo credit: ERBER Group

Caption: BIOMIN R&D Director Dr Gerd Schatmayr has been named a Web of Science Group's Highly Cited Researcher 2019.

This news item is relevant to poultry, swine, ruminants and aquaculture.

For additional information on the news that is the subject of this release, contact <u>pr@biomin.net</u>or visit <u>www.biomin.net</u>.

About BIOMIN

At BIOMIN we harness the power of science to support animal health and performance. By applying state-of-the-art and proprietary technology we deliver natural, sustainable and profitable solutions to the livestock industry. For over 30 years we have pioneered innovative solutions for mycotoxin risk management and gut performance. Naturally Ahead.

Our in-house R&D program at the BIOMIN Research Center is staffed by over 100 scientific researchers and supported by eight Centers for Applied Animal Nutrition and a research network of 200 academic and research institutions globally. Our clients in the poultry, swine, cattle and aquaculture sectors are located in more than 120 countries worldwide.

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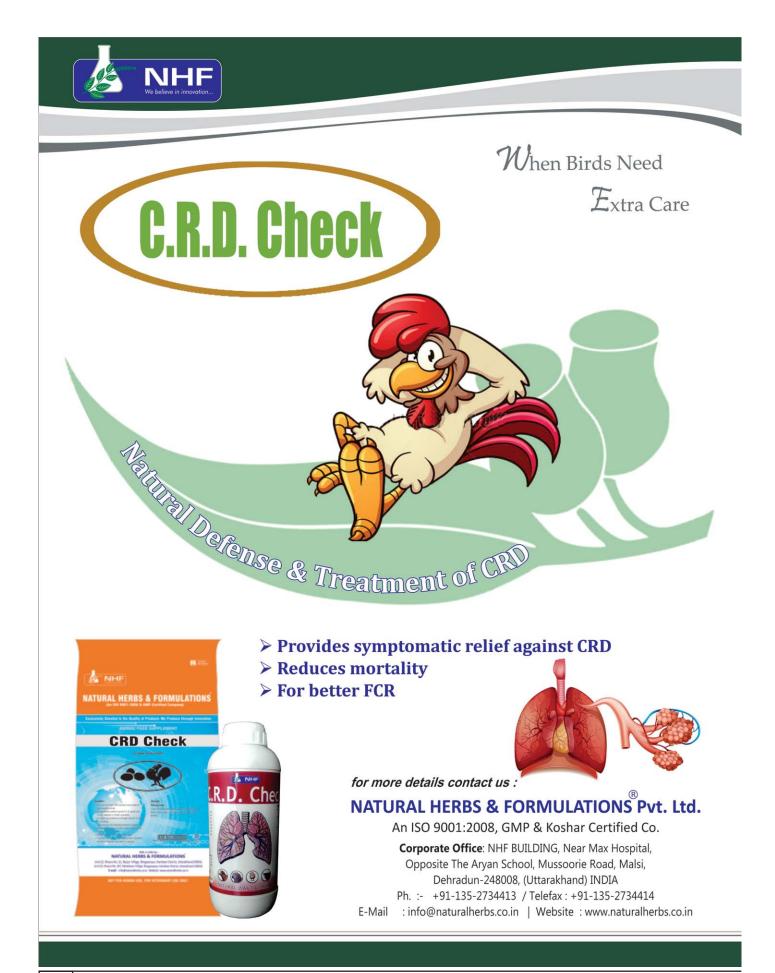
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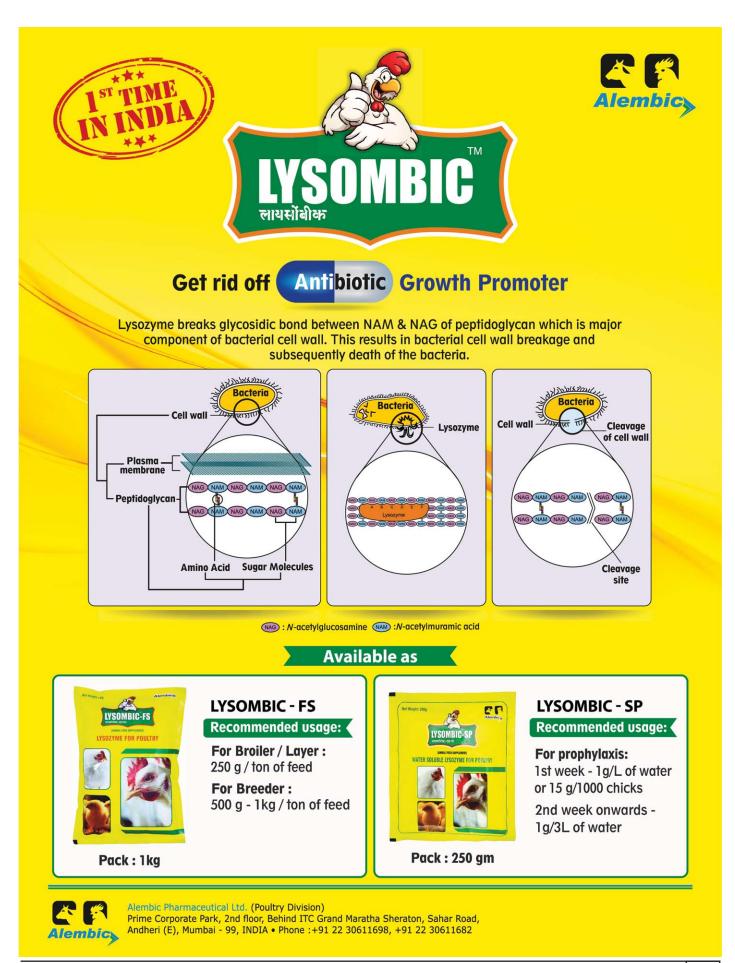


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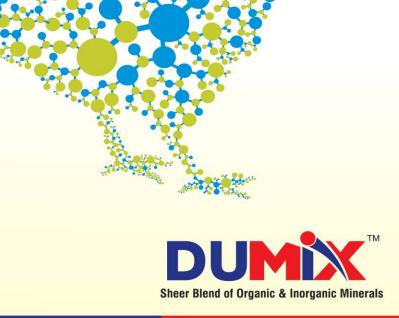
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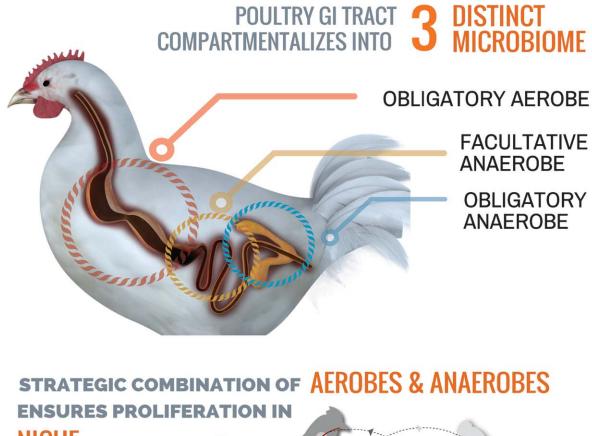


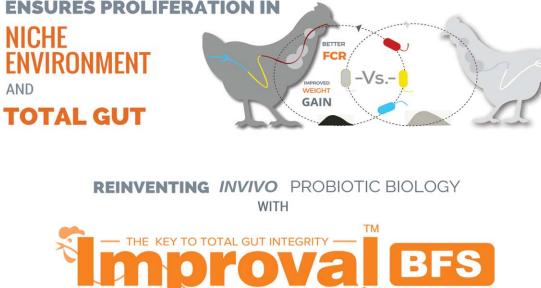
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The Key To Total Gut Integrity



Dr. Ajay Chalikwar

Zonal Technical Manager, Provet Pharma Private Limited, Chennai, India.

Introduction:

- Poultry meat industry has been more dynamic than egg industry over these years.
- Broiler breeder companies are making every effort to produce progeny that produce higher (breast) meat yield, lower FCR and better weight gain.
- Consequent to faster growth rate, a part of the energy utilized in the past to maintain health and disease resistance is now diverted for higher growth & production, resulting in increased risk of negative immune response.
- Increased incidence of circulatory and musculoskeletal disorders is the major cause of mortality in the growing and liquidation age (Dr. K. Gibbs).
- Due to faster growth rate, physiological and immunological problems, birds have little time for gut maturation.

SYNBIOTICS AND GUT HEALTH

Gut Overview

Gut is the largest immune organ of the body, containing around 70% of immune cells in the body. During incubation, the weight of embryonic small intestine increases faster than its body weight. The weight of small intestine is around 1% of the total embryonic weight till the 17^{th} day of incubation, which increases to 3.5% at hatch. The intestine of newly hatched chick is immature and undergoes morphological, biochemical, enzymatic & absorptive changes during the first 14 days, but the first 24 hours are crucial for effective gut development. Access to feed and water during the first 6-10 hours post-hatch will help in the development of microvilli and has a significant impact on improving the absorptive capacity of intestine. Feed cost comprises of approximately 70% of the total cost of production and feed is the most important entity that can expose the birds to a wide variety of factors through gut.



Fig. 1. Effect of genetic selection on breast meat yield in broilers

Gut Microbiota

Poultry GIT has a diverse community of bacteria, virus, fungi and protozoa, called as gut microbiota, the dominant community being bacteria. The mature gut hosts around 800 species of bacteria, whereas, a day old chick doesn't hatch with the established microflora. Gut microbiota consumes around 20% dietary energy and includes *Lactobacillus, Clostridium, Bifidobacterium, Bacteroides, Enterococcus, Streptococcus,* Firmicutes, Proteobacteria and others. Major harmful gut bacteria are *Salmonella, Clostridium* and *E. coli.* Bacterial densities in the ileum & cecum of the broiler chicks may be $10^8 \& 10^{10}$ cells per gram of ingesta respectively at day 1 and reach up to $10^9 \& 10^{11}$ cells within a week and remain stable till 30 days, unless disturbed by any anti-microbials / pathogens.

Functions of Beneficial Gut Microbiota

- Improve digestion and absorption (Jayaraman et al., 2013).
- · Control wet litter and thereby ammonia production.
- Control intestinal pathogens by competitive exclusion (Bernet *et al.*, 1994).
- Improve villi and microvilli ultrastructure (Biloni et al., 2013).
- Modulate immune functions (Borchers et al., 2009).
- Produce Vitamins B & K (Ken Yoshi, 2019).
- Restore intestinal barrier function (Llopis et al., 2005).

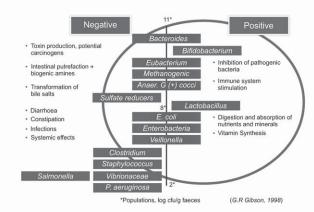


Fig. 2. Effect of Bacterial Population in the GIT

Avian Gut Immune System

Bursa and Thymus are the primary immune organs, where production and differentiation of immune cells occur. Functional immune cells leave the primary immune organs and populate secondary lymphoid organs like Spleen, Bone Marrow, Harderian gland and Bronchus Associated Lymphoid Tissue (BALT) & Gut Associated Lymphoid Tissue (GALT) (Ciriaco *et al.*, 2003).

Major lymphoid organs in the gut are GALT, Bursa of Fabricius, Cecal Tonsils, Peyer's patches and Lymphoid aggregates in urodeum & proctodeum. GALT represents a component of Mucosa Associated Lymphoid Tissue (MALT) which includes bronchial, salivary, nasopharyngeal and genito-urinary lymphoid tissues and acts as first line of defence on the mucosal surface (Suzan and Jeurissen, 1989).

Dysbacteriosis

Dysbacteriosis is an imbalance in the gut microbiota as a consequence of an intestinal disruption. This results in poor nutrient absorption in the gut leading to wet litter, excessive ammonia production and subsequently poorer FCR and reduced body weight. It is generally characterized by thinning of the gut wall along with gassy and watery gut contents. Dysbacteriosis can result from environmental stress, poor ventilation, inferior brooding conditions, viral or bacterial challenges, coccidiosis, poor biosecurity or in response to feed change.

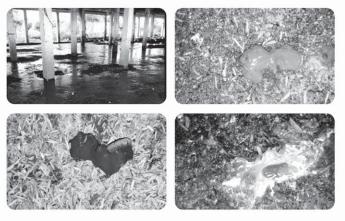


Fig. 3. Dysbacteriosis in Broiler and Layer Farms

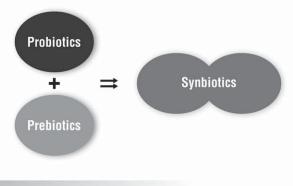


Probiotics and Prebiotics used in synergistic combination are termed Synbiotics.

Synbiotics improve the survival and implantation of live microbial dietary supplements in the GIT, either by stimulating growth or by metabolically activating the beneficial bacteria.

Synbiotics have synergistic effects, because they:

- · Promote growth of existing strains of beneficial bacteria
- Improve survival, implantation and growth of newly added probiotic strains
- · Increase persistence of probiotics in the GIT



Probiotics

Probiotics are defined as "live micro-organisms which when administered in adequate amounts confer a health benefit on the host" (WHO, 2001). Commonly used probiotics are spore forming & non-spore forming bacteria and yeast. Among noncolonizing species, the most preferred one is *Bacillus subtilis*, as it has a tough, protective endospore, is a facultative anaerobe and is thermostable at pelleting temperatures. Species like *Lactobacillus, Bifidobacterium, Enterococcus, Streptococcus*, etc. are good colonizers in vegetative form and available with or without microencapsulation. *Saccharomyces cerevisiae* yeast is another commonly used probiotic.

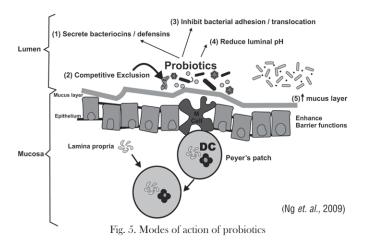


Fig. 4. Bacillus subtilis

Probiotics may affect quorum sensing in pathogenic bacteria, thus influencing their pathogenicity and eventually preventing GIT colonization (Medellin-Pena *et al.,* 2007). *B. subtilis* spores vegetate in the intestinal lumen, consume oxygen, produce a more aerobic condition favourable for native *Lactobacilli*, which produce lactic acid, ultimately controlling pathogens.

Mode of Action of Probiotics

The changes induced by probiotics in the intestinal epithelium are accentuated by the decrease in luminal pH, antimicrobial activity and secretion of antimicrobial peptides, inhibiting bacterial invasion and blocking the adhesion to epithelial cells. In this sense, they improve the intestinal barrier by maintaining tight junction proteins, elevating the production of cytokines (TNF- α , IFN- γ , IL-10 and IL-12) (Arvola *et al.*, 1999), which in turn, induce the secretion of IgA in the intestinal mucosa, causing the release of mucins (Gupta and Garg, 2009).



Mucins, a layer of glycoproteins, forms a film on contact with water, lubricates and protects the intestinal epithelium against pathogens by forming a physical barrier between the epithelium and the lumen contents (Oliveira-Sequeira *et al.*, 2008), keeping the beneficial bacteria in a safe place in the intestinal lumen (Mattar *et al.*, 2002). In the intestine, probiotics interact with enterocytes, goblet cells and M cells from Peyer's patches which results in an increase in IgM and IgA levels, contributing to the barrier against pathogenic micro-organisms

(Szajewska *et al.*, 2001). In addition, there is an antagonist effect through the secretion of substances that inhibit the growth and development of pathogenic bacteria such as bacteriocins, organic acids and hydrogen peroxide (Patterson and Burkholder, 2003; Oumer *et al.*, 2001; Mazmanian *et al.*, 2008).

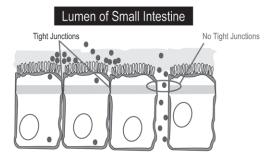


Fig. 6. Maintenance of Tight Junction Proteins (Mao et al., 1996)

Additional Benefits of Probiotics

- Reduction of fat & triacylglycerol in liver, carcass and blood serum (Santoso *et al.*,1995),
- Reduction in abdominal fat content (Delni et al., 2003)
- Significant increase in meat protein content (Kalavathy et al., 2003).
- Significant decrease in bone/egg shell abnormalities (~10 %) by increasing digestibility, bio-availability and deposition of calcium, phosphorus and other minerals (Panda *et al.*, 2006).
- Improvement in keeping quality of meat after slaughter and during freezing (Kabir, 2009).

Prebiotics

Prebiotics are non-digestible food ingredients, which beneficially affect the host by selectively stimulating the growth and/or activity of one or limited number of bacteria in the digestive system and thus improve the host health (Gibson and Roberfroid, 1995). Mannan oligosaccharides (MOS), Fructo oligosaccharides (FOS) and Galacto oligosaccharides (GOS) are commonly used prebiotics in poultry (Ferreira *et al.*, 2011).

Mannan Oligosaccharide (MOS)

MOS is an outer cell wall protein, also called functional carbohydrate derived from the cell wall of *Saccharomyces cerevisiae* yeast (Kaplan and Hutkins, 2000). Due to beta linkages, it can't be digested by endogenous enzymatic secretions and the only way is microbial digestion. From a food safety perspective, prebiotics are considered preventive agents and can be broadly categorized as either agents who reduce or eliminate already colonized food borne pathogens or prevent colonization of incoming pathogens. The intestinal mucosa has polysaccharide structure on their surface that is compatible to lectins.

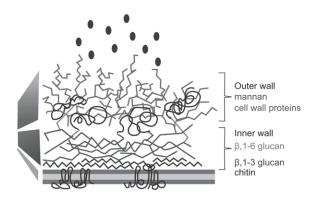


Fig. 7. Ultrastructure of Saccharomyces cerevisiae yeast cell

E. coli and *Salmonella* contain lectins on their surface which aid them to get attached to the intestinal epithelial cells and this will be prevented by MOS (Markovik *et al.*, 1997). Yeast mannans have also been shown to act as immune adjuvants and directly initiate immune responses by binding to macrophages and dendritic antigen presenting cells that contain the C-type lectins of the mannose receptor (Sheng, 2006).

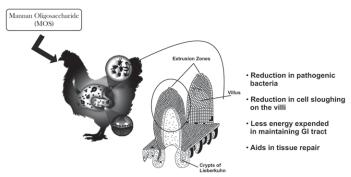


Fig. 8. Benefits of Mannan Oligosaccharide (MOS)

Functions of MOS

- Control of Salmonella & E. coli in gut (Spring et al., 2000).
- Increase length of villi in intestine (Trevino et al., 1990).
- Act as a food source for gut microbiota (Houdijk *et al.,* 1997; Hillman, 2001).
- Binds polar and non-polar mycotoxins due to complex structure and larger surface area (Juodeikiene *et al.*,).
- Improves villi health and creates favourable atmosphere for native lactobacilli and bifidobacteria in gut (Nava, 2005).
- Reduces stress by increasing vitamin absorption, synthesis of enzymes and protein metabolism.
- Modulation of mucosal, systemic immune system and function of epithelial cells (T cells, B cells, Dendritic cells, Macrophages, Natural Killer cells and Cytokines) (Fedorak and Madsen, 2004).
- · Improves body weight gain, FCR and overall immunity.

Characteristics of an Ideal MOS

- · Should be stable at high temperature and acidic pH.
- Should sustain longer in the gut without much absorption for effective control of pathogenic bacteria like *Salmonella* and *E. coli.*
- Should have proven track record of in-vitro pathogen agglutination.

β -Glucan (1,3 & 1,6)

- β glucan is a fraction of *Saccharomyces cerevisiae* with specific 1,3 & 1,6 activity.
- β glucan is a scientifically proven biological response modifier (BRM) and non-specific immunomodulator (Hong. F; Yan. J; Baran).
- Increases activity of phagocytic cells, including Dectin-1 receptors.
- Activates macrophages, NK-Cells, T-Cells and B-Cells including selected cytokines and complement factor (Vetvicka and Oliveira).

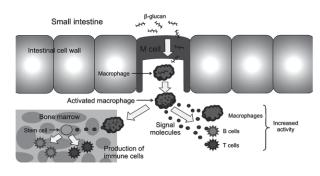


Fig. 9. Role of β -glucan in gut immunity

After absorption, macrophages break down β -glucans into smaller particles and release them for number of days. Without β -glucans, macrophages will take longer time to digest pathogens. Activated macrophages will work more efficiently and kills intracellular and extracellular pathogens at a quicker rate. These activated heterophils will travel in blood stream and effectively control pathogens. There will be improved immune status of the birds and that will reflect positively in all the production parameters.

Conclusion

Synbiotics are a novel class of functional feed additives which are more effective than the individual components. With the shift away from the routine use of antibiotics in poultry production, synbiotics are gaining wide acceptance as an integral part of the feed formulation. Synbiotics in various forms help to modify the GIT microbiota, develop a strong immune system, improve digestion and FCR.

Thus, synbiotics offer a considerable promise for growth performance in poultry production and a better alternative to antibiotic growth promoters.

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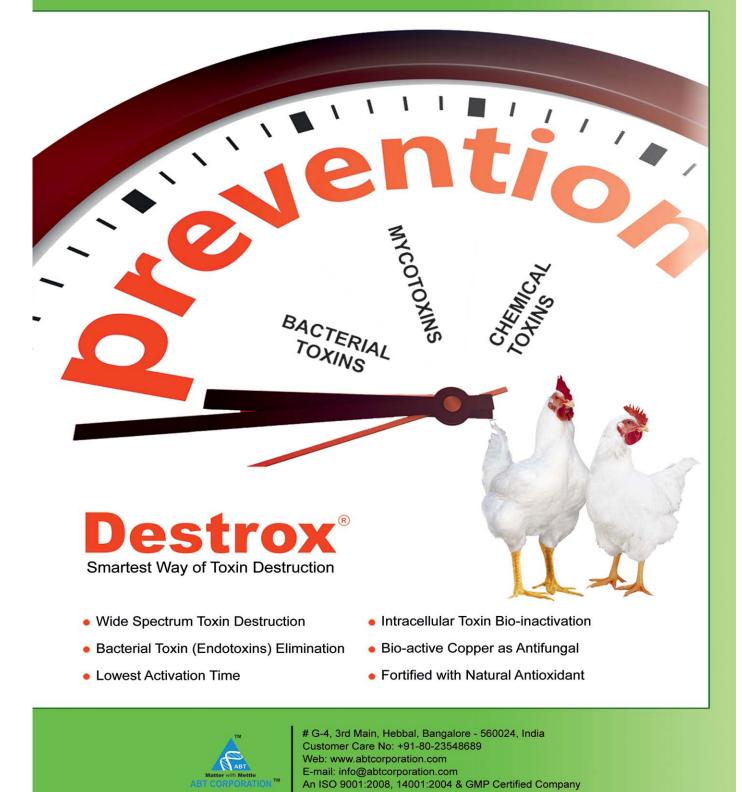
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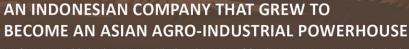
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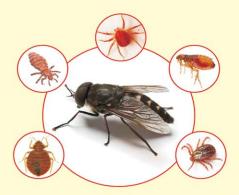
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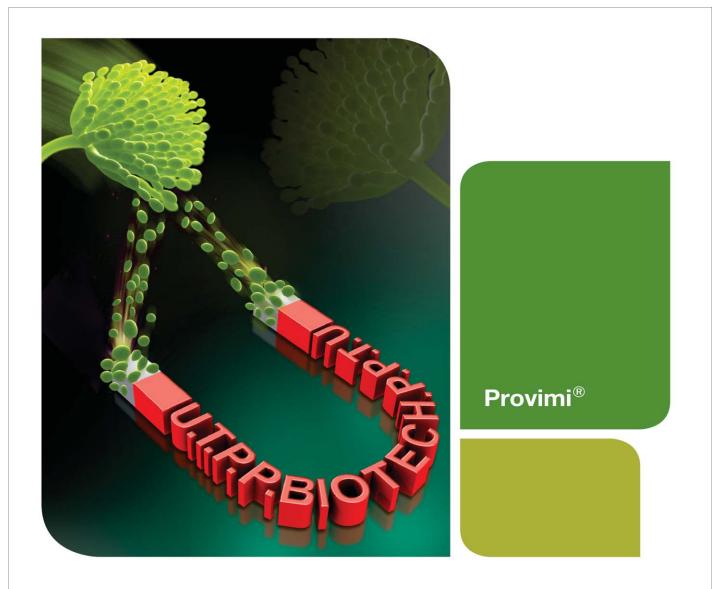
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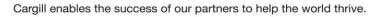
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A Nutritionist's Perspective on the Removal of Antibiotics in Poultry Production

Shivaram Rao, PhD; Senior Director of Nutrition and Technical Services at Pilgrim's Pride Corporation explores how to meet the key nutritional opportunities and challenges in antibiotic-free (ABF) poultry production.

Abstract

A well-planned ABF broiler production nutrition system should include preparatory steps such as maternal nutrition and in ovo interventions to improve viability of embryos and progeny as well as 18+ days of downtime between two successive broiler flocks. Maintaining the normal gut health of broilers through the grow-out is the nutritionists and veterinarians main goal. In this regard, the most challenging aspects are the control of coccidia and in turn prevention of necrotic enteritis. The long-term success and sustainability of any company's ABF program hinge upon the degree to which these issues are addressed. Other items to be considered to maintain normal gut health in the ABF program are a combination of prebiotics, probiotics, natural chemicals and risk management of mold toxins. Flock mortality may still spike up occasionally in which case nutritionists and veterinarians should have backup treatment plans ready.

Introduction

Based on a survey reported by Rennier, 12% of the US broiler-feed produced in 2015 was associated with "no antibiotics ever" programs (Rennier, 2016). Several major companies have antibiotic-free (ABF) broilers in their portfolio at various levels. Two prominent examples being Purdue Farms' and Fieldale Farms, both of which are 100% ABF. These early adopters have proven that the system is a viable and sustainable model in the US food industry.

Tyson Foods has announced its plans to reach complete ABF status in 2017. In 2016 Pilgrim's Pride added at least one million broilers per week to its already existing ABF capacity and in 2017 plans are underway to add another 2.5 million broilers per week to its ABF portfolio to reach over 25% of all of its broiler production under an ABF system. In anticipation of a significant shift in the market, most commercial poultry companies in the US are developing several options for the future and expect their veterinarians, nutritionists, and managers to be up to date with the technical- /scientific developments and field observations occurring in the area of producing poultry in a totally antibiotic-free system.

Most US companies are better prepared for ABF production

Use of antibiotics has been an established practice for several decades, however, many companies in the USA have been implementing the judicious use of antibiotics over the past ten years or so (Cervantes, 2015). Usually, feeds of several US broiler companies contain limited or even no antibiotics post 35 days of age even in their conventional program.

This conservative use of antibiotics is enabled by improved management practices such as stricter adherence to longer downtimes (at least 14 days) between flocks, investing in broiler housing facilities with better ventilation, improved vaccination and health programs, and improved digestible efficiency of feed ingredients have enabled broilers to remain healthy under low antibiotic conditions. In a way, the US poultry industry has been inadvertently prepped for a successful transition into an ABF broiler production system. However, removing antibiotics completely is still a major challenge and the discussion below is focused on nutritional considerations to facilitate normal gut health Role of nutrition and gut health on the performance in poultry raised without antibiotics. Normal gut health is very important for cost efficient poultry production. Achieving normal gut health is relatively easier when a combination of coccidiostats and antibiotics are used. In the current system, nutritionists focus mainly on traditional nutrition work such as feed ingredient quality, nutrient specifications, ingredient costs, least cost formulation etc. However, to achieve normal gut health in an ABF system requires more involvement on the nutritionist's part.

Nutritionists should work with veterinary groups and field management teams to understand and implement key processes to improve health in all vertical aspects of production such as growing healthy hen flocks to produce strong, clean hatching eggs, interventions during incubation in the hatchery to maintain good embryo health, sufficient downtime between successive broiler flock placements to reduce pathogenic stress, cocci control strategies, broiler house readiness, brooding, and nutritional strategies during hatching egg production as well as during embryo and broiler growout. In other words, normal gut health in an ABF system is the result of a holistic approach consisting of appropriate steps upstream and during production.

Learning curve

In the absence of antibiotics, highly complex microbiome management appear to be the key to achieving normal gut health and at present, our knowledge is very limited in poultry microbiome management. The decrease in broiler performance is significant due to disruption in microbiome damage caused by pathogenic microbes when companies switch their broiler program to ABF without streamlining the entire vertical process flow. In Figure 1, monthly data over a year for the first-week mortality under a regular program with antibiotics use in the hatchery as well as in the feed is compared to a "no antibiotics ever" (NAE) program where antibiotic was not used in the hatchery or in the feed. The first-week broiler mortality increased from about 0.9% under the regular program to 1.75% range under the ABF program. The same complex also experienced a deterioration of about 6 points (Figure 2) in feed conversion ratio for a 5 lb. (2.27 kg) broiler mainly due to necrotic enteritis, which usually comes as a result of cocciodial originated lesions. The feed cost alone for producing live broiler increased by \$0.05/lb (\$0.11/kg). Other costs such as grower compensation increased as well.

Key nutritional opportunities (challenges) in antibioticfree poultry production and possible solutions

As noted above, the performance could be off in an ABF program if it is not well thought out vertically and

horizontally. The challenge for nutritionists is to achieve the same performance in an ABF system as in the conventional poultry grow-out in a cost efficient manner. The discussion below starts with the maternal (breeder hen flock) and in ovo nutritional considerations within the hatchery even though hens and broiler embryo growth are outside of the ABF system. A sustainable, cost effective ABF program implementation will involve careful and well thought out process improvement steps from parents to progeny and throughout broiler growout, as described in the following section.

1. Nutritionists should explore **maternal nutrition** as a very economical way to improve hatching egg quality and viability of chick embryo and progeny in their ABF system, including:

Nutritional supplementation of Vitamin E, selen-ium, zinc, antioxidants, n-3 and n-6 fatty acids. In the designer egg production, nutritionists are able to increase the contents of vitamin E, zinc, and various other nutrients in the egg (Schideler et. al., 2010). Similar approaches should be used to improve some key nutrients in hatching eggs as well. Research has shown that just supplementing antioxidants such as ethoxyquin and BHT in feeds would increase vitamin E and selenium content of eggs. In addition, using higher levels of vitamin E, n-3 and n-6 fatty acids, selenium and zinc bound to organic molecules will help increase concentrations of these nutrients in egg and increases the possibility of the higher viability

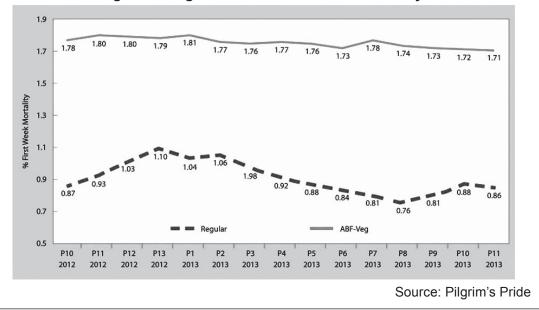
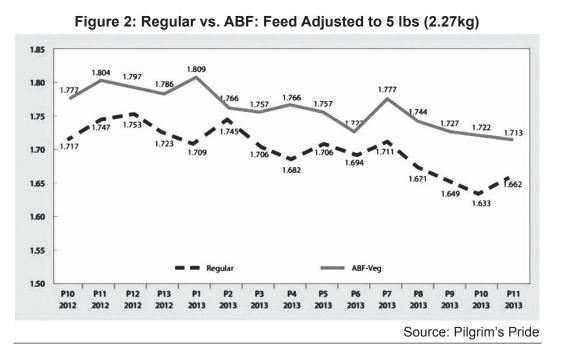


Figure 1: Regular vs. ABF: first Week Mortality%



of embryo and progeny (Cherian, 2015; Surai, et al., 2016)

- **Pre- and probiotics** (direct fed microbials, or DFM) should be used in feeds to help improve gut health and to reduce pathogenic microbes which in turn help produce cleaner eggs (Griggs and Jacob, 2005). Basic criteria to select pre- and probiotics are discussed later in this article.
- Larger particle limestone usage in the feed would help improve egg shell quality and improve the livability of hens.
- Feed digestibility can be improved by using exogenous enzymes (phytase, NSPase, proteases) to degrade anti-nutritional components in the feed. Use of phytase enzyme and slightly lowering added sodium content of feed will also help to keep the litter (bedding material) drier and thus help egg quality.

Biotransformation of mold toxins is an exciting concept and an investment in this technology to manage mold toxin risk makes sense for parents and grandparent flocks. This concept uses enzymes, microbial products, and natural plant products to transform mold toxins and render them harmless to poultry.

2. *In-ovo* **nutrient delivery** during embryo growth in the hatchery. This technique could be used to improve immune functions (Dibner et al., 2008) of broiler chicks. Uni (2014) outlined several nutritional candidates for in ovo feeding that can improve gut health, early growth, improved performance, and meat yield. Although this

is not commonly used at present, nutritionists should be exploring possible to identify cost-effective nutritional candidates for this route of delivery to improve gut health and early growth.

3. Coccidia control and prevention of necrotic enteritis is the most important objective in achieving normal gut health in ABF broiler production (Cervantes, 2015). However, various possible options available to achieve this goal are not directly discussed in this article because it is covered in detail elsewhere in this symposium (2017 Animal Nutrition Conference of Canada). Even so, during the discussion of other options-/agents available to achieve normal gut health, it will be noted if they have any side benefits in controlling cocci and necrotic enteritis.

4. Early nutrition (day 1 to the first 7 to 10 days) of broilers, including:

With antibiotics and coccidiostats being restricted (excluding some ABF programs which allow ionophores to control coccidia), nutritionists and veterinarians are exploring combinations of prebiotics, probiotics, and plant-derived antimicrobial feed additives. The strategy should be a) to reduce pathogenic microbes, b) to improve food safety (lower Salmonella, Campylobacter) and if possible c) to improve broiler performance as well. With limited money available to spend on feed, it is difficult to achieve all those goals listed under the strategies. Also, with so many vendors and options available, this author

recommends working with vendors who not only have solid research backed, consistent product(s) but have strong technical teams that understand the science to support and customize their products and techniques if necessary as the gastrointestinal tract microbiome is a constantly evolving and moving target.

- We should make sure that feed is highly digestible, pelleted and crumbled optimally. Use of exogenous enzymes targeted to soybean meal, phytase, and NSPases and are more appropriate at this stage.
- Nutritionists should utilize super-dosing of phytase enzyme in the feed to degrade as much anti-nutritional phytic acid as possible. This consequently leads to less mucin production which then may in turn help reduce necrotic enteritis. A combination of lower "added" calcium with super-dosing of phytase to release plant bound calcium can help lower NE and improve broiler performance (Paiva, *et al.*, 2013).
- A pre-starter feed could be designed for this phase. Use of synthetic amino acids is highly encouraged to prevent excess protein in the feed which helps to prevent excess ammonia build up in the facility and also provides fewer nutrients in the hind gut for pathogenic microbes.

Risk management of mold toxins should be a part of the strategy as well. If toxin binders are used, be

cautious to avoid toxin binders that can bind to expensive organic minerals present in the trace mineral premix. Biotransformation of mold toxins may be an option for some ABF systems.

5. Avoid nutrition-related stress during peak cocci cycling which under cocci-vaccination could occur between 14 to 20 days of age. It would be preferable to avoid switching from a crumbled first feed to pelleted second feed during this stressful period. A failure to execute a good cocci control program would lead to necrotic enteritis at this stage or during the third week in broilers. The prebiotic, probiotic and natural antimicrobial feed additive program started in the first feed should be continued in the subsequent feeds but dosage could be lowered if internal research results lead in that direction.

6. Nutritionists should keep exploring natural or synthetic chemicals options that could be beneficial in improving gut health. For example, supplementing feeds with natural betaine may help reduce or moderate cocci lesions and improve performance (Amerah&Ravidnran, 2015).

7. Even with all the extensive planning and its execution, broilers may still occasionally have severe spikes in mortality. Therefore, it is essential to have treatment options available when early signs of increased mortality are observed. One popular option is acidified copper sulfate administered through drinking water. However, it would be desirable to have two or three such effective options readily available with written treatment protocol as well as access to the treatment material and a field team prepared to execute the treatment plan if necessary.

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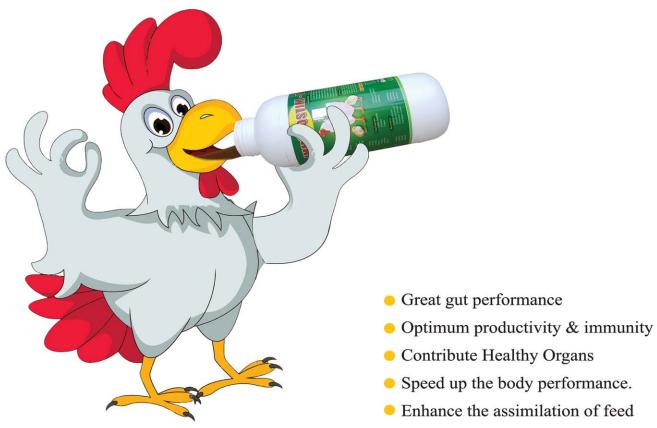
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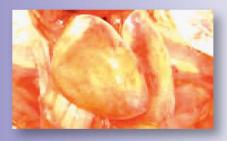
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PRESS RELEASE



Rossari Animal Health Trade Event Participation & Customer Engagement Activities

Rossari Animal Health participated in following domestic & international trade expose conducted in 2019

- VIV Asia Bangkok, 13th -15th March 2019
- POULTRY ENTREPRENEURSHIP SEMINAR & EXPO - Kashmir, 29/06/2019
- INTERNATIONAL POULTRY DAIRY LIVESTOCK EXPO 2019 - Karnal, 9th-10th-11th August
- DANANG LIVESTOCK EXPO '19- Danang (Vietnam), 5th-6th-7th September 2019
- BIHAR POULTRY & AQUA EXPO 2019-Patna, 25th-26th-27th September 2019
- INDIA POULTRY EXPO- Gorakhpur, 18th-19th-20th Oct 2019

Rossari's stall at the mentioned events had been visited by several Indian as well as international eminent customers. The events provided an excellent opportunity to interact with various stakeholders of Poultry industry (Poultry farmers/ breeders/ integrators/ consultants/ channel partners) & discuss the Rossari Animal Health product solutions of Poultry Business for different farming situations & requirements. Rossari is determined , to establish its strong foot hold at Animal Health Industry in future with its quality products, customer services & participation in industry gatherings in form of such trade events.

Rossari also conducts small farmer meetings (SFM) and technical seminars across the country with the purpose of educating poultry farmers and our stakeholders on various relevant topics as per the need of the day. These are interactive, knowledge sharing sessions and the speakers include veterinarians who are abreast with the recent developments in poultry industry. Numerous SFMs and Technical Seminars were conducted at various international and local platforms -

SFMs at Satara, Belgaum & Rasipuram

Mega Technical Seminars at Rajahmundry, Pattaya (Nutrico Seminar), Dhaka and Goa.

Brief Company Profile – Rossari Biotech Limited

Rossari Biotech Limited is one of the leading manufacturers of specialty Enzymes & Chemicals in India having businesses in the Human Pharmaceuticals, Animal Health and Nutrition, Textiles, Paper and Construction Chemicals. Founded way back in June 1997 with a humble beginning, Rossari is now a leading player in the Textile and Construction Chemicals businesses in India, rapidly growing at 25% annual CAGR







DANANG LIVESTOCK EXPO '19- Danang (Vietnam), 5th-6th-7th September 2019



BIHAR POULTRY & AQUA EXPO 2019-Patna, 25th-26th-27th September 2019



DHAKA SEMINAR - Bangladesh, 26th September 2019



NUTRICO SEMINAR- Pattaya (Thailand) 12th-15th Sept 2019



INDIA POULTRY EXPO - Gorakhpur, 18th to 20th Oct. 2019





Rossari Biotech Limited & Avitech Agro BD, Goa 20th Oct





Free Lance Poultry Consultant

DR.MANOJ SHUKLA, a renowned poultry Veterinarian, with 20 years of enriched field experience, now started Free Lance Poultry Consultancy. In the past 20 years have contributed to the development of the hatcheries in various capacities of leading companies across India - Maharashtra, Gujarat, Madhya Pradesh, Chhattisgarh, Orissa, Bihar, West Bengal, Jharkhand, North-East, Uttar Pradesh and neighbouring country of Nepal.



His areas of expertise include:

- Commercial Layer Management.
- Commercial Broiler Management
- Nutrition (Feed Formulations).
- Breeder Management.
- Sales & Marketing of Day-Old commercial Layer chicks, Broiler chicks & Poultry Feed.
- > Sales & Marketing of Broiler Breeder.
- > Integration.
- > Training to Field staff.
- ▶ Field Trial of Drugs & Feed additives.
- > Speaker in Technical Seminars.

He can be Contacted at:- **Dr. Manoj Shukla** A-1,Gaytri Nagar,Phase-II, P.O.Shankar Nagar,Raipur, Chhattisgarh-492007 Mob.No : 09644233397, 07746013700, Res. 0771-4270230 Email : <u>drmanu69@gmail.com</u>

As a strategic partner, Poultry Line wishes Dr. Shukla every success in his new assignment



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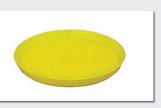
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PRESS RELEASE

VIP's EggChi Walkathon - Tackle Protein Malnutrition

"Triggers zest for protein malnutrition awareness"



Chandigarh: Vets In Poultry (VIP) in support with CITCO & PMTA, on *Sunday 17th Nov 2019* organized an EggChi Walkathon at Sukhna Lake, Chandigarh between 7.30 am to 11.30 am aiming to raise the awareness about nutritional enrichment and to tackle protein malnutrition.

More than *800+ Participants* who are health enthusiasts across TriCity participated during the

walkathon. Almost *10,000 Eggs and 100 kg Chicken distributed* and enjoyed by participants with all Visitors.

With the aim to create an awareness (Tackle Protein Malnutrition) the Walkathon was flagged off by the VIP Secretary, Dr Santosh Ire along with other office bearers; Dr Badal Singh (Head ECM, VIP North); Dr Sudheer Saxena (Head of Dept., Cardiology, Max Hospital, Chandigarh); Mr Nitin Singla, Chandigarh and Mr Jodh Singh, Ambala.

Through this Walkathon, _Vets In Poultry (VIP) shared the message_ that dietry imbalance contributes significantly for effective management of protein intake.

They also _emphasized_ that the spike in instances of protein malnutrition in India

could be slowed if people are educated more clearly on how a change in lifestyle and the inclusion of daily healthy diet could help in protein malnutrition prevention.

Speaking on the occasion, *Dr. Badal Singh, Head ECM- VIP North said*," Our message in today's walkathon is simple –healthy lifestyle with balanced protein intake is extremely important. Eggs and



POULTRY LINE, DECEMBER 2019



Chicken are the best and affordable products from Poultry since Indian poultry is growing on all scientific basis and best to global standards".

Dr Sudheer Saxena, Head of Dept., Cardiology, Max Hospital, Chandigarh explained," Protein deficiency in India is a matter of concern for nutritionists. Changing living conditions, stress, and inconsistent diets are causing health problems. Cholesterol in eggs are good to body. Egg & Chicken consumption is effective tool to tackle Protein Malnutrition".

Dr Santosh Ire, Secretary VIP, brief about modern and scientifically managed indian Poultry practices. Cleared about all false myths spread in social media. Emphasis on best and affordable protein sources: Eggs & Chicken.

_Dr Amol Pawar, VIPian, Pune_endorse the same thoughts.

Thanks to all contributing partners to make this event grand success.

- *Nutrich, Prorich, Farm Fresh, Ratan Eggs for providing free eggs and chicken*.



- *Alltech, Gartech, Provet, Kemin, Nutridian, Hipra, EW Nutrition, Alembic for sponsoring the event*. Much needed help from these volunteers groups for the noble cause.

The event is appreciated & supported by almost all Associations of India in one go

-_PF&BA-MH, CLFMA, PFI, NBA-HR, NECC, TPFBA-TA, KPFBS-KA, IVPI-KA, BCC-TN, PVF-TN, BFCC-GJ, WBPF-WB, IPJA, IPEMA and all others associations and bodies._

On behalf of VIP, President Dr Ajay Deshpande, shared vote of thanks to each participants including North Poultry producers, Tricity Citizens, CITCO, PMTA, All Sponsors, Media Friends, Industry Colleagues, Goverment Officials and All.

On behalf of VIP, Hearty Thanks to each one who involve directly and indirectly. This event would not have been completed without proactive support of VIPians, industry colleagues, farmers, pharma friends, local citizens, media & good wishers.

Grateful to every ones contributor by direct or indirect way to deliver our objectives effectively and



POULTRY LINE, DECEMBER 2019



especially well aligned with each segment of poultry industry.

Looking ahead next level support & cooperation for next Walkathon.

Thanks once again.

Regards,

Dr Ajay Deshpande President

Dr Santosh Ire Secretory

Dr Badal Singh Head ECM North

VIP Committee:

- Prof Dr Ajit Ranade (Tech Advisors)
- Dr VR Kulkarni (Vice President)
- Dr Prasad Kulkarni (Treasures)
- Dr CB Pathak (EC Member)
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- Dr HB Natraja (EC Member- Bangalore)

And all VIP Working Committee & office bearers.









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| DAILY MONTHLY EGG PRICES DECLARED BY NECCAND PREVAILING PRICES AT VARIOUS PRODUCTION CENTRES (PC) AND CONSUMPTION CENTERS (CC) NOVEMBER 2019 | | G PRIC | | | AREC | ۲ R | | AND | 뷞┣ | | | | | ARIO | S - | | | | | S (PC | AN | | MUNS | | | | [] [] | | | =K 2019 |
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| Pune | 450 | 450 450 | 50 4: | 450 4 | 440 4 | 440 4 | 442 4 | 442 44 | 442 4 | 445 44 | 445 45 | 453 45 | 458 463 | 3 468 | 8 472 | - 2 | 480 | 0 482 | 2 482 | 2 482 | 482 | 475 | 467 | 472 | 477 | 485 | 490 | 495 | 495 | 464.62 |
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| Raipur | 425 | 425 425 425 425 415 416 | 25 4. | 25 4 | 15 4 | 164 | 418 4 | 420 422 | | | 422 42 | 428 43 | 436 445 | 15 452 | 52 457 | ' <u> </u> | 460 | 0 461 | 1 461 | 1 456 | 456 | 456 | 465 | 465 | 475 | 490 | 490 | 490 | 490 | 447.17 |
| Varanasi (CC) | 447 | 447 447 | 47 4. | 447 4 | 447 44 | 440 4 | 440 4 | 450 4! | 457 4 | 457 4! | 457 46 | 463 467 | 37 473 | 3 477 | 7 483 | ' 33 | 490 | 0 490 | 0 490 |) 490 | 483 | 483 | 487 | 493 | 500 | 510 | 517 | 517 | 517 | 474.68 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

PRESS RELEASE

BUTIREX C4: The Only Buffer Matrix Sodium Butyrate

Butyrate, a molecule of great interest in animal nutrition isnowadays emerging as one of the most potent alternativesto antibiotic growth promoters. The effect of Butyrate on improving intestinal health, immunity, achieving eubiosis and thereby performance is well understood. These effects are only possible when the Butyrate molecule reaches upto the small intestinein an active or undissociated form.

It is generally accepted that the major part of unprotected Butyrate gets dissolved in the stomach itself, and rest is quickly absorbed in the proximal part of the intestinal tract. Therefore, in order to get Butyrate available in the lower parts of the GI tract in significant amounts, it needs to be protected to achieve a targeted release.Generally this protection is provided to Butyrate either by coating it with fat or esterifying the Butyric Acid with Glycerol. Using the fat coating technology has its

| Satu | irated Fatty Acids | |
|--|--------------------|---------------|
| Formula | Common Name | Melting Point |
| $CH_3(CH_2)_{10}CO_2H$ | lauric acid | 45 °C |
| CH ₃ (CH ₂) ₁₂ CO ₂ H | myristic acid | 55 °C |
| CH ₃ (CH ₂) ₁₄ CO ₂ H | palmitic acid | 63 °C |
| CH ₃ (CH ₂) ₁₆ CO ₂ H | stearic acid | 69 °C |
| CH ₃ (CH ₂) ₁₈ CO ₂ H | arachidic acid | 76 °C |

| Table 2: Melting | Point of Con | nmon Oils |
|---------------------------------|---------------------------|---------------------|
| Oil | Melting Tem Fahrenheit | perature Celsius |
| Linseed Oil | -11 | -24 |
| Caster Oil | 0 | -18 |
| Sunflower Oil | 1 | -17 |
| Soybean Oil | 3 | -16 |
| Rapeseed Oil | 14 | -10 |
| Olive Oil | 21 | -6 |
| MCT Oil | 25 | -4 |
| Tung Oil | 28 | -2.5 |
| Cotton Seed Oil | 30 | -1 |
| Peanut Oil | 37 | 3 |
| Palm Kernel Oil | 75 | 24 |
| Coconut Oil | 76 | 25 |
| Palm Oil | 95 | 35 |
| Mutton Tallow | 108 | 42 |
| Source: The Engineering ToolBox | | |

Avítech

disadvantages as any type of fat would be unable to withstand pelleting conditions (see below table on melting point of various fats). In case the feed is not pelleted, it would still require lipase enzyme activity to dissolve the fat coating for releasing Butyrate and making it available to the enterocytes. Lipase activity and fat digestion is poorly developed in young chicks. So, the efficacy offat coated Butyrate in mash feed is also doubtful especially during the early stages of life.Similarly, the limitation with Glycerol esters of Butyric Acid is that these compounds also require lipase activity to expose the Butyrate to the enterocytes. Moreover, these products mainly contain mono and diglycerides with very few tri-glycerides.

| Unsaturated Fatty Ac | ids | |
|--|------------------|---------------|
| Formula | Common Name | Melting Point |
| CH ₃ (CH ₂) ₅ CH=CH(CH ₂) ₇ CO ₂ H | palmitoleic acid | 0 °C |
| CH ₃ (CH ₂) ₇ CH=CH(CH ₂) ₇ CO ₂ H | oleic acid | 13 °C |
| CH ₃ (CH ₂) ₄ CH=CHCH ₂ CH=CH(CH ₂) ₇ CO ₂ H | linoleic acid | -5 °C |
| CH ₃ CH ₂ CH=CHCH ₂ CH=CHCH ₂ CH=CH(CH ₂) ₇ CO ₂ H | linolenic acid | -11 °C |
| CH ₃ (CH ₂) ₄ (CH=CHCH ₂) ₄ (CH ₂) ₂ CO ₂ H | arachidonic acid | -49 °C |

So, an ideal Butyrate product is one which can withstand pelleting conditions and pass un-dissociated through the stomach to remain available mostly in its active form through the entire length of the intestinal tract. Avitech with its penchant for serving the industry with unique solutions in the area of nutrition has recently launched "BUTIREX C4", a butyrate product from Novation of Spain in a completely new form that meets all the necessary conditions for effective delivery and activity in the target area.

BUTIREX C4 is the only Buffer Matrix Sodium Butyrate, containing a higher level of activity (54%) than most coated forms. BUTIREX C4 is protected by the physical-chemical structure of buffering salts whichprevents it from dissolving and disassociating in the fore-gut. That is how the Sodium Butyrate in BUTIREX C4 is made available mainly in the small intestine where it is most required. BUTIREX C4 has proven ability to remain stable at pelleting as well as extrusion temperature (120°).

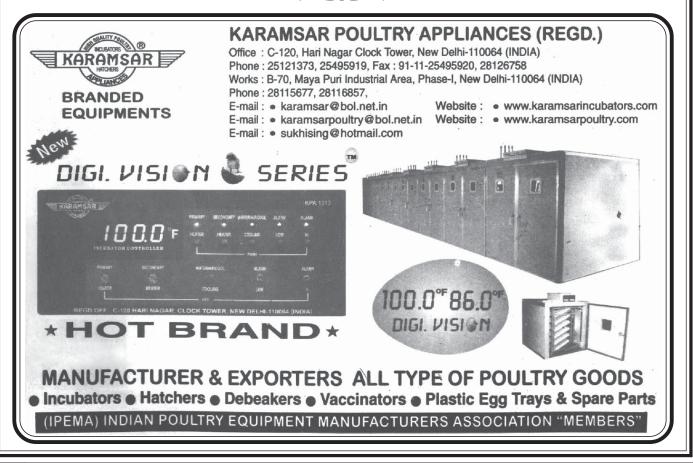
BUTIREX C4 promotes feed intake in chicks by stimulating insulin secretion. Insulin increases the glucose uptake by the cells, blood glucose goes down and hence there is an increased appetite and feed consumption by the chicks. BUTIREX C4 actsas a readily available source of energy for enterocytes and improves the health of the enteric wall and the villi. It is also proven that BUTIREX C4 promotes the proliferation of intestinal epithelium. <u>(Peter Galfi study, 2012)</u>

Apart from this, BUTIREX C4 inhibits the growth of *Salmonella* and promotes growth of Lactic Acid producing bacteria and other beneficial bacteria facilitating an idealeubiosis.Aeubiotic internal environment is critical for an efficient digestive process, enhanced immunity and overall performance. BUTIREX C4 is supported by a number well documented studies.

For more information on Butirex C4, please write to

Avitech Nutrition Pvt. Ltd

(ISO 9001, ISO 22000 and GMP certified) GP-37, Udyog Vihar, Sector-18, Gurgaon-122015, Haryana (India) E-mail: <u>marketing@avitechnutrition.com</u>



PRESS RELEASE

Importance of Synbiotic Application in Hatchery on Day 1

By Dr.Sanjay Gapat - Sr. Product Manager, Alivira Animal Health Limited, Thane-Mumbai.

During the perinatal period, newly hatched chicks processing, vaccination undergo and transportation, which introduces a gap in access to feed and water. This gap, referred to as the hatching window, reduces the potential for microflora inoculation and as such, prevents proper microbiome, gastrointestinal system and innate immunity development. Current research shows that the functioning of the liver, fatty tissue, kidney, and pancreas can be affected by disorders of the intestinal microflora. Consequently, the industrial production of chickens with a poor microbial profile leads to enteric microbial infestation and infectious disease outbreaks, which became even more prevalent after the withdrawal of antibiotic growth promoters.

Under natural conditions, chicks hatch in very close proximity to the mother hen, which allow them to eat and drink as soon as they are hatched. Microflora from the mother hen also colonises the gastrointestinal tract (GIT) of these young chicks. Early feeding and microflora colonisation have very positive effects on bird's performance and the maturation of the bird's immune system.

When birds hatch, their GIT is anatomically but not functionally complete. For the function to fully mature, young birds need early access to feed and water as soon as they hatch, as happens under natural conditions. It is noteworthy that the GIT has about 65- 70% of the birds' immune system. This means that in addition to the digestive and absorptive functions, the GIT is also considered the major immune organ in birds. Birds are hatched with incomplete immune systems that take about three weeks to fully develop.

Poultry production under modern husbandry practice does not allow newly hatched chicks to come into contact with mother hens. This lack of contact slows the development of GIT microflora and the immune system. Another point worth mentioning is that in addition to the time chicks spend in the hatcher, which couldtake up to oneand-a-half days, chicks might take up to two or three days until they reach the production farm. The delay in feeding and drinking delays the maturation of their digestive and immune system. Besides the lack of the GIT microflora establishment, this opens the door to pathogen colonisation in the gut, making the chicks susceptible to disease and preventing them from achieving their genetic potential.

Synbiotic (like Chick-Pro:Probiotic, Prebiotic& Yeast) application has a very important role in the quick development and establishment of GIT microflora and its role in re-establishing microflora after the therapeutic use of antibiotics. Not only this, but synbiotic application also helps greatly in the rapid maturation of the immune system, which helps birds respond better to vaccines and also defend themselves against infections. Probiotics strengthen the immune system quickly, thus enabling newly hatched chicks to fight infection.

Applying synbiotic in hatcheries on day one is very important for lifetime performance. Synbiotic application at hatchery level improves Body weight gain, Feed efficiency, Carcass traits-weight &yield, Meat quality, Vaccine performance, Gut Health , Immunity and also reduces early chick mortality . The increase in enzyme activity at early stage related to the delivery of additional portions of the enzyme by probiotic bacteria living in the intestine, which causes an improvement in nutrient digestibility and an increase in body weight. Synbiotic application at hatchery on day one also significantly increases the yolk sac resorption rate in newly hatched chicks. yolk sac is the major source of immunoglobulins contributing to the passive immunity in newly hatched chicks, faster

yolk sac resorption results in the greater transfer of maternal antibodies into the chicks' blood stream. Also, the yolk sac is essential for the initiation of early growth.

Similar in the case of short-chain fatty acids production, after application of synbiotic there is an remarkable improvement in concentration of SCFA in the ceca of broiler chickens, expressed by a higher molar percentage of butyrate, propionate and valerate, especially in older birds (21 and 35 days posthatching) which ensures the sound gut .Continued application at the farm level is equally important because of frequent changes in the GIT microbial profile due to feed changes, infection or stress.

References:

1. The application of probiotics in the hatchery by Wael Abdelrahman, International Hatchery Practice, Volume 29 Number 1

2.Prebiotics and Synbiotics– in ovo delivery for improved lifespan condition in chicken by Siwek et al. BMC Veterinary Research (2018) 14:402





PRESS RELEASE

zoetis

Zoetis engages on the "Continuum of Care" strategy to support the transition towards responsible use of antibiotics in India

What made Zoetis decide to voluntary withdraw the product despite no Indian regulatory order on the same?

Zoetis decision to voluntarily withdraw growth promotion indications from the labelling of medically important antibiotic products in the portfolio is standing good on our resolve to make medically important antibiotics products to be approved exclusively for therapeutic purposes. Our step is a part of our commitment to join with veterinarian and livestock farmer's customers in helping to combat antimicrobial resistance. On the same front, we will work with national regulatory authorities in various countries, including India to engage on actions towards responsible use of antibiotics in respect with local regulatory interpretation and oversight.

Doesn't using such drugs as Tylosin or Lincomycin in poultry contribute to drug resistance and pose a public health risk to people?

We are at a point, especially in developing countries like India, where producers will have to meet the increasing demand.With few alternatives today for treating life-threatening bacterial infections in animals, optimal use of antibiotics is essential to animal health and, in turn, to their welfare.When antibiotic products are used properly and responsibly according to their approved indications — and under the supervision of a veterinary professional — they can help protect animal and human health, assure the safety of the food supply and help reduce the risk of resistance.

At Zoetis, we recognise that animal and human health are interdependent and therefore support the responsible use of antibiotic medicines in animals and in people. Zoetis advocates for taking a One Health approach to the responsible use of antibiotics across human and veterinary medicine.

Is Zoetis doing anything to ensure that such products are more closely regulated?

Zoetis continues to engage with regulatory authorities around the world to implement appropriate regulations to support the responsible use of antibiotics. Our veterinarians and field representatives support our customers by sharing knowledge on responsible use of our antibiotic medicines and animal health and husbandry protocols that can help prevent common diseases. For an instance,Zoetis is engaging in a collaborative effort with a major food chain company to train poultry producers in India about the responsible use of antibiotics on farms.

With the decision coming, is there any reason behind the timing?

We believe now is the right time for Zoetis to voluntarily withdraw growth promotion indications from the labelling of medically important antibiotic products in our portfolio as we are engaging all stakeholders in this process, from regulatory bodies, to veterinarians and producers. Since this is about changing practices on the ground, it cannot happen overnight if you are not able to provide the technical support to help make that change.

With our Indian team, we believe that we are now in a good position to organize and support our customers through this transition as of June 2020 and therefore the decision.

How does Zoetis India plan to assist its customers during the withdrawal phase?

Like all medicines, antibiotics should chose the most appropriate antibiotic, and ensure the animal owner is correctly instructed on its use: the correct dose, correct route and correct length of treatment. With this understanding, Zoetis India is committed to actively consider the animal health needs of our customers, and will provide them with the knowledge, tools and solutions to make changes that may be needed.

With the products withdrawn, what are there other products that will ensure customer needs are duly met?

We have withdrawn the products but other competitor companies have similar products still available in the market.

Where do you see the future of animal heath evolving into, to meet the challenges of increasing demand and antimicrobial resistance?

Healthcare trends are moving towards early identification/prediction, a preventative/proactive approach and medicines used responsibly to treat. The future of animal health will depend on integrating many different solutions and technologies to help livestock farmers and veterinarians make early and accurate decisions, prevent and detect disease, and deliver targeted, effective treatment. At Zoetis, we are focused on bringing more integrated solutions to our customers across this continuum of care- Predict, Prevent, Detect and Treat.

The future can be gauged as increasingly our customers want solutions across the full continuum of care to help their animals return to health. Our innovations predict illness, prevent it, detect it and treat it effectively with the right medicine, at the right time, at the right dose, for the right duration of time. As an example, the recent adoption from key poultry integrators of more Biodevice and automation machines, aiming at preventing diseases at early stage in birds and allowing a more sustainable approach to biosecurity and health management provide a glimpse of future of animal health.

What is Zoetis India growth strategy and what are the expansion plans currently in place?

We will focus on our poultry biologicals & disinfectants' portfolio to provide enhanced

biosecurity to poultry farms. We will strengthen Bursaplex, immunocomplex vaccine for commercial broilers. We will expand our innovative solutions for hatcheries,EmbrexBiodevice.



Profile:

Ketan Dhamanaskar, General Manager, Zoetis India Ltd.

Ketan is veteran with over 20 years of experience across the pharmaceutical industry

with expertise in verticals like medical devices and animal health industry. Ketan has worked in various roles like brand management, business unit management, regional management and country management in India and abroad. At Zoetis, Ketan spearheaded the successful separation and standup of Pfizer's animal health business to Zoetis India without business disruption and delivering year on year growth.

Before joining Zoetis India, Ketan was the Marketing Director at Renal BU, Baxter Inc responsible for Europe, Middle East, Africa (EMEA) markets based in Zurich, Switzerland. At Novartis, Ketan successfully built up the Ophthalmic business in India and EEMEA. Novartis nominated him for the Harvard Program as a part of his development. In the past, he has worked with many multinational organizations such as Roche, Novartis, Baxter and Pfizer.

Ketan holds a bachelor's degree in Pharmaceutical Sciences from Mumbai University and a master's degree in marketing management from Jamnalal Bajaj Institute of Management Studies. Ketan is also an alumnus of Harvard Business School, having completed a Senior Executive Leadership Program in 2018.

Company Profile: Zoetis

Zoetis is a global animal health company dedicated to supporting customers and their businesses in ever better ways. Building on 60 years of experience, company aims to deliver quality medicines and vaccines, complemented by diagnostics products and genetics tests and supported by a range of services. Company is working towards addressing the real-world challenges faced by those who raise and care for animals in ways they find truly relevant.

Zoetis is partnering with the customers to address their unmet needs with the most relevant innovations like genetics, diagnostics, digital tools and data analytics complemented with traditional medicines like parasiticides, vaccines and antibiotic treatments. The future of animal health will depend on integrating many different solutions and technologies to help livestock farmers and veterinarians make early and accurate decisions, prevent and detect disease, and deliver targeted, effective treatment. Zoetis, is focused on bringing more integrated solutions to our customers across this continuum of care.

ZoetisInc is the world's largest producer of medicine and vaccines for pets and livestock. The company

was a subsidiary of Pfizer, the world's largest drug maker, but with spinoff from Pfizer it is now a completely independent company. The company directly markets the products in approximately 45 countries, and sells the products in more than 100 countries. Company has 300 product lines catering to farm animals and companion animals. The product caters to the range of species like cattle, swine, poultry, sheep, fish, dogs, cats and horses. In India, the domestic sector is quickly adopting the new technologies that enhance the productivity, safety, and sustainability of poultry production. India is one of the world's largest producer of eggs and broiler meat, and the market is expected to grow to INR 4 billion by 2024.

Zoetis has 28 manufacturing units across the globe, each facility designed to meet chemical and infectious agent safety regulatory requirements. Many R&D operations are co-located with manufacturing sites, a collaboration that allows bringing new products to market faster.



Conspiracy Hatched By Unscrupulous Elements Against The India Poultry Expo, October 2019

This is to bring to the kind attention of all our readers and well wishers about the low grade attempt made by some unscrupulous elements during the inaugural session of our much awaited India Poultry Expo at Deen Dayal Upadhyaya University, Gorakhpur, with an aim to disrupt the event.

Few farmers wearing black badges and holding placard staged protests at the entrance to disrupt the expo. The apparent reason for their protest was to express their grievances for incurring losses due to severe crisis prevailing in the industry and hence chose this event to confront the Hon'ble Minster, Animal Husbandry Department, Govt. of U.P. Shri Jai Prakash Nishad. Their claim was that their miserable plight was ignored by one and all within the industry who are enjoying by participating in such big exhibitions with a sole aim to earn huge profits. All concerned dignitaries of the region tried to explaining the farmers about the theme of organising such big expo. The organisers further tried to explain them in detail about their aims and objectives to make farmers formidable by organising such exhibitions but the efforts were proved in vain.

Further they staged dharna by sitting on the floor near the inaugural session with placard of their grievances. Knowing pretty well about their ill intentions, the organisers allowed their leader to address their grievances on the dais. Despite our good gesture, ironically, the same mob came on third day created nuisance and thrown eggs on the dais and left the venue only after calling Police.

If their claim was genuine and honest, the organisers felt that they should have staged the dharna when Exhibitions held at Karnal and Patna during August and September respectively as it was the time of utter crisis.

When normalcy was actually restoring during our time of expo, staging dharna was nothing but well hatched conspiracy to thwart the movement. Further, it was so surprising that there was no such agitation performed in Lucknow where an exhibition was held just a fortnight after our expo.

We would like to emphasise on the fact that our sole aim is to educate the rural farmer who is backbone of the industry. Hence we come up with latest technical knowhow nationally and internationally and spread the knowledge through technical seminars so the farmers can adopt the same in their farm activities and overcome form the losses. Our efforts certainly would have brought awareness to understand and defuse the basic farming issues. But it was proved otherwise as the move was totally well pre-planned with sole aim to disrupt the show.

For kind attention of our readers, till date the unscrupulous elements were trying time and again to disrupt our expos by spreading false rumours stating cancellation of our expo due to poor response from exhibitors, advising the speakers not to waste their precious time and energies for something which will be cancelled anyways. However, their efforts always proved wrong with the growing success of our expos year on year. Hence, they resorted to such low-level gimmicks this time around in desperation to cause damage.

Most importantly, we can humbly attribute today's development of poultry in Uttar Pradesh to the first ever India Poultry Expo conducted by us way back in 2012 and invited Govt officials. That gigantic expo emanated positive thinking in Govt circles to develop poultry in U.P. It further contributed to the thought to avoid incurring exchequer of crores of rupees every day by importing eggs as well as day old chicken and invited all big wigs of poultry from different parts of the country to establish the poultry in U.P.

Hence, feeling honoured of our contributions from the past, we decided to organise another gigantic show in Gorakhpur with greater zeal and enthusiasm than before aiming at the welfare of farmers. But we had to experience such malicious attempt to thwart the movement.

But we take pride to inform our readers that year after year our graph is going up with increased participation from exhibitors by having faith in us and making our events successful. This roaring success is our humble answer to certain jealous elements who are determined to make anti campaigns with sole aim to eliminate us from the race.

Finally, being very grateful and indebted for all the solid support of our exhibitors, your organiser is determined to go ahead unmindful of such cheap tactics.

Dear Mr. Shiv Shankar

Thank you for inviting me to speak on "Biosecurity for Poultry" in India Poultry Expo at Gorakhpur. Layer farming in Gorakhpur and surroundings



has reached above 50 lac. Biosecurity for a successful poultry farming has parallel importance besides good management and balance nutrition, particularly in dence poultry farming areas like Gorakhpur. Here I want to congratulate you for succesfully organizing the India Poultry Expo on your aspect. I also congratulate Dr. Manoj Shukla for best anchoring and managing Technical Session. I also congratulate members of organizing committee and all compnies participated in India Poultry Expo who stood with you in this difficult situation and extended there full co-opration to make your event succesfull. Regards

Dr. Vijay Kumar Sharma, AGM, Technical, Venky's (India) Ltd., Lucknow (M): 97949 35912

Dear Mr Shiv Shankar

Show was organised well. Nice to have good no of stalls from those related to poultry like equipments, feed units, animal health companies. First day



visiting farmers are less in no, second day was satisfactory. Inauguration took little long time, seminar could have been organised well, as the temperature was not friendly, putting AC or cooler in each stall could have been better for exhibitors, as it is first time in Gorakpur, taking this effort is appreciable

Dr B P Manjunatha,

Varsha Multi Tech., #18, 40 ft Road, 1st Stage, 2nd Phase, Manjunatha Nagar, WCR., Bangalore - 560 010. (M): 98456 12198.

Dear Mr Shiv Shankar,

This year's India Poultry Expo at Gorakhpur was a great success. Farmers attendance, exhibitors participation, large number of small and big



farmers from adjacent districts viz Bihar and Nepal visited and took the benefit of developing new business contacts with feed millers, pharmaceutical along with getting themselves aware with new developments in different fields. Thus we can say that exhibition was successful in achieving major objectives. One unexpected scene happened there and that was a protest by some layer farmers (possibly new). They were demanding that since government ministries are not supporting in bringing down the cost of production of egg, lesser than their selling cost, they will boycott Honourable Ministers participation in this seminar. In my opinion despite organising protest they should have welcomed Hon'ble Minister wholeheartedly and should have put their demand before him and it was quite possible that in the presence of several experts Hon'ble Minister could have successfully designed a permanent solution. Thus it felt that since these farmers are new somebody (may be from the region or outside) confused these farmers for taking the most unwanted wrong and condemnable step that has given a bad name to the farmers of this city though I have a great respect to the farmers of this region because of their courage of taking risk and hard- working in odd situation. Moreover, I don't feel hesitation in saying that this exhibition has a great role in starting interest in commercial layer farming in Uttar Pradesh when they organized their first exhibition in Lucknow in the year2012. Lastly, I will pay my thanks to the team of Mr Sudhir Singh, Mr Mall, Dr Rawat and their team and also everybody for supporting the expo and making it a great success.

Dr A.U.Qidwai,

Ex Jt.Director, Dept. of Animal Husbandry, Lucknow. (M):94155 83729

Dear Mr Shiv Shankar,

In spite of many odds India Poultry Expo, Gorakhpur was a successful event & I congratulate you for your restless hardworking for the



same. If we forget the nuisance created by some local layer farmers, the expo was proven its positivity. Each and every person including exhibitors, visitors, guests highly condemned the ruthless behaviour of local layer farmers who were opposing the expo by saying that their agitation from this platform will help them to reach their voice and demands up to Chief Minister of UP. It was ridiculous behaviour of those farmers.

All three days farmers from Uttar Pradesh, Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, West Bengal & Nepal have visited the expo.

The day second was full of Knowledge sharing as there were Technical presentations on different topics of poultry.

Through print and electronic media, we have spread the awareness about importance of including egg and chicken in routine diet among the common public. We also raised our voice for Uttar Pradesh Government to include egg in Mid-Day-Meal Scheme to eradicate malnutrition.

I have interacted with exhibitors and visitors (mainly farmers) regarding their views about the expo. The maximum number of persons appreciated the expo and considered it as a successful poultry expo.

Finally, I concluded it as a successful event and wishing you all the best for your upcoming poultry expo.

Dr.Manoj Shukla

Poultry Consultant Raipur, Chhattisgarh (M):87700 13350, 96442 33397

Dear Sir,

As discussed over phone regarding Gkp expo held on 18/ 19/20 November 2019, where we participated and was a good experience.



Customer gathering and stall visits are average to good. Customers visited our stall and enjoyed well. Technical inputs are not satisfactory. Local farmers agitated with their own issues like broiler & egg rates.

Overall experience is satisfactory.

Regards **Rajan Kumar Pandey** Japfa Comfeed India Pvt Ltd., House no 245 F, Mirjapur pachpedwa, Ram janki nagar, Basharatpur , Gorakhpur -273004. U.P (Mob): 9470020802, 9455609683

Congrats Mr. Shivshankar ji

for conducting another successful expo in Gorakhpur for the first time.

It was much awaited one, so the exhibitors and all the



persons from the poultry fraternity were eyeing on this mega event. It was a daring step by Tezasvi Events as they are conducting such expos in the rural areas where poultry is in developing stage.

Second day we witnessed huge gathering of visitors. Footfall was enormous. Gorakhpur farmers and local peoples contributed a lot in making this event successful. Dr. Manoj Shukla hosted the show remarkably. Every person from the poultry fraternity of Gorakhpur region contributed and we all are thankful to them.

Despite of agitation by few local farmers, who were wayward in their aim, this expo was a great success against all odds.

Ajay Mehrotra,

Aadya Biological, A/1, Chanpatiyan Colony, Lucknow - 226 003. (M): 84004 27344

Dear Tezasvi Event's Team,

This is Dr. Sharad Kumar Singh From Sapan Cattle Feed India Pvt. Ltd. I and my whole Team were really appreciated your efforts and



arrangements for the first ever Event in Gorakhpur Poultry Expo. We are glad to have Sapan Feeds Stall in your Event Organisation and we did not face any single issue under your surveillance. I Request to you that you should do more n more events in future as you've done in Gorakhpur for poultry industry's growth.

Dr Sharad Kumar Singh,

Sapan Cattle Feed India Pvt Ltd., Vill – Khalispur Basant, P.O: Chaukiya, Ghazipur, U.P. (M): 99181 98333.

Dear Sir,

We are very glad to inform you that the first ever India Poultry Expo at Gorakhpur, Uttar Pradesh was very successful inspire of



negative attitude of some poultry Farmers. Regarding arrangement of stall was very good but there were some lacking regarding arrangement of food, drinking water and toilets which are top most priority for the exhibitors come from far-off places of India.

We hope your sincere effort all these arrangements will be better from the next time. At last congratulations and thank you for the first ever Poultry Expo at Gorakhpur. With regards

Tamal Chakrabarty

Vets Farma Ltd. Office:SCF 90-91, Urban Estate, Phase - I, Jalandhar - 144 022, Punjab. (M):70031 19422.

Dear Sir,

I appreciate that you have conducted the expo in Gorakhpur City, Uttar Pradesh first time which was very



successful and meaningful for poultry industry during that period, when the industry are facing of very critical situation. But expo response was good.

Thanking you Mr. P.S. Khokkar, Indovax Pvt. Ltd. Plot No.634, Pace City-II, Sector 37, Gurugram, Haryana 122001

Dear Sir,

We have participated for the first time and our experience is good with Shiv Shankar ji. They managed very well this



event and one thing Kawali Program with dinner is very nice.

.....Thanks,

Surender Kharb,

Parkash Breedibng Farm and Hatcheries, Village Tito Kheri, Teh: Safidon, Dist: Jind - 126 112. (M): 94166 14111, 99965 17617.



INDIA POULTRY EXPO 2019 AT GORAKHPUR ENTERPRISES INTAS HEALTHCAR **UJAPFA** provimi PRIME POLARIS PARKASH POWER OCEAN TOP SYRINGE S.V. INDUSTRIES O Hy-Line V DUARMA comes Chief Guest, Dignitaries & Poultry Fraternity ZEUS GORAKHPUR

The 20th edition of first ever India Poultry Expo 2019 in Gorakhpur was conducted at Deen Dayal Upadhyaya University, Gorakhpur from 18th to 20th October 2019 and enthusiasm and festivity was seen everywhere.

The visitors were up to the mark despite a maligned attempt made by some unscrupulous elements who tried to disrupt the expo. The visitors were from different parts of Uttar Pradesh, Madhya Pradesh, Bihar, Jarkhand, Chhattisgarh, West Bengal and neighbouring country Nepal. We were satisfied with the response and we are of the strong feeling that we did not disappoint them either. The confidence and trust placed on us by our exhibitors is a testimony for our commitment and mission to carry forward that Poultry for all and the benefits should reach nook and corner of the rural India. In order to make the expo much more meaningful, the big wigs of the region stood formidably behind us and a unique display of their contribution was evident in every sphere.

As usual Dr Manoj Shukla of People for Poultry played an anchor role with perfection. Chief Guest Er P.K. Mall, Joint Secretary, Hindu Yuva Vahini and Senior Poultry Person, Guest of Honour Dr Vineeta Pathak, Professor, Political Science, Deen Dayal Upadhyaya University, Gorakhpur, Special Guests Dr Ajay Rawat, Professor, Deen Dayal Upadhyaya University, Gorakhpur, Dr A.U. Qidwai, Ex Jt. Director, Dept of Animal Husbandry, Lucknow, Shri Sudhir Kumar Singh, S.R. Industries, Shri Dilip Kumar Singh, M.D., Hariom Feeds, Gopalganj, Shri Swatantra Veer Shrivastava, Proprietor, Lal Medicose, Gorakhpur, Shri Deepak Singh, Proprietor, Manasa Medicals, Gorakhpur and Mr B V Shiv Shankar, Organiser, India





POULTRY LINE, DECEMBER 2019



Poultry Expo were invited o to the dais to mark the start of the event.

The Chief Guest Er.P.K.Mall,Joint Secretary Hindu Yuva Vahini & Senior Poultry person, in his inaugural speech congratulated the organisers for organising their first ever spectacular India Poultry Expo in Gorakhpur, the poultry hub of Uttar Pradesh. Aiming at farmers, he said that the farmers should be very careful about farm management, low cost production of eggs and chicken as well as marketing of these products to run poultry business in a profitable way.

Further, he said that for sustainable poultry farming, one should have reserve fund to face any adverse condition in the business for sustainable poultry farming.

He also advised the poultry farmers to create awareness amongst the agriculture farmers to produce more maize and soya, as these are the main ingredients in poultry feed and at the same time a cash crop for the agriculture farmers.

Poultry farmers, he said that they should also focus on how best they sell their products in a profitable manner through value addition and improvise



regularly. The need of the hour, he said is to create awareness amongst the common public about nutritive values of egg and chicken.

The present prices of poultry ingredients won't come down as the Central Govt is determined to double the farmers income and the only way to overcome from the losses is to create awareness amongst the people about nutritive values and increase the consumption. Hence he cautioned the farmers to throw more light on this subject.

Pointing out at the agitating masses, he advised them not to oppose the expo which is aimed for farmers welfare and desist from such actions which are not going to help them.

Dr Vineeta Pathak, Professor, Political Science, Deen Dayal Upadhyaya University, Gorakhpur, while speaking on the occasion said that protein based diet is very important for human beings. As protein deficit diet is the root cause of various diseases in human being particularly in children and the egg and chicken is the best source of protein which has high protein biological value, she said. She said that poultry farming is an ally to agriculture and it is playing a vital role for the upliftment of rural agriculture farmers.





POULTRY LINE, DECEMBER 2019



She has appreciated the organisers for organising such a wonderful expo in Gorakhpur and felt that such exhibitions will certainly help the farmers to run their farms profitably. At the same time while addressing the grievances of local layer farmers, who were creating nuisance during inaugural function said that neither this is a right platform nor the way of disrupting the proceedings.

Dr.Qidwai, Ex-Joint Director, Animal Husbandry, Lucknow, while speaking on the occasion highly condemned the behaviour of local layer farmers who were opposing the expo. He categorically said that their demands from Government of Uttar Pradesh might be right but this is not the right platform for solving their grievances. Later, after ending his speech, Dr Qidwai tried to solve their problems through invaluable suggestions, which ended in vain.

Speaking on the occasion, Mr Dilip Kumar Singh, Proprietor, Hariom Feeds, said that he being President of Bihar Poultry Farmers Association, met Shri Giriraj Singh, Hon'ble Minister for Animal Husbandry, Dairying and Fisheries, Govt of India and placed the problems of farmers who were suffering



heavy losses due to the raise in Maize, Soya and other ingredients and urged him to look into the problems and solve. The Minister then advised that it is more effective and easy to address one large association representing the grievances of all farmers instead of dealing with many small associations independently.

In turn, he said that the Minister is in confusion and questioned him that how many associations are existing in the industry and to whom he has to take into consideration for solving their grievances.

Looking at the agitating mob, he advised them to desist from such actions and form one strong association instead of small associations and try to raise their voice at Central Government to solve their issues.

Speaking on the occasion Mr B V Shiv Shankar thanked all the dignitaries present on the dais, Government officials and eminent veterinary doctors making the expo successful. He said that choosing Gorakhpur to organise its first ever expo was in view of the tremendous growth in Eastern part of Uttar Pradesh. He added that cause of rural poultry and





POULTRY LINE, DECEMBER 2019



its development was the motto of the Tezasvi Events and they strive every bit to make the event is success.

Further speaking, he said that the Tezasvi Events humbly attribute today's development of poultry in Uttar Pradesh to its first ever India Poultry Expo conducted way back in 2012 with special invitation to Government officials. That gigantic expo emanated positive thinking in Govt circles to develop poultry in U.P. It further contributed to the thought to avoid incurring exchequer of crores of rupees every day by importing eggs as well as day old chicks and invited all big wigs of poultry from different parts of the country to establish the poultry in U.P. Hence, feeling honoured of our contributions from the past, we decided to organise another gigantic show in Gorakhpur with greater zeal and enthusiasm than before aiming at the welfare of farmers. But we had to experience such malicious attempt to thwart the movement by some unscrupulous elements, he said.

Mr Shiv Shankar expressed his gratitude and thanked all the key people from within the local industry for their strong support. Without their solid backing, it wouldn't have been possible to overcome all the hurdles in organising the expo successfully and expressed his indebtedness. He further profusely expressed his gratitude to all the exhibitors who made their participation in the expo and contributed to the success of the show. Their wholehearted support in addition to the key local people has resulted in such a great success and that he personally grateful to the all the participants and well wishers of the industry.

The second day began with a technical session and the topics covered in the Technical Session were:

1. Bio-security in Poultry – Dr Vijay Kumar Sharma, Asst General Manager, PDRC, VH Group

- Further Circulation Integration Vs Farmers....A Sustainability Challenge – Dr Pawan Kumar, Consultant, USSEC
- Skill development, the need of the hour in Poultry today – Dr B P Manjunatha, Varsha Multi Tech, Bangalore
- Respiratory Disease complex in Poultry Dr S.C.Gupta, Indovax Pvt Ltd., Gurgaon, Haryana
- 5. Performance of Layer myth and reality Mr Shabbir Ahmed Khan, Poultry Consultant, Delhi
- Common mistakes during Establishment and Management of Poultry farming - Dr Ahrazuddinn Qidwai, Ex Jt Director, Poultry, Govt. of U.P.
- 7. Layer Management Dr Ranjeet Gupta, Skylark Feeds Pvt Ltd., Dist. Jind, Haryana
- Importance of clean water in Poultry Dr Mahender Singh, Meghal Enterprises,

A grand cocktail and dinner was hosted at 7.30 P.M. at Hotel Clarks Inn and Gajal by the organisers. Everyone who took part in the party enjoyed every moment.

On day three, just about the time to host valedictory function the same group of protestors entered the venue and started repeating their agitation. The organisers and the dignitaries persuaded the group by reiterating all options with which they can run their farms profitability but it proved in vain. They deliberately threw eggs on to the dais creating ruckus and didn't leave the venue until Police were called. Due to disturbance and time delays as a result of this nuisance, the organisers distributed the mementos to the exhibitors in their respective stalls before ending the programme.



POULTRY LINE, DECEMBER 2019

Technical Session of India Poultry Expo.



Dr. Vijay Kumar Sharma on Bio-security in Poultry



Dr. Pavan Kumar on Further Circulation Integration Vs Farmers... A Sustainability Challenge



Dr. B.P. Manjunatha on Skill Development, the need of the hour in Poultry today



Dr. S.C.Gupta on Respiratory Disease Complex in Poultry



Dr. V.K.Sharma being honoured by Dr. Shukla & Mr. Shiv Shankar



Dr. Pavan Kumar being honoured by Dr. Shukla & Mr. Shiv Shankar



Dr. B.P. Manjunatha being honoured by Dr. Shukla & Mr. Shiv Shankar



Dr. S.C.Gupta being honoured by Dr. Shukla & Mr. Shiv Shankar

Technical Session of India Poultry Expo.



Mr. Shabbir Ahmed Khan on Performance of Layer - Myth and reality



Dr. Ahrazuddin Qidwai on Common mistakes during establishment and management of poultry farming



Dr. Ranjeet Gupta on Layer Management



Dr. Mahendra Singh on Importance of Clean Water in Poultry



Mr. Shabbir Ahmed Khan being honoured by Dr. Shukla & Mr. Shiv Shankar



Dr. Ahrazuddin Qidwai being honoured by Dr. Shukla & Mr. Shiv Shankar



Dr. Ranjeet Gupta being honoured by Dr. Shukla & Mr. Shiv Shankar



Dr. Mahendra Singh being honoured by Dr. Shukla & Mr. Shiv Shankar



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POULTRY LINE, DECEMBER 2019



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Kailash Poultry Equipments receiving Memento



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POULTRY LINE, DECEMBER 2019

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POULTRY LINE, DECEMBER 2019



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POULTRY LINE, DECEMBER 2019

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View of the Audience



Mr. Navin Kumar Srivastava (Lal Medico) being honoured by Dr. Shukla & Mr. Shiv Shankar



Mr. Deepak Singh (Manasa Medicals) being honoured by Dr. Shukla & Mr. Shiv Shankar



Mr. Sudhir Kumar Singh being honoured by Dr. Shukla & Mr. Shiv Shankar



Mr. Ajay Mehrotra being honoured by the Gorakhpur Team



Mr. Praful Shukla being honoured by the Gorakhpur Team



Dr. Vimalendu Bhatt being honoured by Dr. Shukla, Mr. Deepak Singh & Mr. Shiv Shankar



Mr. Abhishek Mishra (Provimi Animal Nutrition India Pvt. Ltd.) being honoured by the Gorakhpur Team



Dr. Atul Yadav being honoured by the Gorakhpur Team



Dr. Alok Rai being honoured by Dr. Shukla & Mr. Shiv Shankar



Dr. Atul Singh being honoured by the Gorakhpur Team



Dr. Rohit Pandey being honoured by the Gorakhpur Team



Dr. Rakesh Tiwari being honoured by Dr. Shukla & Mr. Shiv Shankar



Mr. Vinod Singh being honoured by the Gorakhpur Team



Dr. Manoj Shukla being honoured by Bigwigs of Gorakhpur



Mr. P.S.S. Raju being honoured by Dr. Shukla & Mr. Shiv Shankar



Inside Arch of India Poultry Expo



Mr. Ranvijay Singh being honoured by the Gorakhpur Team



Dr. Shukla being honoured by Mr. Shiv Shankar



Mr. Bhuvaneshwar Nath Pandey being honoured by the Gorakhpur Team



Main Entrance Arch of India Poultry Expo



















































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