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From the Editor's Desk

The Road to Quality Poultry Feed: Tackling Production Challenges Head-On

Several factors affect the quality, availability, and cost of poultry feed production. These include acquiring raw ingredients, assuring quality control, meeting nutritional needs, guaranteeing feed safety, managing feed costs, and balancing environmental sustainability. The availability and pricing of raw materials might fluctuate due to factors such as weather, market demand, and geopolitical difficulties (like the Russia-Ukraine war), making it challenging to maintain a regular supply of high-quality ingredients. To solve these problems, quality control systems and testing procedures are critical. Nutritional requirements for various phases of growth necessitate a complex formula, and nutrient imbalances can have an impact on bird health, growth, and egg production.

Contamination of feed with poisons, moulds, or infections can have serious effects for bird health and productivity. Feed safety is ensured through correct raw material handling and storage, rigorous quality control techniques, and adherence to good manufacturing practises (GMP) and hazard analysis critical control points (HACCP). Feed cost control is critical, as fluctuations in ingredient pricing, transportation costs, and energy costs all have an impact on overall costs. Efficient feed cost management include optimising feed compositions, investigating alternative ingredients, and implementing cost-effective manufacturing techniques.

Regulatory compliance is also a barrier in poultry feed production because it entails a plethora of rules and standards pertaining to ingredient procurement, labelling, and safety. Manufacturers must stay informed and verify that their manufacturing processes comply with applicable legislation and industry standards. Collaboration between feed manufacturers, researchers, farmers, and regulatory agencies is critical to overcoming these issues and ensuring the industry's access to high-quality poultry feed.

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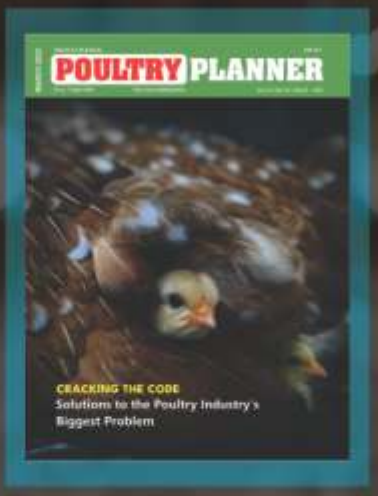

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Role of Short Chain Fatty Acids in Poultry Production

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Introduction

Over the years, antibiotics have been widely used in poultry feed to elicit production and prevent diseases. However, in recent decades, awareness of the potential hazards of antibiotic misuse has gradually increased, with problems including drug resistance and residues in animal tissues. Consequently, the poultry industry has been in the quest for alternatives to antibiotics and several studies have been conducted on prebiotics, probiotics, acidifiers and plant extracts, etc. The gastrointestinal tract of broilers possesses a complex and dynamic microbial community comprising about 15 phyla and 288 genera bacteria, which makes contribution to the nutrient absorption, inhibition of intestinal pathogens and the development of host immune system. The composition of the intestinal microbiota is dependent on variation in the diet, pathological environment and antibiotic therapy. Short chain fatty acids (SCFAs) are chemically composed of hydrocarbon chains and carboxylic acid moiety and are mainly produced by colonic anaerobic bacterial fermentation of dietary fibres. The most frequently studied SCFAs in poultry are acetate, propionate and butyrate with two, three and four carbon molecules in their chemical structure and their effect on several systems has been accentuated both at cellular and molecular levels.

Dietary fibers and their effect on gastrointestinal tract

Dietary fibres are homogenous or heterogenous carbohydrate polymers with three or more monomeric units. They are resilient to digestion by host endogenous enzymes. They are present naturally (i.e. cereals, legumes, etc.) and are available to farm animals. The dietary fibres are chemically the sum of lignin and non-starch polysaccharides while nutritionally they are the carbohydrates indigestible by host endogenous enzymes.

Young birds are fed on low levels of dietary fibres (less than 1.5%) diets because high levels decrease nutrient digestibility in early life period and increase transit speed of digesta. During the growing phase, inclusion levels of 2% to 3% may improve gizzard size and feed efficiency in poultry. Studies have been undertaken to increase the inclusion rate in poultry feed by fortification with the extracted non-digestible carbohydrates. A large variety of fortified oligosaccharides and carbohydrate polymers are commercially available in the form of prebiotics which increases the population of beneficial bacteria in the gut. In addition to their natural presence in different foods, dietary fibre rich ingredients or isolated dietary fibre molecules may be added to the diet to provide benefits for extra health. At present exogenous enzymes including phytases and carbohydrases such as amylases, xylanases and β-glucanases are used in broilers to degrade complex carbohydrates into their respective sugars or amino acid components. Bacteria can then ferment them into metabolites (i.e. SCFAs), CO2, H2, branched-chain fatty acids, ammonia and other carboxylic acids. However, to minimize the use of exogenous enzymes, future studies may focus on identifying specific intestinal bacteria that promote different enzymatic reactions to support the fermentation of dietary fibres in poultry.

Production of short chain fatty acids

Microbiota hydrolyse dietary fibres into oligosaccharides and then produce monosaccharides in the hindgut under anaerobic environment conditions followed by production of SCFAs. This production of SCFAs consists of enzymatic pathways which are regulated by several bacterial species.

The prime pathways for SCFAs generation are the glycolytic pathway and pentose phosphate pathway driven by Bifidobacteria which transform monosaccharides into phosphoenolpyruvate (PEP). The PEP is then converted into alcohols or organic acids. Different types of bacteria and phyla are helpful in production of short chain fatty acids viz. acetate, butyrate, propionate.

Transportation of short-chain fatty acids

The epithelial cells of the colon i.e. colonocytes are mostly studied for the transportation of SCFAs. The apical membrane gains the SCFAs in two ways i.e. active transport of dissociated SCFA anions and passive diffusion of undissociated SCFAs. Different transporters are used in the transportation of SCFAs.

The studied transport mechanisms of short-chain fatty acids (SCFAs).

I) Butyrate stimulation of Na+ and Cl−,

II) Transportation of SCFAs via monocarboxylate transporter (MCT)-1,

III) Transportation by sodium-coupled monocarboxylate transporter-1,

IV) SCFAs which are not absorbed by colonocytes transported through a basolateral membrane, where MCT-4 transports SCFA anions in an H+ - dependent electroneutral manner,

V) Transportation by MCT-5 is via unknown HCO3 − exchanger, and

VI) Transportation of unabsorbed propionate and butyrate into the liver by organic anion transporter (OAT) 2 and 7 respectively via sinusoidal membrane of liver cells (hepatocytes).

Role of short chain fatty acids

Modulation of pathophysiological changes in the gut

SCFAs have a key role in modulating the gut health of pigs and poultry. SCFAs undergo antimicrobial pathways and enter the membrane of the pathogenic bacteria. The cytoplasmic pH of bacteria is generally neutral while SCFAs exist in associated or dissociated forms. When SCFAs attack, they dissociate into protons and anions and reduce the pH of a bacterial cell and thus destroys the bacterial cells.

The in-vivo studies conducted in humans, pigs and broilers have also shown antimicrobial effects of SCFAs on pathogens. M'Sadeq et al. (2015) observed that supplementation of butyrylated high-amylose maize starch to broilers challenged with necrotic enteritis resulted in the production of ileal acetate and reduction in caecal pH which ameliorated the negative effects of disease. In another study, by Vermeulen et al. (2018), it was observed that supplementation of wheat bran and arabinoxylooligosaccharides in broilers promoted butyrate, propionate, and Firmicutes to Proteobacteria production and decreased caecal Enterobacteriaceae.

SCFAs have multiple functions in the body

1. Improves innate and adaptive immunity
2. Improves villi height: crypt depth ratio
3. Enhances tight junction proteins
4. Enhances ions and water absorption
5. Lowers colonic pH and luminal oxygen levels
6. Increases mucus thickening
7. Increases energy availability to the mucosa cells

Regulation of immune system

The SCFAs regulate the immune system through signalling mechanisms. There are two mechanisms by which SCFAs modulate immune cell chemotaxis, cytokines and reactive oxygen species of the host. The first mechanism is the activation of G-protein coupled receptors such as FFAR-2 and -3 (free fatty acid receptors) also known as GPR43 and GPR41 receptors. The second mechanism consists of the direct inhibition of histone deacetylases (HDACs) (Tan et al., 2014).

Pro- and anti-inflammatory effects of short-chain fatty acids in immune cells

The host immune system impedes the pathogens by producing inflammatory cytokines. However, unnecessary secretion of cytokines results in systemic inflammation. SCFAs modify systemic inflammation by modulating the release of immune cell cytokines, ROS and chemotaxis. Propionate and butyrate activate FFAR2/3 or GPR109A or inhibit HDACs to decline the nitric oxide synthase and tumor necrosis factor-alpha expression in monocytes. Upon tracheal inflammation, SCFAs activate FFAR2 and FFAR3 from the macrophages and neutrophils which lead to the reduction of interleukin-8 (IL-8) in the trachea (Halnes et al., 2017). Butyrate acts anti-inflammatory factor in macrophages by activating FFAR3 and reducing interleukin-6 (IL-6), monocyte chemoattractant protein-1 (MCP-1), TNFα and inducible nitric oxide synthase. In mononuclear cells of humans and mice, acetate had anti-inflammatory effects and it inhibits lipopolysaccharides (LPS)-induced TNFα production through FFAR2 and FFAR3 activation.

SCFAs facilitates HDACs inhibition

HDAC is an enzyme that plays an important role in gene regulation by modifying the chromatin structure. Chromatin is the complex of DNA and proteins that make up the chromosomes in our cells. One of the ways HDAC modifies chromatin is by removing acetyl groups from histone proteins. Histones are proteins that help package DNA into a compact structure within the cell nucleus. Acetylation of histones by other enzymes, such as histone acetyltransferases (HATs), generally leads to a more open chromatin structure that allows for greater access to the DNA by transcription factors and other proteins involved in gene expression. However, when HDAC removes the acetyl groups from histones, it leads to a more compact chromatin structure that generally results in repression of gene expression. Therefore, HDAC inhibitors have been developed as potential treatments for cancer and other diseases where gene expression needs to be altered

Recent research has suggested that SCFAs can also act as HDAC inhibitors. Several studies have shown that SCFAs, particularly butyrate, can inhibit HDAC

Ingredients	Inclusion Level	Species	Effects	References
Wheat bran + DDGS	80 g/kg	Broiler	↑Total SCFAs ↑Acetate	Walugembe et al., 2015
Inulin Wheat bran	20 g/kg 100 g/kg	Broiler	↑Propionate ↑Butyrate ↑Isobutyrate	Li et al., 2019
Isomalto-oligosaccharide	3 g/kg	Broiler	↑Isobutyrate ↑Butyrate	Zhang et al., 2003
Soybean oligosaccharide	6 g/kg	Broiler	↑Acetate ↑Propionate	Zhu et al., 2020
Bacillus subtilis Pb6	0.5 g/kg	Broiler chick	↑Acetate ↑Butyrate	Aljumaah et al., 2020
Clostridium butyricum	1 × 109 CFU/kg	Broiler chicken	↑Acetate ↑Propionate ↑Total SCFAs	Zhang et al., 2011
Multi-strain probiotics (L. acidophilus LAP5, L. fermentum P2, P. acidophilus LS, L. casei L21)	1 × 107 CFU/g	Chickens	↑Acetate ↑Total SCFAs	Chang et al., 2019
Sodium butyrate	1 g/kg	Broiler chicken	↑Butyrate	González-Ortiz et al., 2019
Organic acids (acetate, formate, propionate, sorbate, vegetal fatty acids)	2 g/kg	Turkey	↑Propionate ↑Butyrate	Milbradt et al., 2014
Organic acid blend (SCFAs, MCFAs, β1-4 mannobiose)	3 g/kg	Broiler	↑Acetate ↑Butyrate	Aljumaah et al., 2020

activity, leading to increased acetylation of histones and alteration of chromatin structure. This can result in the upregulation of certain genes that are involved in processes such as cell differentiation, apoptosis, and immune regulation. The potential therapeutic benefits of SCFAs and their HDAC-inhibiting properties are being actively investigated. For example, butyrate has been shown to have anti-inflammatory effects in colitis and other inflammatory bowel diseases. Additionally, some studies have suggested that SCFAs may have anti-tumor effects, although the mechanisms involved are being studied.

Regulation of SCFAs production in intestinal tract of poultry

There are various factors or products which regulates production of short chain fatty acids in the intestinal tract of poultry. Dietary fibers, prebiotics, probiotics and feed additives are used in the feed of poultry to increase the production of SCFAs, which ultimately maintains the health of gut. Several studies have reported that different ingredients in poultry feed result in production of various SCFAs. The following table summarizes the results of these aforesaid studies.

Conclusion

The application of dietary fibers as well as commercial preparations are the potential ways to influence SCFAs concentration. The SCFAs enhance beneficial microbial populations to regulate endogenous enzymatic activities and produce more energy thereby maintaining mucosal integrity, immunity and health of broilers, geese and ducks. Therefore, it is important to highlight the potential role of specific types and sources of DFs that can be used in manipulating the commensal bacterial populations which specifically induce the synthesis of SCFAs and maintain gut health and eliminate chances of necrotic enteritis, E. coli and Salmonella infections in poultry.

The role of SCFAs receptors and their efficient participation in inhibiting HDACs has not yet been studied in poultry. Comprehensive studies are needed to unveil these processes in poultry. In addition, regulating anti-inflammatory mechanisms in the tissues may provide new and exciting possibilities for modulating health in poultry.

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The Emergence of Fowl Adenovirus associated with tracheitis

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Introduction

Poultry farming has significant potential for growth and provide a source of income and employment for rural communities. The poultry industry in India faces several challenges, including disease outbreaks, lack of proper infrastructure and inadequate feed and water supply.

Fowl adenovirus (FAdV) is a highly contagious viral disease that affects poultry, particularly chickens with worldwide distribution. FAdV infection can lead to significant economic losses due to decreased productivity, increased mortality and the cost of control measures. The virus can infect chickens of all ages, but more severe in young birds. Severe respiratory disease associated with Aviadenovirus, with tracheal epithelium intranuclear inclusion bodies, was documented in turkeys (Crespo et al., 1998). Gowthaman et al., 2012 conducted a study on poultry flocks from different parts of India and concluded that Fowl adenovirus (FAdV) is an emerging cause of respiratory disease in birds. In chickens, respiratory disease has also been associated with adenovirus infection (Dhillon & Kibenge, 1987), with pathogenesis complicated with Escherichia coli and Staphylococcus aureus (Dhillon et al., 1982). The virulent strains of FAdV have emerged which can produce the mortality ranging from 10-30% and can reach upto 80% in presence of other immunosuppressive factors.

Etiology

FAdV is a non-enveloped, icosahedral, double-stranded DNA virus. The virus belongs to the family Adenoviridae and genus Adenovirus. The virus is 70-90nm in diameter. There are 12 serotypes based on their hemagglutination properties. The 12 described serotypes (1 to 8a and 8b to 11) are classified into 5 species from FAdV A to E (Hess, 2017; Schachner et al., 2018). Group I (FAdV) are common to many avian species, and have been associated with respiratory disease in chickens, turkeys and quail, and inclusion body hepatitis (IBH) in chickens and bronchitis in quail (Blalock et al., 1975; Jack et al., 1987; McFerran, 1997; Hess, 2000). The virus replicates in the nucleus therefore producing intranuclear inclusion bodies. The virus is resistance to heat inactivation, lipid solvents and to pH 3 to 9. However, virus is sensitive to formaldehyde.

Transmission

FAdV is primarily transmitted through direct contact with infected birds or contaminated materials such as faeces, litter, and equipment. The virus can also be transmitted vertically from an infected hen to her chicks through the egg. Insects like flies can mechanically transmit the virus from infected to susceptible birds. The virus can survive for weeks to months in the environment depending on the temperature and humidity.

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Clinical signs & lesions

The clinical signs of FAdV infection can vary depending on the serotype, age, and immune status of the bird.

When respiratory system is involved, the observed clinical signs are depression, huddling, reduction in normal vocalization, laboured breathing, increased rales, mucinous nasal discharge, drooped wings, reduction in feed and water intake, cyanotic comb and wattles, hock sitting posture, white diarrhoea and respiratory distress. Gross lesions found are as follows:

- Fibrino-haemorrhagic and necrotic tracheitis, with blood clots in lumen. Mucosa of trachea contains diphtheritic membrane.
- Caseous plug occluding the lumen of trachea.
- Congested and edematous lungs.
- Air sacculitis, pericarditis and perihepatitis.

Histopathologically: In the lamina propria of trachea, infiltration of lymphocytes and macrophages seen. Detached and necrotic epithelium with complete or partial absence of goblet cells. Basophilic intranuclear inclusion bodies present in respiratory epithelium. Cellular debris, fibrin, erythrocytes and heterophils form diphtheritic membrane.

Diagnosis

A definitive diagnosis can be made through laboratory testing, including virus isolation, polymerase chain reaction (PCR), and serology etc. PCR is a rapid and sensitive method that can detect the virus in various samples, such as faeces, swabs from trachea and tissues by amplifying Hexon protein. Detection of the antigen or virus particles using immunofluorescence test or electron microscopy can be done. Serology can be used to detect antibodies against FAdV in the blood of infected birds.

Treatment

There is no specific treatment for FAdV infection. Symptomatic treatment, including supportive care, antibiotics, and anti-inflammatory drugs, can help controlling secondary bacterial infections. However, treatment is often ineffective, and the best approach is to prevent infection through vaccination and biosecurity measures.

Prevention

Prevention is the most effective strategy to control FAdV infection. Vaccination with appropriate FAdV vaccine is recommended to provide immunity against the serotypes prevalent in the region. The vaccine can be administered to the breeding stock, chicks, or broilers. Biosecurity measures, including quarantine, disinfection, and control of insects and rodents, can prevent the introduction and spread of the virus. Good hygiene practices, such as frequent hand washing and changing clothes can also help prevent the spread of the virus between farms.

Conclusion

Fowl adenovirus strains appear to be re-emerging worldwide as relevant respiratory pathogens (Gowthaman et al., 2012), although they may be involved in a diversity of pathologies such as IBH, hydropericardium, pancreatitis, gizzard erosion, etc. Fowl adenovirus infection significantly threatens the poultry industry worldwide, causing significant economic losses. The virus is highly contagious, and prevention is the most effective disease control strategy. Early detection, diagnosis, and management of the disease can help reduce the impact on the flock's productivity and welfare.

References:

Adair, B. M., & Fitzgerald, S. D. (2008). 'Group 1 adenovirus infections'. Diseases of poultry, 12, 251-266.

Blalock, H.G., Simmons, D.G. Muse, K.E. Gray, J.G. & Derieux, W.T. (1975). 'Adenovirus respiratory infection in turkey poults'. Avian Diseases, 19, 707–716

Brash, M. L., Swinton, J. N., Weisz, A., & Ojkić, D. (2009). 'Isolation and identification of duck adenovirus 1 in ducklings with proliferative tracheitis in Ontario'. Avian diseases, 53(2), 317-320.

Crespo, R., Shivaprasad, H.L., Droual, R., Chin, R.P., Woolcock, P.R. & Carpenter, T. (1998). 'Inclusion body tracheitis associated with adenovirus in turkeys'. Avian Diseases, 42, 589–596.

Dhillon, A. S., & Kibenge, F. S. (1987). 'Adenovirus infection associated with respiratory disease in commercial chickens'. Avian Diseases, 654-657.

Gowthaman, V., Singh, S. D., Dhama, K., Barathidasan, R., Kumar, M. A., Desingu, P. A., & Ramakrishnan, M. A. (2012). 'Fowl adenovirus (FAdV) in India: evidence for an emerging role as primary respiratory pathogen in chickens'. Pakistan Journal of Biological Sciences: PJBS, 15(18), 900-903.

Hess, M. J. A. P. (2000). 'Detection and differentiation of avian adenoviruses: a review'. Avian Pathology, 29(3), 195-206.

Lim, A. C., Mustaffa-Babjee, A., Bains, B. S., & Spradbrow, P. B. (1973). 'An avian adenovirus associated with respiratory disease'. Avian diseases, 690-696.

Marques, M. V. R., Marin, S. Y., Couto, R. D. M., Ecco, R., Resende, M., & Martins, N. R. D. S. (2019). 'Fatal necrotic tracheitis by Aviadenovirus in captive Alagoas curassows (Pauxi mitu) extinct from the wild'. Avian Pathology, 48(3), 278-283.

McFerran, J.B. (1997). 'Adenovirus infections'. In B.W. Calnek (Ed.), Diseases of Poultry 10th edn (pp. 607–619). Ames, IA: Iowa State University Press.

Schachner, A., Matos, M., Grafl, B., & Hess, M. (2018). 'Fowl adenovirus-induced diseases and strategies for their control–a review on the current global situation'. Avian Pathology, 47(2), 111-126.

Shivaprasad, H. L., Woolcock, P. R., & McFarland, M. D. (2001). 'Group I avian adenovirus and avian adeno-associated virus in turkey poults with inclusion body hepatitis'. Avian Pathology, 30(6), 661-666.

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An Overview Scenario of Poultry Feed Production in India

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Poultry feed production in India has seen significant growth over the years due to the expansion of the poultry industry. The demand for poultry products, such as chicken meat and eggs, has been steadily increasing, driving the need for quality feed to support the growth and productivity of poultry birds. The country is now the world's third-largest producer of eggs and the seventh-largest producer of poultry meat. This growth is being driven by a number of factors, including rising incomes, increasing urbanization, and changing dietary habits. The Indian poultry feed industry is highly fragmented, with a large number of small and medium-sized players. However, there is a growing trend towards consolidation, with a few large companies emerging as market leaders. The major raw materials used in poultry feed production in India are maize, soybean meal, wheat, and fish meal. The industry is also increasingly using alternative protein sources, such as insects and algae. The poultry feed industry in India is facing a number of challenges, including rising input costs, competition from imported feeds, and the threat of avian influenza. However, the industry is also well-positioned to capitalize on the growing demand for poultry products in India and abroad.

Here are some of the key trends in the Indian poultry feed industry:

Rising demand: The demand for poultry feed is expected to grow at a CAGR of 7%-8% over the next few years, driven by rising incomes, increasing urbanization, and changing dietary habits.

Consolidation: The Indian poultry feed industry is highly fragmented, with a large number of small and medium-sized players. However, there is a growing trend towards consolidation, with a few large companies emerging as market leaders.

Rising input costs: The cost of raw materials, such as maize, soybean meal, and wheat, has been rising in recent years. This has put pressure on the profitability of poultry feed manufacturers.

Competition from imported feeds: India is a net importer of poultry feed. The import of poultry feed is likely to continue, as it is cheaper than domestically produced feed.

Threat of avian influenza: Avian influenza is a major threat to the poultry industry in India. The disease has caused significant outbreaks in the past, and there is always the risk of another outbreak in the future.

Despite these challenges, the Indian poultry feed industry is well-positioned to capitalize on the growing demand for poultry products in India and abroad. The industry is expected to grow at a healthy pace over the next few years. In the Indian context, poultry feed production is a crucial aspect

of the poultry industry, which plays a vital role in the growth and development of poultry birds. Here's a general overview of the feed production scenario for poultry in India

Raw Materials: Poultry feed in India is primarily composed of various agricultural by-products, cereals, oilseed meals, and other protein-rich ingredients. Common raw materials used in poultry feed production include maize, wheat, rice bran, soybean meal, sunflower meal, groundnut meal, fish meal, and poultry by-product meal.

Feed Mills: Poultry feed is typically manufactured in specialized feed mills. These mills receive raw materials and process them into balanced feed formulations suitable for different stages of poultry growth. Feed mills in India range from small-scale local units to large commercial operations.

Formulation: Poultry feed formulation involves the careful selection and blending of various ingredients to meet the specific nutritional requirements of poultry at different stages of growth (broilers, layers, or breeders). The formulations aim to provide the necessary energy, protein, vitamins, minerals, and other essential nutrients for optimal growth, egg production, and overall health.

Quality Control: Quality control is an essential aspect of feed production to ensure the safety and nutritional integrity of the feed. Feed manufacturers follow quality control measures to maintain the desired standards, including regular testing of raw materials, monitoring production processes, and conducting laboratory analysis of finished feed samples.

Government Regulations: The Indian government has regulatory bodies such as the Food Safety and Standards Authority of India (FSSAI) that establish guidelines and regulations for feed production. Feed mills must adhere to these regulations to ensure the quality and safety of the feed produced.

Availability and Distribution: Poultry feed is distributed through various channels such as wholesalers, retailers, and directly to poultry farmers. The availability and distribution of feed in India vary depending on the region, with major poultry-producing states having a well-established network of feed suppliers.

Cost Considerations: Poultry feed production is influenced by factors like the availability and cost of raw materials, transportation costs, energy costs, and market demand. Feed manufacturers strive to maintain affordable prices while meeting the nutritional requirements of poultry.

Technological Advancements: The Indian poultry feed industry has witnessed technological advancements in recent years, including the adoption of automated feed production systems, computerized feed formulation software, and improved manufacturing processes to enhance efficiency and quality control.

Here are some of the key trends that are expected to shape the poultry feed industry in India in the coming years.

Rising demand for poultry products: The demand for poultry products is expected to continue to grow in India, driven by rising incomes, increasing urbanization, and changing dietary habits. This growth will create a need for more poultry feed.

Increasing use of alternative protein sources: The poultry feed industry is increasingly using alternative protein sources, such as insects and algae. This is due to the rising cost of traditional protein sources, such as soybean meal.

Advances in technology: The poultry feed industry is constantly innovating and adopting new technologies. This is leading to the development of more efficient and cost-effective feed production methods.

Growing importance of sustainability: The poultry feed industry is increasingly focusing on sustainability. This includes using sustainable raw materials, reducing waste, and minimizing environmental impact.

Conclusion

It's important to note that specific feed production scenarios may vary among different poultry farms and regions in India, as feed formulations and practices can be tailored based on the farm's requirements and the type of poultry reared. It's worth noting that specific data and statistics related to poultry feed production in India may vary and evolve over time. For the most up-to-date and comprehensive information, it is recommended to refer to industry reports, government publications, and consult with relevant experts or organizations in the field of poultry farming and feed production in India Despite these challenges, the Indian poultry feed industry is well-positioned to capitalize on the growing demand for poultry products in India and abroad. The industry is expected to grow at a healthy pace over the next few years.

Hernia in Poultry

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Introduction:

Hernia

Hernia is the condition where the organ or tissue that protrude through the area with weak musculature from its actual residence. hernia usually consist of

Hernia sac – The lining of peritoneal membrane which surrounds over

Hernia contents – Mostly the gastrointestinal tract from duodenum to large intestine.

Hernia ring - the opening in aponeurosis (a thin sheath of connective tissue that helps connect your muscles to your bones) of muscle that encourages to protrude the contents out of muscle.

Hernia in poultry

Hernia in avian species is completely different from mammalian. In mammals hernia passage is present separately but in avian, no separate passage instead of that muscle fibre itself become thin and protrusion take place.

Etiology

- Either congenital or acquired
- Exact reason for this cause is unknown, other common factors include injury in the abdomen accumulation of higher abdominal fat, over body weight and continues stress on the birds also may a reason.
- The reason of herniation are increased fluid or tissue pressure inside the abdominal cavity, trauma, hyper egg laying leads to hormonal imbalance and stretching of muscle while laying that rupture the wall, hyperestrogenism results in ovarian enlargement , provision of high energy feed make the bird obesity, egg binding.

Species affected

Avian species such as broiler, turkey, ducks, pigeon, pet birds including budgerigar, cockatoos were affected with herniation ,mainly middle aged to older laying hens(breeder &layers) are most at risk

Types

An internal hernia - very rare and is a displacement of the intestine through normal or pathological foramina within the abdominal cavity without formation of a hernia sac.

External abdominal hernia - frequently observed in birds,fatty tissue squeezes through a weak spot in a surrounding muscle or fascia(connective tissue),creating a hernia sac.

Abdominal hernia

Abdominal hernia in birds may be internal or external. In Internal hernia , it happens within the abdominal cavity through normal or pathogically created opening without hernia sac and rarely reported whereas in external, the displacement will be outside of abdominal cavity and are frequently seen. Reproductive females are more susceptible than male where they have increased estrogen secretion that result in ovarian enlargement with increased intraceolomic pressure that ends with abdominal herniation.

Symptoms

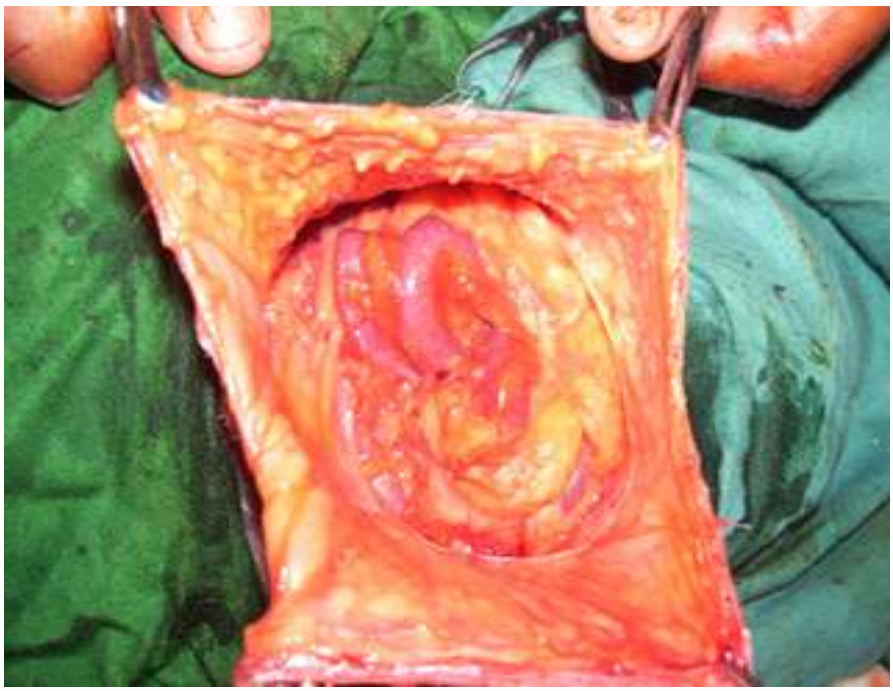
- Bulge or lump abdominal swelling
- Skin ulceration
- Haemorrhages on abdomen
- Enlargement of the abdomen
- Muscle integrity loosen
- Internal parts exposed to external environment

Diagnosis

The diagnosis of hernia can be done through palpation ,radiology and ultrasonography scans are performed.

Treatment

- Laparoscopic surgery gives great relief to the birds where incision through skin was performed and the contents were returned back into abdominal cavity followed by suture.
- For preventing hernia ,supplement for strengthening the abdominal muscles are also preferred.
- By restricted feeding (reducing feed grams) ,we can control the body weight of the birds



Conclusion:

Further detailed study aids inpreventing and treating hernia. The available solution for treating hernia is surgical interference, however performing surgery is possible in pet birds and minimum quantity rearing of birds and its impossible in commercial rearing of birds.

Poultry sector in India, witnessing a robust growth

Ricky Thaper
Treasurer, Poultry Federation of India

The allied sectors of Indian agriculture - livestock, poultry and & aquaculture are gradually becoming sectors of buoyant growth and a potential source of better farm incomes. According to the Economic Survey (2022-23), the livestock sector comprising dairy, poultry meat, eggs and fisheries witnessed a Compound Annual Growth Rate (CAGR) of 7.9 per cent during 2014 -15 to 2020-21 and its contribution to total agriculture Gross Value Added (GVA) has increased from 24.3% in 2014-15 to 30.1% in 2020-21.

The growth in India poultry industry is being driven by the rising disposable incomes and change in food habits. The shift from the traditional diet, which relied heavily on pulses, to food products such as meat, eggs, and dairy products to meet the protein requirements is significantly aiding the industry growth. The increasing awareness about health and wellness is further driving the demand for a protein-rich diet. Other factors including rising disposable incomes, expansion in urbanisation, and the growth of the distribution channels are giving a boost to the poultry industry.

The expansion in the food services market such as restaurants, fast food joints and food chains, is leading to the rise in consumption of broiler meat and eggs. Both traditional Indian non-vegetarian recipes and fast-food recipes involve the use of broiler meats, as well as eggs, making them a significant part of the cooking. In addition, the growth of the bakery foods market is driving the demand for eggs, an important ingredient in making cakes and other bakery products.

According to the department of Animal Husbandry and Dairying annual report (2022-23), poultry production in India has taken a quantum leap in the last few decades, emerging from conventional farming practices to commercial production systems with state-of-the-art technological interventions. Broiler meat production in the country is estimated at around 5 million tonne (MT) annually. The broiler meat sector is currently witnessing an annual growth of 6–7% according to trade estimates.

According to an official note, the country's egg production has increased to 126.53 billion in 2021-22. Egg production is currently growing at the rate of 5% per annum.

According to data by the Agricultural and Processed Food Products Development Authority (APEDA), the poultry products exports rose almost by 100% to USD 137 million in 2022-23 from USD 71 million in the previous fiscal.

India has vast resources of livestock and poultry, which play a vital role in improving the socio-economic conditions of rural masses. As per the 20th

Livestock Census, 2019, poultry bird population rose by 17% to 851.81 million poultry in the country from 729.21 million as per the 19th Livestock Census, 2012.

According to a report by Expert Market Research (EMR), the Indian poultry market is valued at USD 28.18 billion in 2022. Aided by the increasing popularity of online services and growing online food delivery channels, the market is expected to witness a Compound Annual Growth Rate (CAGR) of 8.1% during 2023-2028 and projected to reach USD 44.97 billion by 2028.

The share of commercial broiler birds in total meat production is around 80-85%. Rest of the 15-20% of the poultry meat production is contributed by backyard poultry. The north-eastern states contribute majorly toward meat production through backyard poultry.

The centre has initiated several programmes aimed at providing financial incentives for setting up poultry units mostly to encourage rural youth. There are several state governments schemes also that provide financial assistance for setting up poultry farms. Asian Development Bank had also earlier provided a loan of $ 10 million to leading poultry integrators as part of its Sustaining Poultry Farmer Income and Food Security Project in India.

To sustain the robust growth achieved in the poultry industry, long term supplies of feed ingredients need to be assured.

Sustained supply of quality feed ingredients in the coming years would be key to avoid volatility in the feed prices. Poultry feed mostly comprises maize (corn) and soya meal and feed price is about 60 – 65% of the total cost of production of poultry broilers. Any volatility in the poultry feed prices impact the chicken and eggs prices. India requires to increase maize production by 10 million tonnes (MT) over the next five years amid growing demand for ethanol production and to meet demand from the poultry industry, Agriculture Secretary Manoj Ahuja recently said at the 9th India Maize Summit organised by FICCI. As per the agriculture ministry, maize production in the 2022-23 crop year (July-June) is estimated at 34.6 MT. India's maize yield is around 3 tonne per hectare against the global average yield of 5.8 tonne per hectare. The agriculture ministry is aiming to promote maize production through developing high yielding varieties.

Another key challenge is that soybean productivity has largely stagnated in the last few years. While oil extracted from soybean is used as cooking oil and soybean meal is a by-product is a critical component.

The feed prices in 2021 touched to Rs.48, 000 PMT because of a spike in soybean meal prices due to domestic supply constraints. In August 2021, as an exception due to domestic supply constraint, the government had allowed import of 1.5 million tons of genetically modified (GM) soybean meal to help the poultry industry tide over higher feed prices. Similar initiatives should be taken by the government to allow GM soybean meal imports at least during non-harvesting or off season in the country. This would ensure stability in prices whenever there is a shortfall in domestic soybean production.

Investment in cold chain value chain for the poultry sector need to be taken up so that wet markets are gradually turned into modern retail stores

Processing and marketing of poultry range from live bird markets to highly sophisticated, fully automated, adhere to International Standards Organization (ISO) certified facilities and ready-to-eat convenience products is the future. Lack or inadequacy of refrigeration is probably the biggest challenge the poultry industry faces. The government must initiate a special scheme for creating more cold chains in the poultry sector similar to the scheme for 'Integrated Cold Chain and Value Addition Infrastructure' being implemented by the Ministry of Food Processing Industries.

There has been a gradual shift in demand from live bird to fresh chilled and frozen poultry product market. Although the wet market continues to dominate the poultry industry, there has been a significant increase in e-commerce with the expansion of home delivery of various poultry meats and processed meat.

More financial incentives for modern transportation vehicles as well as cold storage infrastructure would give a boost to the poultry sector.

Phytobiotic: An Alternative Tool to Antibiotic

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Introduction

The poultry industry is a fast-growing industry all over the world. The international feed industry is facing the challenge of the awareness among the consumers of meat on the risk of bringing about antibiotic resistance in pathogenic microbiota through antibiotics used in poultry feeds. However, the use of AGP can result in the development of drug-resistant bacteria which may infect humans via the food chain, and thus it is a public concern. To overcome these problems, it has directed them towards non-antibiotic feed additives. Among them, the feed additives of plant origin called Phytobiotics are considered to be a better alternative as non-antibiotic growth promoters.

Herbs and plant extracts used in animal feed is called phytobiotics feed additives (also called phytogenics or botanicals), and are defined as compounds of plant origin incorporated into animal feed to enhance productivity through the improvement of digestibility, nutrient absorption, and elimination of pathogens residents in the animal gut.

They are incorporated into diets to improve production performance. The large variety of plant compounds used as (Phytobiotic Feed Additives) PFA is assembled according to their origin and treatment, such as herbs and spices (eg: garlic, anise, cinnamon, coriander, oregano, chili, pepper, rosemary, and thyme) and also essential oils or oleoresins. The content of active substances in these products can vary greatly depending on what part of the plant is used (grains, leaves, roots, bark, flowers, or buds), the harvest season, and geographical origin.

Mode of action

Herbs contain one or more of the following secondary metabolite/ phytoconstituents.

Carotenoids – These are organic pigments occuring in plants and these have antioxidative effects and anticarcinogenic effect. In additon to this they boost the immune system.

Flavonoids – Flavonoids are organic pigments occuring in plants which give plants a red, violet or blue colour. Flavonoids have a particularly broad spectrum of efficacy. Flavonoids inhibit the growth of bacteria and viruses, protect the cells against the damages of free radicals, protect against cancers and heart ailmens, have a repressive effect against inflammations and they influence blood coagulation.

Phytosterols – Phytosterols are chemically similar to cholesterol and it protects against colon cancer and lower cholesterol levels.

Saponins – Saponins are flavour additives which boost the immune system, lower the cholesterol levels in the blood and reduce the risk of intestinal cancer.

Glucosinolates – Glucosinolates are flavour additives which prevent infections and inhibit the development of cancer

Phytobiotics as valuable feed additives

Phytobiotic feed additives can be classified into three groups: which includes

References:

Arify, T., S. Ezhil valavan, A. Varun, A. Sundaresan and K. Manimaran, 2019. Effect of garlic (Allium sativum) and nilavembu (Andrographis paniculata) on growth performance and cost effectiveness of broiler chicken. Indian Journal of Animal Sciences 89(11): 1242–1245.

Englmaierova, M., M. Skrivan and I. Bubancova, 2013. A comparison of lutein, spray-dried Chlorella, and synthetic carotenoids effects on yolk colour, oxidative stability, and reproductive performance of laying hens. Czech Journal of Animal Science, 58: 412–419.

Hong, J. C., T. Steiner, A. Aufy and T. F. Lien, 2012. Effects of supplemental essential oil on growth performance, lipid metabolites and immunity, intestinal characteristics, microbiota and carcass traits in broilers. Livestock Science, 144(3): 253–262.

Jamroz, D., T. Wertelecki, M. Houszka and C. Kamel, 2006. Influence of diet type on the inclusion of plant origin active substances on morphological and histochemical characteristics of the stomach and jejunum walls in chicken. J. Anim. Physiol. Anim. Nutr. (Berl.) 90: 255–268.

Nakatani, N. 2000. Phenolic antioxidants from herbs and spices. Biofactors 13: 141–146.

- Sensory additives (feed additives affecting the sensory properties of animal products)
- Technological additives (antioxidants, substances decreasing mycotoxin contamination of feeds, etc.)
- Zootechnical additives (immunomodulators, digestive stimulants, growth promoters of nonmicrobial origin, substances increasing performance and quality of animal products, etc)

Sensory additives

Englmaierova et al. (2013) found that significant increase in egg weight ($P < 0.001$), shell weight ($P < 0.001$) and shell thickness when ISA Brown hens fed diets supplemented with the algae Chlorella (12.5 g/kg) and lutein (250 mg/kg) and also found decreased yolk/albumen ratio of the egg, and Chlorella supplementation also significantly ($P < 0.001$) increased yolk color.

Technological additives

Hong et al., (2012) noted lower ileum ammonia concentration in broiler chickens fed with essential oil (125 ppm including the essential oil derived from oregano, anise, and citrus peel).

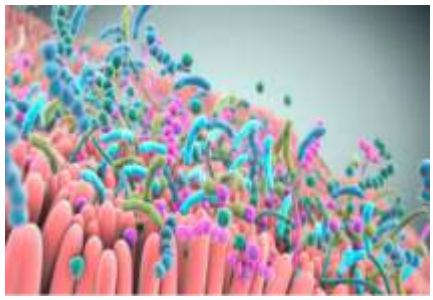
Zootechnical additives

Anti-oxidants

Antioxidant properties are well described for herbs and spices. Plant species from the families of Zingiberaceae (e.g., ginger and curcuma) and Umbelliferae (e.g. anise and coriander), as well as plants rich in flavonoids (e.g. green tea) and anthocyanins (e.g. many fruits), are also described as exerting antioxidative properties (Nakatani, 2000). Furthermore, pepper (Piper nigrum), red pepper (Capsicum annuum L.), and chili (Capsicum frutescene) contain antioxidative components. Volatile oils from Rosemary have antioxidant activity through phenolic terpenes, such as rosmarinic acid and rosmarol. Thyme and oregano contain large amounts of the monoterpenes thymol and carvacrol.

Modification of gut morphology

A change in morphological parameters, such as villus height, crypt depth, and number of goblet cells, was obtained in several studies when birds were fed diets supplemented with phytobiotics. Jamroz et al. (2006) reported that, depending on the type of diet, villus height and crypt depth were affected by dietary supplementation with a phytobiotic feed additive derived from carvacrol, cinnamaldehyde and capsaicin.



Improving production performance

The growth promotion activity of phytobiotic feed additives in poultry production is due to their effects of improving the digestibility of nutrients, improving the GIT microbiota, antioxidation property contributing to reducing the oxidative stress, immunomodulation, improvements in body weight, body weight gain, feed intake, FCR, carcass characteristics.

Arify et al. (2019) reported that significantly higher body weight gain was achieved in commercial broiler chicken fed with 10g garlic and 2g nilavembu.

Effective dosage

Phytobiotic feed additives may be given either in the feed or in the drinking water. Supplementation of mash diets with powdered or granulated phytobiotic feed additives allow for accurate inclusion levels and usually guarantees a steady supply of the active ingredients in the feed. Because of the volatility of essential oils, attention must be paid to the thermal stability when feed is subjected to high temperatures during pelleting, extrusion or expansion.

Application of liquid phytogenic formulas in the drinking water has the advantage of great flexibility in terms of application time and dosage. Provided that suitable dosing equipment is available on the farm, liquid phytogenic additives may be applied either continually or specifically at times of enhanced stress, environmental and feed change, housing or vaccination.

Limitations of pfa

The limitions of phytogenic feed additives are not easily quantifiable and standardized due to their complex composition. The location, soil type, weather conditions, altitude, season during which the plant is grown, harvesting procedure & storage conditions may affect the composition of plants. Majority of herbs are stable, there are various constituents which are photo liable, thermo labile thus less stable. Potential overdose of phytogenic feed additives that may be harmful to the bird. They are commonly used at very dose, generally at the feed ratio of 1-2% and some upto 5% and this may affect the nutrient composition of feed.

Conclusion

Phytobiotic compounds are an alternative to antibiotic growth promoters. The mode of action of phytobiotic to achieve better performance is not completely clear. Unfortunately, recent experimental results are available only from commercial products containing blends of phytobiotic substances. Therefore, systematic approach is needed to explain the efficacy and mode of action for each of type and dose of active compound. Nevertheless, the current experience in feeding such compounds to poultry seems to justify the assumption that phytobiotic feed additives may have the potential to promote production performance and productivity and thus add to the set of non-antibiotic growth promoters such as organic acids and probiotics.

HUVEPHARMA®

Huvepharma inches ahead towards comprehensive environmental sustainability & zero carbon footprint

- **Mr. O. P. Singh**
Managing Director, Huvepharma SEA

O. P. Singh

With the global order continuously changing the food production decentralization in the globe will emerge most dynamically & many new challenges will be thrown to mankind.

Every stakeholder has to respond towards these emerging challenges with at most responsibility & carefully chosen favoring strategies to strengthen the global environment.

What is the connection between business sustainability and environmental safety?

Business sustainability and environmental safety are closely intertwined. As businesses strive to become more sustainable, we need to take into account the impact of our operations on the environment. This means that businesses must consider how our activities affect air quality, water resources, wildlife habitats, and other aspects of the natural environment. At the same time, businesses must also ensure that our operations are financially sustainable in order to remain competitive in the long term. Therefore, it is essential for businesses to develop strategies that both protect the environment and ensure a profitable future.

How can businesses balance environmental safety and business sustainability?

With the rise of global warming and climate change, businesses are increasingly looking for ways to balance environmental safety and business sustainability. The challenge is that these two goals often conflict with each other. On one hand, our businesses need to ensure our operations are profitable and sustainable. On the other hand, we need to make sure that our activities don't damage the environment in any way. Fortunately, there are several measures that our businesses can take to achieve this balance. By investing in renewable energy sources, reducing our carbon footprint through efficient production processes, and implementing sustainable practices such as recycling and waste management, our businesses can both protect the environment and ensure our long - term success.

How do production processes need to be adapted in order to be more environmentally friendly?

With the world's population becoming increasingly aware of the need to protect our planet, it is important to make sure that production processes are adapted in order to be more environmentally friendly. This can be done by using more sustainable materials, reducing energy consumption, and making sure that waste is recycled or reused. Companies should also look into ways of reducing our carbon footprint, such as using renewable energy sources and investing in green technology. By implementing these changes, our businesses can help reduce our environmental impact and contribute to a greener future.

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What are the long-term benefits of sustainable product manufacturing?

Sustainable product manufacturing is an important step towards a greener and more sustainable future. It offers many long-term benefits that go beyond just the environmental impact. From reducing resource consumption to creating a healthier and safer working environment, sustainable product manufacturing can have a positive impact on the overall economy. For food businesses, investing in sustainable product manufacturing can help us reduce costs in the long run by using fewer resources and eliminating hazardous chemicals from our production process. Furthermore, it also helps us build trust with our customers by demonstrating our commitment to sustainability and social responsibility.

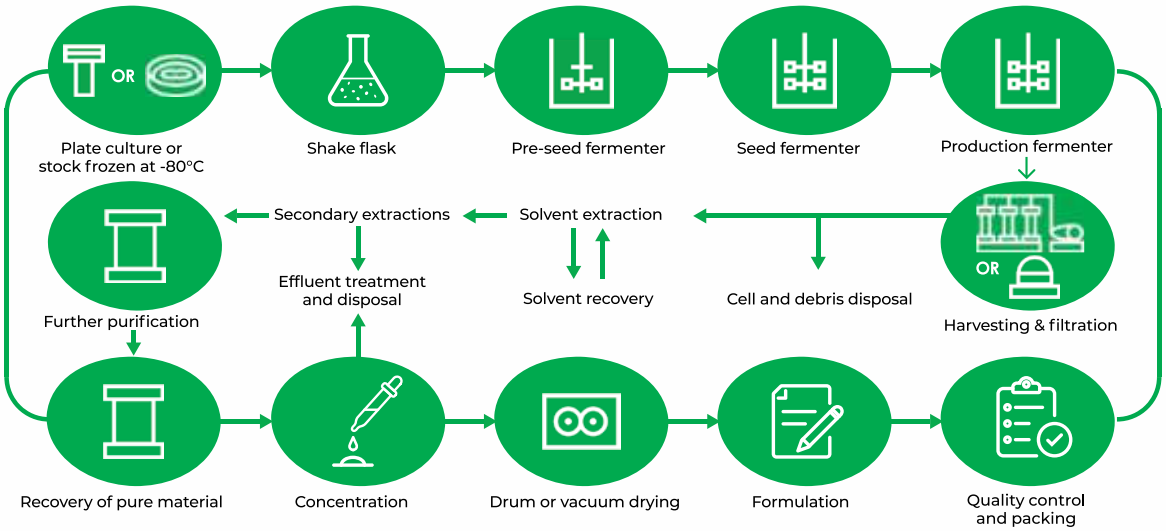
What strategies can be implemented to ensure efficient delivery of safe products?

Ensuring the delivery of safe products is a major challenge for food sector. This is especially true when it comes to food products that are used by consumers and require a high level of safety and quality standards. To ensure the efficient delivery of safe products, our businesses need to implement strategies that focus on quality assurance, risk management, and process optimization. Quality assurance involves identifying potential risks in the production process and taking corrective action to prevent them from occurring. Risk management involves assessing potential risks associated with the product or service before it goes into production.

Process optimization involves streamlining processes to ensure that they are as efficient as possible while still meeting safety standards. By implementing these strategies, our businesses can ensure the efficient delivery of safe products.

How does Huvepharma ensure safe production processes and food safety?

Our products are developed and manufactured to ensure their quality. Monitoring and control are carried out at each step of the manufacturing processes enforced by company-wide procedure standards. We use raw materials consciously, applying circular economy principles to efficiently manage different types of material flows. In terms of production and sales, we are guided by technological progress and innovation. We have the in-house capacity to produce: To ensure that we produce and deliver safe products, we follow the principles of GMP (Good Manufacturing Practice) and HACCP (Hazard Analysis and Critical Control Point) Packaging is also developed in accordance with the GMP standard, which ensures that the product remains stable in accordance with the label and is consequently safe to use in animals. All production facilities are certified in the international ISO 9001 quality and ISO 14001 environmental systems, and numerous of our operating procedures are in line with these systems. Internal and external audits are carried out annually on each of them. In the event of an irregularity or violation, an impromptu audit takes place. All these high standards that we use and adhere to safeguard high product quality. This, in turn, ensures the health of animals and consequently food safety for consumers at the end of the food chain.



What are the potential long-term impacts of not investing in environmental safety on business sustainability?

As businesses continue to grow, we must consider the potential long-term impacts of not investing in environmental safety. Without investing in environmental safety, our businesses are taking a risk that could lead to decreased sustainability. The effects of not investing in environmental safety can be seen in increased costs, decreased customer trust, and damage to the environment. Investing in environmental safety can help our businesses save money and increase customer trust by showing that we are committed to protecting the environment. Additionally, it can help protect the environment from further damage due to human activity. By investing in environmental safety now, our businesses can ensure sustainability for years to come.

How can businesses ensure their sustainability by taking measures for environmental safety?

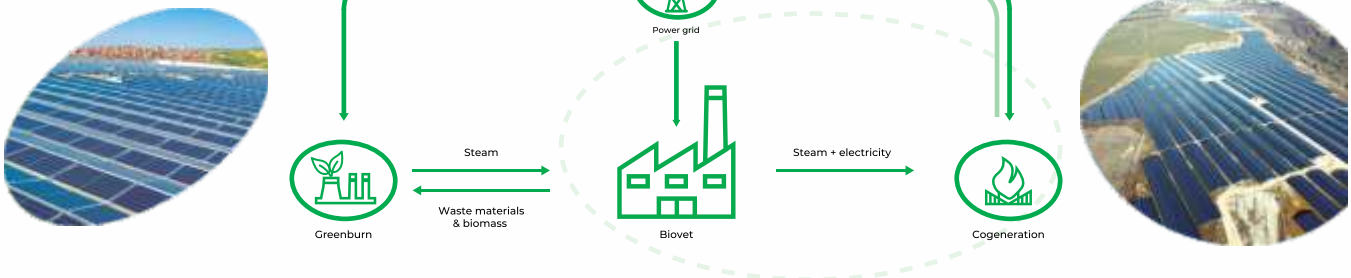
As our businesses strive for growth and profitability, it is essential that we adopt measures to ensure our sustainability in the long run. This includes taking steps to protect the environment by reducing our carbon footprint and ensuring that our operations are eco-friendly. Businesses need to understand that environmental safety is not only beneficial for the planet but also for ourselves as it helps us remain competitive in the market and reduces costs associated with waste management. By investing in renewable energy sources, efficient waste management systems, and green practices, our businesses can ensure sustainability while also contributing to a healthier planet.

How does Huvepharma ensure compliance with environnemental législation?

Our facilities, procedures & management systems are levelled with international best practice in environmental management. We transfer these best practices to our operations in other entities, amplifying them with country specific laws and standards. Our production facilities operate in accordance with ISO 14001. Each of our entities has a management system in line with international standards ISO 9001, ISO 14001, ISO 45001 or covering all these standards certified by SGS1 & IPCC2. As our main operational activity is in Bulgaria, some of our installations are part of the EU Emissions Trading Scheme and, therefore, we prepare verified annual GHG emission reports for under the Climate requirements of national & European legislation related to energy efficiency measures for large energy consumers. The aim is to analyse existing technology & energy systems to assess energy efficiency. Based on the assessment, we consider possible solutions to reduce energy in puts & green house gas emissions.

What steps has Huvepharma taken to reduce its carbon footprint?

Huvepharma will achieve carbon neutrality by 2030 comprehensively. We have set the goal of reducing our dependence on non-renewable energy sources. In recent years, we have introduced our own electricity and steam generation. We have installed a process monitoring system to control and manage electricity consumption. We have made significant investments in new equipment and in the improvement and optimisation of production processes. Cogeneration for electricity and steam generation Back in 2005, we commissioned a cogeneration plant at our production facility in the town of Peshtera. Using natural gas, we produce steam and electricity, which is used directly for our technological processes. This results in a decrease in the purchased electricity from the grid, and its mix is made up of approximately 40-45% lignite. Steam is used to achieve and ensure sterile conditions in the main part of the production process – industrial fermentation.



Kiril Domuschiev

HUVEPHARMA®

Environmental Safety & Sustainability Paradigm Remains Primary Strategy of Progress

- Mr. Kiril Domuschiev
Huvepharma CEO

The health of livestock, people and the planet are the centre of every decision we make. 2020 was marked by an unprecedented event in recent history – a global pandemic of the corona virus disease, also known as COVID-19. we would like to proudly highlight the resilience of our business. we strive to create value for our consumers, customers, employees, the environment, and society.

Our 4 main pillars are: 1) to provide quality products; 2) to value our people; 3) to protect the environment; 4) to contribute to local communities. For each pillar, we have set specific goals and we monitor progress and achievement. In the face of the corona virus crisis, we managed to react in a timely and proactive matter and adapted our goals according to the biggest needs of our stakeholders.

OUR PRODUCTS

As a company represented in over 100 countries, we take our responsibilities seriously, and we oversee the impact which we make where we have established operations. Our objective is to keep being a customer-favoured brand and a chosen supplier. Quality and customer satisfaction are of paramount importance to us. Behind every product we offer, there is a thorough process on how to make it the best alternative on the market. Not only do we offer innovative solutions to our customers, but we also continue to expand our portfolio. All our future endeavours reflect our consumers' needs, which we track frequently and rigorously. For 2020, we registered a 7.8% increase in sales, compared to 2019. Our production did not slow down because of COVID-19, but in fact increased. This was due to the opening of the new fermentation plant in the town of Peshtera, which allowed us to increase production capacity by 30% and to develop new product offerings. Once again, we demonstrated that our business is highly adaptable and resistant to unexpected market trends.

THE ENVIRONMENT

As a large manufacturer, we are aware of the environmental impact we have, and we have a responsibility to minimise it. We have set the ambitious but achievable goal to be carbon neutral by 2030. Thus, we will set goals and undertake actions to progressively decrease the emissions we generate. As an example, a project already initiated is the installation of our own solar park in the town of Peshtera, Bulgaria. Moreover, we implement innovative solutions in terms of our water management, waste generated, and resources used. We manage modernised wastewater treatment plants, and we check the air quality around our facilities. We address the reduction of waste generated on a multilevel basis – on one hand we implement energy recovery of the organic waste from production sites, on the other hand, we optimise packaging.

OUR EMPLOYEES

Dedicated and talented staff stand behind each achievement and contribute daily to our success. We have attracted skilful and experienced professionals and we want to retain them by providing them with the appropriate renumeration, job security, workplace safety, and a place where they are valued.

Without our people, we wouldn't have managed to maintain the high standards and strive for more. With regards to the outbreak of corona virus, we ensured all possible protective measures were introduced and we managed to preserve their jobs, without going through significant cuts.

OUR COMMUNITIES

Huvepharma is dedicated to improving the communities around us. We have always invested in local societies. The new reality, shaped by the pandemic, motivated us even more to take care of all our stakeholders and protect them at all costs. We managed to support local people and businesses and, considering, that COVID-19 is still prevalent in our everyday lives, we intend to continue contributing in the best way we can. Lastly, I want to thank everyone who is involved in our business. We deeply appreciate the interest and support towards the company, and we are proud that you have chosen us as a trusted partner. We will continue to prioritise new opportunities and cultivate good dialogue with all internal and external stakeholders.

HUVEPHARMA®

Sapience Agribusiness Launches Revolutionary Post-biotic Technology to Transform Animal Health Industry and Ensure Sustainable Food Security

In Interview with Mr. Prashant Kumar Co-Founder and Director, Sapience Agribusiness Consulting LLP

Mr. Prashant Kumar
Director,
Sapience Agribusiness Consulting LLP

An alumnus of Birmingham Business School, Prashant Kumar is a highly experienced professional with a strong background in brand development and strategy. With over 12 years of experience in the Asian agribusiness sector, he has made significant contributions to the field of food safety and production. As a co-founder and director of Sapience Agribusiness Consulting LLP, Prashant has successfully established the company as a leading player in the industry, with offices across Asia and the Pacific Rim. He is passionate about creating powerful agribusiness brands that contribute to food security and play a role in ending world hunger.

Mr. Prashant Kumar, Director of Sapience Agribusiness, had a meaningful and informative discussion with 'Team Pixie' during their product launch at Chandigarh. The main topics of conversation were the challenges faced by the agriculture industry, Sapience's approach to addressing these issues, their future plans, and their roadmap towards cost-effectively achieving food security for everyone.

Question: The agriculture industry faces various challenges, including climate change, food security, and sustainable production. How does Sapience address these challenges, and what solutions do you provide your clients to ensure the business remains profitable and sustainable?

Prashant Kumar: Thank you for having me; it was an absolute pleasure to meet you all. Your question is highly relevant because we are currently at a critical juncture in agriculture, particularly in animal agriculture, where our collective goal is to achieve a sustainable and food-secure future. Sapience is dedicated to building an organization of the future that focuses on sustainably producing more food that is not only safer but also of higher quality. We provide innovative, next-generation, and cost-effective solutions relevant to the industry.

Regarding sustainability, we firmly believe in the concept of One Health, which recognizes the close interconnection between human health, animal health, and the environment. This understanding has been prevalent for many years. If we fail to acknowledge the delicate balance among these ecosystems, we will face severe and lasting impacts in terms of climate change and human health. Let me illustrate this with a couple of examples. Out of 100 antibiotics, over 80 are utilized in the animal system. In India alone, antimicrobial resistance has already caused over a million deaths. By 2050, that number is projected to reach 10 million deaths, surpassing the toll of cancer, tuberculosis, HIV, diarrhoea, and other known causes of death. This alarming situation arises partly due to the lack of safe and sustainable food production.

Additionally, the livestock industry contributes to the carbon footprint, mainly through methane emissions from ruminants. At Sapience, we recognize these facts and take ownership as stewards of change in the industry. One of our notable technologies is 'Amaferm,' a Rumen modifier that reduces methane intensity in animals, directly contributing to environmental causes.

We are proud to have introduced bacteriophages, a safe and effective solution to replace some antibiotics

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Bacterphage F

We took an already great product and made it even better.

eXolution is now Xcelsio.
Our relentless effort to make the world a safer and healthier place has led us to create Xcelsio. After years of cutting-edge research in Korea, we have come up with an advanced formulation to make Xcelsio more potent than before.

Xcelsio comes with a more concentrated cocktail of bacteriophage and is fortified with more Bacillus subtilis. This new and improved formulation, created specifically for use in poultry, is simply unmatched in controlling pathogenic bacteria–giving you Total Gut Control.

Each of our bacteriophages is painstakingly selected using our proprietary Bacterphage F technology to target and eliminate specific bacteria; leaving other beneficial bacteria completely unharmed. This natural surgical strike on disease-causing bacteria is the safest, non-toxic, and most effective prophylactic alternative to antibiotic growth promoters.

Xcelsio

Natural Feed Additive

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Surgical:
Targets and eliminates specific bacteria, even those resistant to antibiotics

Protective:
Maintains gut bio-balance by retaining beneficial bacteria

Probiotic:
Enriched with Bacillus Subtilis

Flexible:
Compatible with all Performance Enhancers, Growth Promoters, Acidifiers, Anti-Oxidants, Minerals & Enzymes

BACTERIA IT CONTROLS

Salmonella
Typhimurium Gallinarum Choleraesuis, Derby, Dublin, Enteritidis, Pullorum

E. Coli
F4 (K88), F5 (K99) , F6 (987P), F18, F41

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sapience

in our food system. These technologies are just a few from our robust pipeline of innovations, which we plan to launch in the next 12 to 15 months. Our ultimate goal is to move towards a future that is not only food secure but also creates an ecosystem for producing safe and higher-quality food.

I hope I have provided some insight into our approach to sustainability and food safety.

Question: Yes, it has been fantastic. So, is this why you founded Sapience in 2016 because you believed these were the problems that needed to be addressed? What were the other reasons behind founding Sapience? Since 2016, the company has experienced accelerated growth and successful investments. What is the story behind Sapience?

Prashant Kumar: The company was actually founded by my father, Mr. Somu Kumar Ambat, who has been a part of the industry for 44 years. He started his career with Venky's and worked closely with Dr. B. V. Rao, considered the father of the Indian poultry industry. Afterward, he worked with several multinational companies. In 2016, after his experience in large corporations, he returned to India. At that time, I was pursuing a different career path, which I'll share with you shortly. However, my father reflected on his four decades in the industry, a field he loved and dedicated his life to. He observed certain gaps and envisioned a clear path to contribute and propel the industry forward rather than accepting the existing status quo.

What was this status quo? It involved the excessive use of chemicals and contributing to issues like antimicrobial resistance, which he deemed unsustainable for animals and, more importantly, humans. Internally, he felt a calling to make a difference, to take the industry in a direction he would be proud to leave behind. That's when we had a conversation—an intriguing conversation. On the other hand, I come from a different world. I'm an engineer by training and worked in technology for several years before becoming an entrepreneur about 12 years ago. I started a company in Singapore focused on enterprise mobility, which I eventually sold. Upon returning to India, I embarked on my second entrepreneurial venture called Freo, a high-end business-to-business and brand consulting company that continues to thrive. Technology and communications are my passions, and during this time, I played a part in building over 80 different Indian brands.

The challenge my father presented to me was, "You can spend the rest of your life building other people's businesses, or you can make a real difference in people's lives. We work in the food industry, and I've dedicated my entire career to producing more food. Together, we can push this industry in a different direction—one that I can be proud of, and more importantly, one that you can be proud of if you choose to dedicate your life to it." For me, that was my calling. I decided to leave my full-time pursuits and co-founded Sapience with my father. That's why I entered this vast, vibrant, and beautiful industry, where I now dedicate 24 hours a day to producing more food, making it safer.

Question: You mentioned your father's impact on you and how you were initially an outsider to this industry. Could you elaborate on how your passion complemented your calling? When you started Sapience, what were your ideas and goals?

Prashant Kumar: My passion has always been working with people. Initially, I envisioned myself working for a leading aviation company, sitting behind a computer and writing hundreds of thousands of lines of code. I did that for a few years but soon realized I could make a greater impact by working directly with people. I wanted to combine my passion for working with others with a cause that goes beyond personal success—to contribute to ending world hunger and producing safer food.

For me, that balance was perfect. It meant having the opportunity to work on real issues at the grassroots level, collaborating with genuine individuals, and leaving behind a legacy that I can be proud to share with future generations. This resonated much stronger with me than solely building brands or working with technology, which I still enjoy and excel at, but they don't provide the same sense of calling. A calling is something you dedicate your life to, whereas passion can be pursued as a hobby. I believe that's where the distinction lies.

When we started Sapience, our primary goal was to address the pressing challenges faced by the agriculture industry and ensure food security for everyone sustainably and cost-effectively. We wanted to develop innovative, next-generation solutions prioritizing human, animal, and environmental health. Our aim was to produce more food of higher quality while minimizing the use of chemicals and antibiotics. We also aimed to reduce the carbon footprint and methane emissions associated with animal agriculture. These were the foundational ideas and goals that shaped our journey with Sapience.

Question: Today, we are here for

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the launch of your new product. Could you provide some details about the product and the innovative technology it brings, along with its benefits?

Prashant Kumar: We are thrilled to introduce our latest product, A O. Biotics EQE, which stands for "Egg Quality Enhancer." This product represents a new category of fermentation products. When we talk about fermentation products, we generally refer to probiotics and prebiotics that have been used for many years. Probiotics are live microorganisms that, when administered in specific doses, have been proven to provide health benefits to hosts, such as chickens. However, traditional probiotics have certain limitations, including stability, shelf life, and mode of action.

With A O. Biotics EQE, we are venturing into a new realm of technology. This is a post-fermentation product, which means that we have gone beyond the limitations of traditional fermentation. Instead of using live microorganisms, we have dissected the cellular level of a specific microorganism called Aspergillus oryzae. We have identified highly potent and beneficial components within this microorganism, which we cannot disclose at this time due to intellectual property reasons.

The components we have identified are currently patent pending, and we have also applied for patents for the post-fermentation process itself. This technology is a significant leap forward, and we refer to it as post-biotics. The post-fermentation process and the specific components we have extracted take this category to the next level. This technology is cutting-edge and aligns with our precision nutrition products line.

What sets A O. Biotics EQE apart is that it is a non-viable, non-living product with a clear mode of action. The dosage is precise and concentrated, providing unrivaled benefits. This level of precision and potency makes it truly unique in the market.

We are extremely proud of this groundbreaking technology and believe that it will have a significant impact on the industry. It represents a dynamic leap forward, and we are excited to bring it to the market.

Question: This groundbreaking technology is indeed set to disrupt the market. It marks the beginning of a new era, and we anticipate that the industry will take notice. The introduction of A O. Biotics EQE is just the first step in this transformative journey. We envision a whole range of products utilizing this innovative technology.

Prashant Kumar: It's important to note that A O. Biotics EQE is specifically designed for laying hens, breeders, and layers. We have tailored this product exclusively for their unique needs, making it highly specialized and unlike anything currently available in the market. This level of specificity is something that sets us apart and showcases our commitment to delivering targeted solutions for specific segments within the industry.

Question: Your journey from studying engineering in college to venturing into the protein intake industry and eventually finding your calling has been remarkable. Now, considering your unique experiences, what advice would you give to young entrepreneurs across the nation? Specifically, how can they differentiate between their passion and their calling, and what should they look for in their entrepreneurial pursuits?

Prashant Kumar: My advice to young entrepreneurs across the nation would be to first identify their innate talents and passions. Discover what comes naturally to them and what they excel at. Once you have found your talent, focus on polishing and developing it further. Passion often stems from doing what you are naturally good at.

However, passion alone is not enough. It is crucial to ask yourself the following questions: What will make you happy for the rest of your life? Can you envision looking back in 50 years and feeling proud of your life's work and the purpose behind it? Finding your calling requires deeper reflection and aligning your work with a greater sense of meaning and purpose.

In addition, maintaining curiosity, constantly seeking knowledge, and challenging the status quo are key to entrepreneurial success. Taking calculated risks is also essential. Early in your career is an ideal time to take risks as you have less to lose. Be willing to step out of your comfort zone and explore new opportunities.

As a country and an industry, we need more entrepreneurs who are willing to disrupt the norm and push the boundaries of what is possible. Embrace the spirit of entrepreneurship and bring innovation to your chosen field. The protein industry, in particular, is ripe for disruption, and there are vast opportunities for those willing to challenge assumptions and ignite their entrepreneurial spirit.

Ultimately, remember that your work should be meaningful, real, and something you can be proud of. Strive to make a positive impact and leave a lasting legacy. With passion, curiosity, risk-taking, and a sense of purpose, you can embark on an entrepreneurial journey that transforms not only your life but also the industry you enter.

Thank you, Prashant, for having us today, and we look forward to your new product and what changes it actually brings to the market. And then we will have a good talk after some time together when we get together again.

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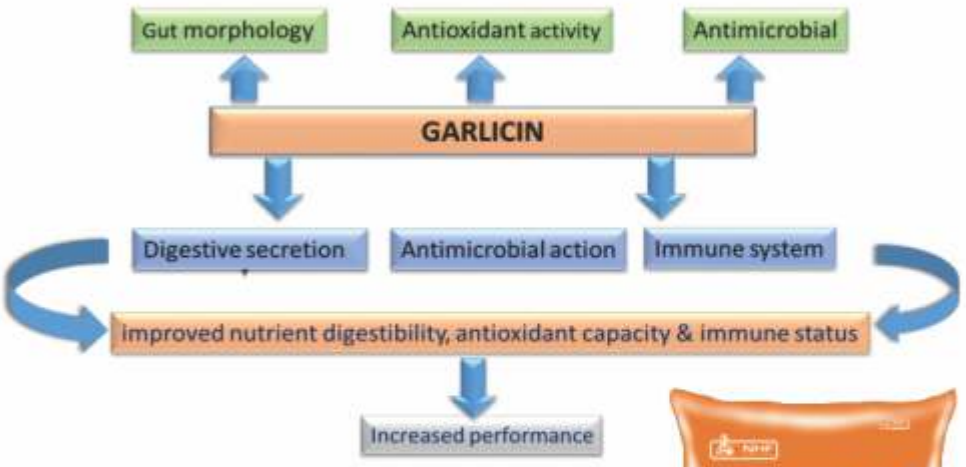

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In Interview with Dr. Cesar Ocasio Regional Business and Innovation Manager, Biozyme Inc.

Doctor Cesar Ocasio
Business Development and Innovation Manager

BIOZYME® INCORPORATED

Dr. Cesar Ocasio is a Regional Business Manager - Europe for the growing International Division. He provides technical and commercial support to BioZyme's partners and clients in Europe, Asia, Africa and Australia, while continuing to expand their list of partners and promoting the use of BioZyme's additives in different countries around the world.

Team Pixie: Today at Pixie ExpoMedia, we have Doctor Cesar from Biozyme Incorporated. Biozyme has partnered with Sapience in India, and in our earlier interview with Mr. Prashant Kumar, Director Sapience, we discussed the future of postbiotics in the animal health industry. Biozyme being the pioneer in postbiotic technology, chose to partner with Sapience in India. What made you choose Sapience as a partner when you decided to enter the Indian market?

Dr. Cesar Ocasio: That is actually a really good question. I can tell that since 2018, Biozyme has formed what we call an international team. We work to find local distributors that, like Sapience, know the market really well and have the access that we are looking for. We chose Sapience to represent our brands in India because they have a strong team of intelligent minds composed of technical veterinarian people, marketing people, and everything that we are looking for in a partner and a partnership with Biozyme.

Team Pixie: The new product we will launch today is based on new technology that moves from fermentation to post-fermentation. This product is going to introduce its own category in the market. What motivated you to work for this product, and where and how was the idea born?

Dr. Cesar Ocasio: So basically, the idea was born, so to say, from a heavy research program that we have in our company. We worked in collaboration with different important universities all around the world. We have invested heavily in research for the last six to eight years. This research has been mainly targeted to understand better the core of Biozyme, the core of its product, Aspergillus oryzae, and how we ferment with it. Based on that and utilizing all that knowledge brings us to another level. We are now implementing this new technology, the post-fermentation process, and other prototype fermentation processes to go to the next level and bring in new solutions that can enter into a new category of products that are the post-biotics.

Team Pixie: A slightly different question. What made you choose bioscience, and what do you think will be the future of biomedical science?

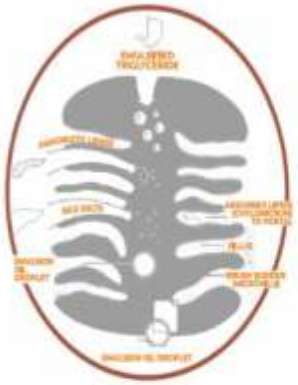
Dr. Cesar Ocasio: I think that is a great question. It makes me reflect on bioscience and for choosing this line of work. I decided on bioscience mainly because I want to help people. I wanted to help the future that is now forming itself. I also wanted to understand, for example, what we eat, its origin, and the several things involved in bringing that dish to the table.

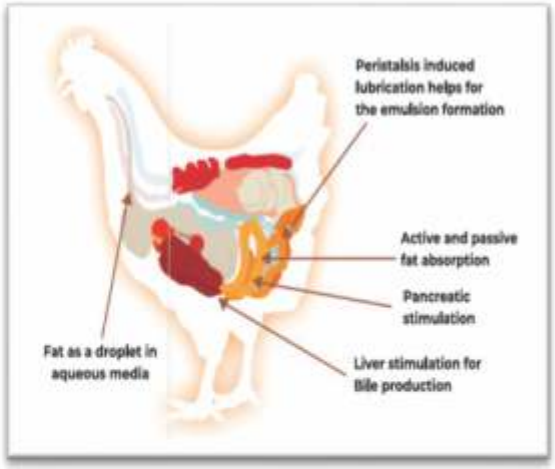
Bioscience has a strong future ahead of us because mixing the concepts of bioscience with all the technological advantages we have nowadays represents a big opportunity. It is, in fact, the same approach that we are following at Biozyme. So we are mixing our knowledge in bio-science with technology to solve the various challenges in animal nutrition. This amalgamation of the two worlds, bioscience and technology, will bring us to another level. That is where I see the future of bioscience.

Team Pixie: It was a pleasure to have you with us today, and may the future hold fine tidings for you, and may this product bring great value to the protein food industry.

LIPROVET

Accomplishing fat utilization beyond emulsification





LIPROVET

Fat, the indispensable component of the diets despite bringing the feed texture and digestibility challenges, support the body mainly for energy & hormone synthesis that directly affects performance traits and farm profitability. Despite emulsifier helps to ease the digestion & absorption, the best poultry diets today essentially needs a comprehensive approach for the fat metabolism in the body offering homeostasis, lipotransport & effective fat utilization. Today it is essential to support fat metabolism along with hepatic-regulators, lipotropic agents and osmoregulators for supporting for effective fat utilization by the bird.

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For technical details of product, trials you can connect Dr Prasad Kulkarni, Director, Biosint Nutraceuticals @prasad.kulkarni@biosint.co.in

NOVUS to Host Nutrition Symposium on Improving Broiler Performance and Sustainability at ESPN

This free pre-conference symposium will take place June 21

Novus International, Inc., is gathering poultry experts to share how broiler producers in the European Union and the Americas can use nutrition to bolster both performance and sustainability during a special event at the 23rd European Symposium on Poultry Nutrition (ESPN).

NOVUS presents its own symposium called **Improving Performance and Sustainability through** Nutrition on Wednesday, June 21 held in conjunction with ESPN.

"We are very excited to bring this broiler-focused symposium to ESPN," says NOVUS Executive Regional Technical Services Manager Silvia Peris, DVM, Ph.D., who will serve as the event's moderator and host. "The speakers joining us are experts in the field and really understand the concerns weighing on producers' minds. Drs. Tillman and Davin both work with top integrators, feeding millions of broilers. Their experience is vast, and I know they're eager to share how the broiler industry can get the most from birds through nutrition."

The NOVUS symposium features presentations from three industry experts, sharing their perspectives and answering audience questions during this interactive event.

Nutritional Strategies for Broilers in the Americas

Paul B. Tillman, Ph.D., PTNS - Poultry Technical Nutrition Services, LLC.

Dr. Tillman will share how the broiler industry in the U.S. has changed due to the increase in broilers raised without antibiotics. He'll discuss how nutrition can optimize performance, specifically relating to amino acid formulation to reduced C/P (energy/protein) formulas and considerations in trace mineral supplementation, as well as the environmental impact of broiler production.

Nutritional Strategies for Broilers in EMEA

Roger Davin, DVM, Poultry Consultant and Product Manager at Schothorst Feed Research

Dr. Davin will provide an overview of European poultry production trends and the consequences these trends have on nutrition. He'll discuss sustainability measures like low protein diets, reduced soybean meal usage, mineral utilization, and slow-

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growing broiler chickens, and the impact these actions have on gut health and bird performance.

Trace Mineral Nutrition: Scale Up™ Program to Expand Broiler Potential

Hugo Romero-Sanchez, Ph.D., Executive Manager, Global Poultry Technology Lead at NOVUS

Dr. Romero will provide an overview of mineral supplementation recommendations from various organizations, explaining the practicality of these recommendations in current poultry production systems and with modern husbandry practices. His presentation will address different trace mineral sources and their efficacy in optimizing bird growth and performance.

"Producers are being asked to grow robust, healthy broilers with less pharmaceutical intervention and less impact on the environment, while also managing high feed costs and pathogens that may affect their flocks," Romero says. "This symposium offers insight and actionable suggestions on how producers can improve the flock and financial outcomes on the farm."

Romero will also discuss how NOVUS's Scale Up™ Program for broilers uses intelligent nutrition to address customer challenges and help meet production goals.

The NOVUS Symposium is free to attend for all those registered for ESPN. The program begins at 16:00 on Wednesday, June 21, in Tempio 1 Room at Palacongressi di Rimini, the site of ESPN.

For the full program and more information about the presenters, visit https://ni.novusint.com/espn-symposium

ESPN attendees can visit NOVUS booth #36 to speak with representatives about the company's intelligent nutrition solutions that are made of more.

###

Novus International, Inc. is the intelligent nutrition company. We combine global scientific research with local insights to develop innovative, advanced technology to help protein producers around the world achieve better results. Novus is privately owned by Mitsui & Co., Ltd. and Nippon Soda Co., Ltd. Headquartered in Saint Charles, Missouri, U.S.A. www.novusint.com.

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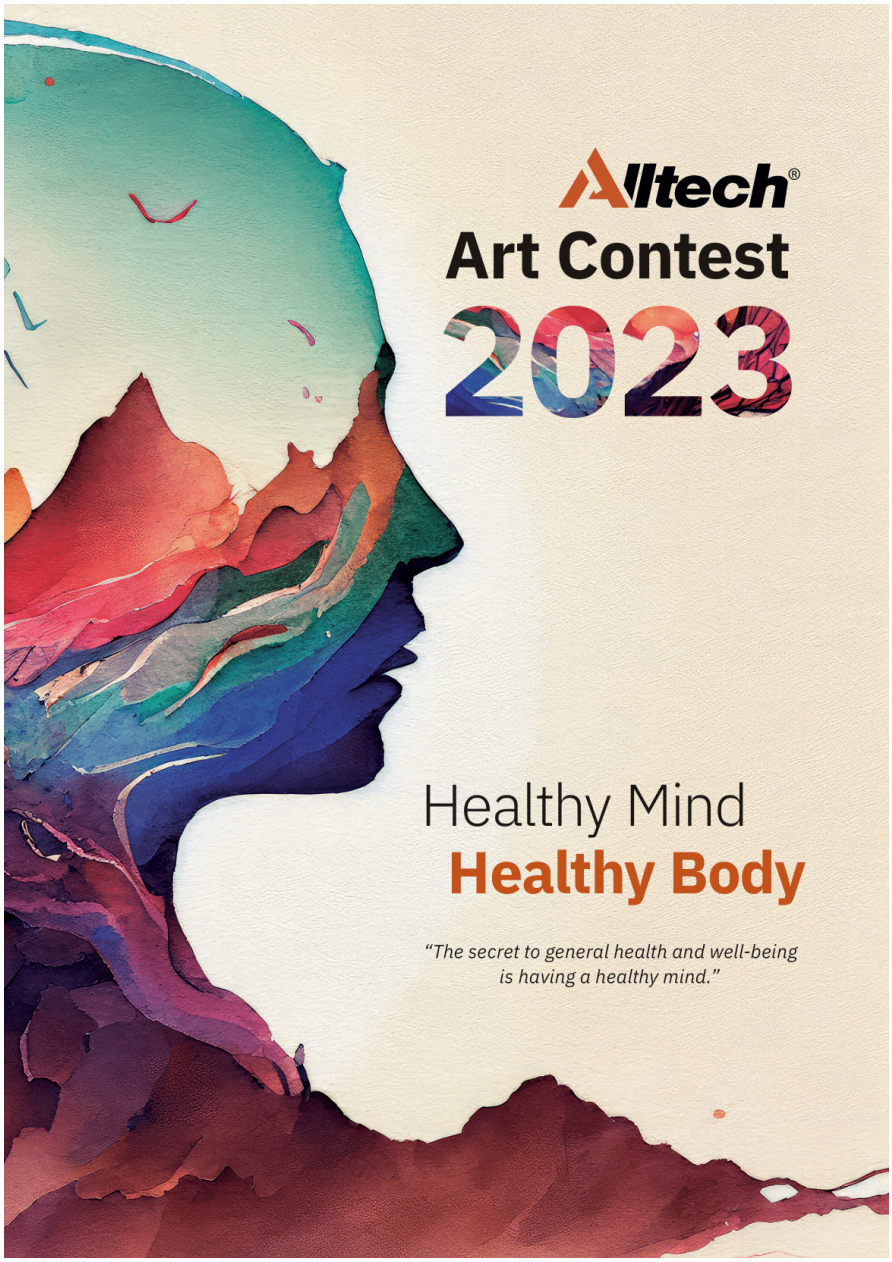
Our customers know the true worth,
because originality matters

Being Original

Alltech Launches Ninth Annual Art Contest, Invites Nationwide Participation From School Children.



Alltech, a global leader in animal health and nutrition, announces the ninth annual Art Contest for schoolchildren. The competition will accept entries from June 9 to July 31, 2023.

The winning entries will be featured in the 2024 Alltech calendar and awarded cash prizes and certificates.

"Healthy Mind — Healthy Body" is the theme of this year's art contest.

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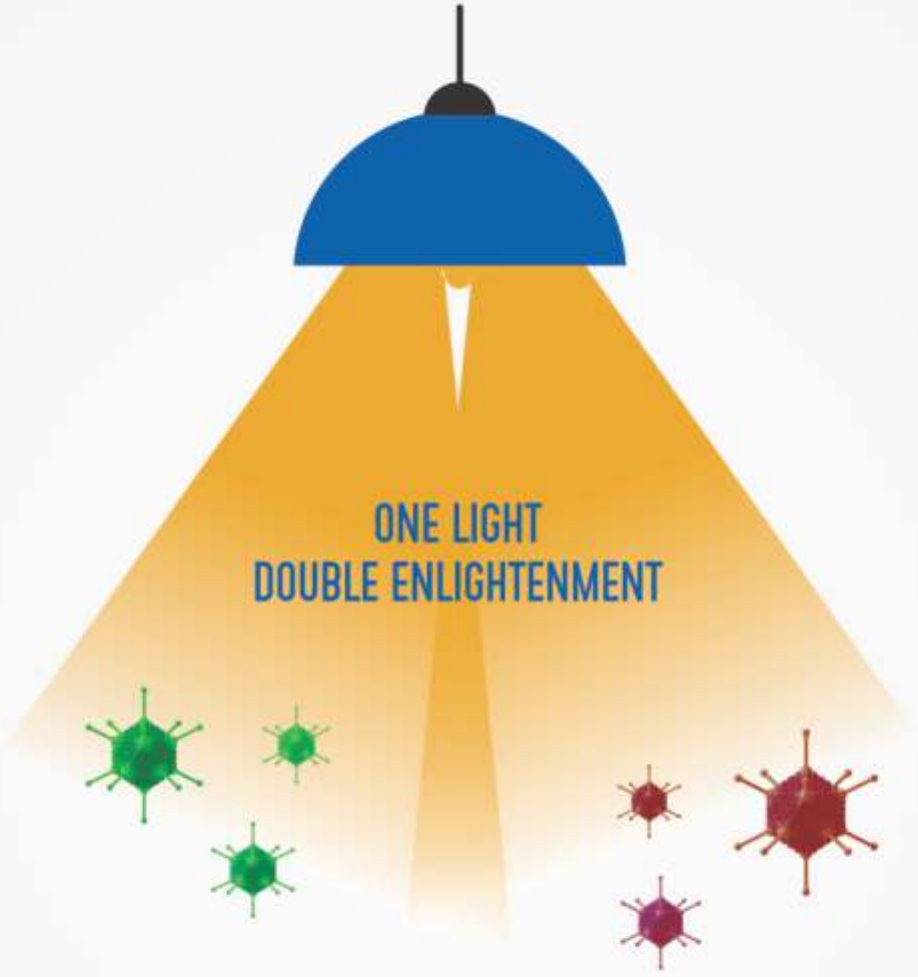

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Continuous Service Of Poultry Industry

Having a healthy mind is paramount to overall health and well-being. A healthy mind influences your thoughts, feelings and actions, as well as your emotional, psychological and social well-being. It collaborates with your body and determines how you deal with stress, interact with others and make decisions.

Alltech chose the topic "Healthy Mind — Healthy Body" for this year's art contest to help children realize the need to develop strong social, emotional, behavioral, thinking and communication skills as a foundation for greater mental health and physical well-being later in life.

"We are excited to announce the launch of the ninth annual Alltech Art Contest, with the theme 'Healthy Mind — Healthy Body,'" said Dr. Aman Sayed, managing director of India and regional director of South Asia at Alltech. "A healthy mind is a precedent for a healthy body. Until recently, human evolution has been 'outside-in,' starting with the body, followed by the mind. In the new normal, this order has begun to reverse, and humans' 'inside-out' journey has begun. Every parent and child should focus on a few basic areas - healthy nutrition, exercise, rest and stress reduction to maintain a fit mind and body."

Who can participate?

All students between 5–16 can participate in the contest. The competition is open for children in India and Nepal.

When?

The contest is open for submissions from June 9 to July 31, 2023.

Online submission rules:

The theme "Healthy Mind — Healthy Body" must be the focus of the artwork.

- The artwork must be on paper of A4 size (210 × 297 mm) and in landscape mode.
- Acceptable media include crayons, watercolors, oil paints, acrylic paints, poster colors, color pencils, or pastels.
- The artwork must be unsigned by the artist.
- Entries should be submitted online. Upload a scanned image of the finished artwork to the website, filling in all the relevant details requested on the page. (Please only send a scan; do not mail us the original unless we ask for it.)
- The contest is open for participants from India and Nepal.

Submission:

The submission is online-only. Entrants must upload a scanned image of the artwork to the contest website and fill out all the relevant details requested on the page.

Check out the link below to participate and to learn more about the Alltech Art Contest.

Website link:
https://www.alltech.com/en-in/about/events/alltech-art-contest-2023

Terms & condition:

- Artworks copied or downloaded from the internet, or copied from any other source, will be disqualified.
- All artwork submitted for the competition will become the property of Alltech and will not be returned.
- Winners will be announced on August 28. The list of winners will be published on Alltech's website and social media channels and will also be communicated through the mail.

For more details, please contact your local Alltech sales manager or email alltechartcontest@alltech.com.
Contact: **Dr. Manish Chaurasia**, Marketing Manager, South Asia
mchaurasia@alltech.com; +91 8130890989

About Alltech:

Founded in 1980 by Irish entrepreneur and scientist Dr. Pearse Lyons, Alltech delivers smarter, more sustainable solutions for agriculture. Our products improve the health and performance of plants and animals, resulting in better nutrition for consumers and a decreased environmental impact.

We are a global leader in the animal health industry, producing additives, premix supplements, feed and complete feed. Strengthened by more than 40 years of scientific research, we carry forward a legacy of innovation and a unique culture that views challenges through an entrepreneurial lens.

Our more than 5,000 talented team members worldwide share our vision for a Planet of Plenty™. We believe agriculture has the greatest potential to shape the future of our planet, but it will take all of us working together, led by science, technology and a shared will to make a difference.

Alltech is a private, family-owned company, which allows us to adapt quickly to our customers' needs and maintain focus on advanced innovation. Headquartered just outside of Lexington, Kentucky, USA, Alltech has a strong presence in all regions of the world. For more information, visit alltech.com, or join the conversation on Facebook, Twitter and LinkedIn.

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Announcement Letter

CLFMA 56th AGM & 64th NATIONAL SYMPOSIUM 2023

Dear All,

We are pleased to inform you that the 56th Annual General Meeting (AGM) and 64th National Symposium 2023 which will be held on August 18 & 19, 2023 at Hotel Le Meridien, Windsor Place Janpath, New Delhi 110001.

The theme of the symposium is **"Livestock Sector: Looking Beyond the Present."**

Please find attached Delegate Registration Form.

Meanwhile, please reserve your dates and reply **to admin@clfma.org** and confirm your participation.

With warm regards,

Suresh Deora

Chairman

= =

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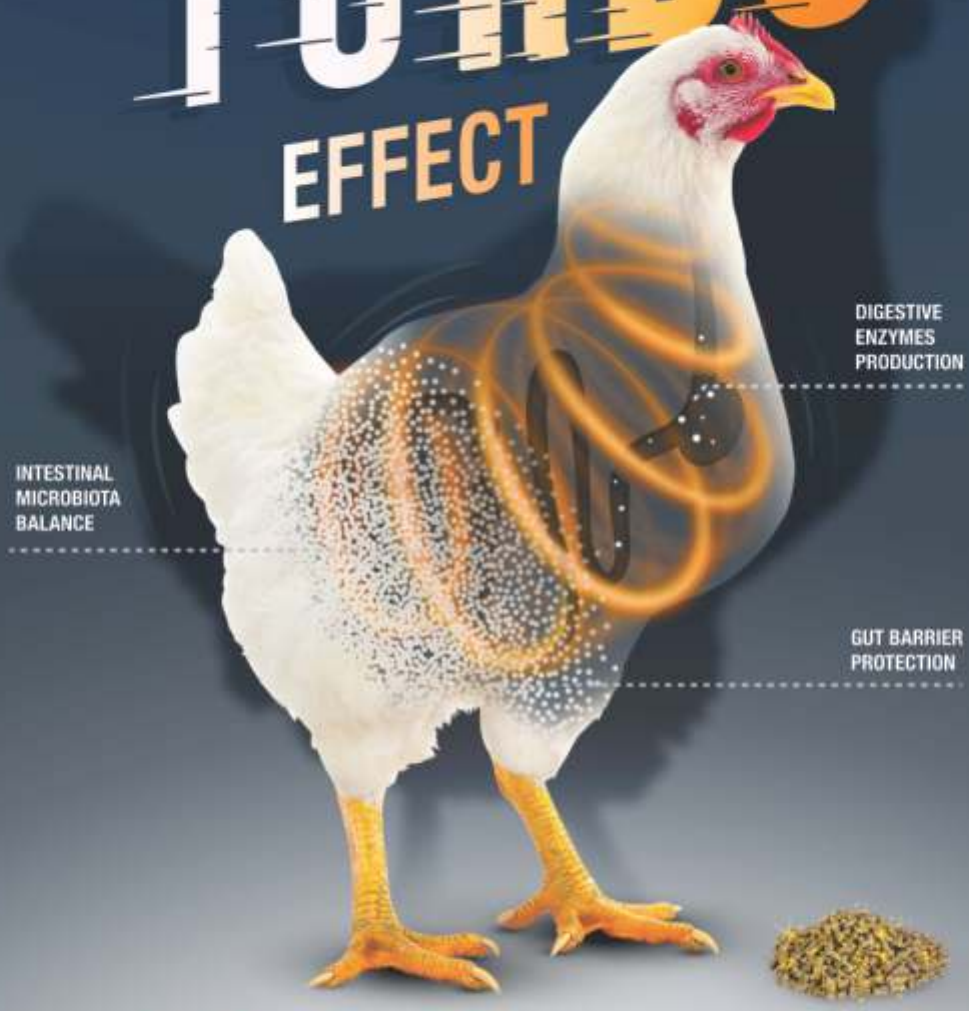

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Featherly the Funny Fowl Leaves Featherlandia Farm in Stitches

Once upon a time, on a farm called Featherlandia, there lived a chicken named Featherly. Featherly was known throughout the farm for his witty remarks and his love for telling jokes. Every morning, he would gather all the farm animals around him and share his latest humorous tale. Here's one of his famous jokes:

One day, Featherly waddled up to a group of cows and said, "Why did the chicken join a band?"

The cows looked at each other, puzzled. One of them finally replied, "I don't know, Featherly. Why did the chicken join a band?"

Featherly clucked with excitement and said, "Because it had the drumsticks!"

The cows erupted into laughter, their laughter so loud that it attracted the attention of the neighboring pigsty. The pigs, curious about the commotion, came over to see what was happening. Featherly noticed them and decided to share another joke:

"Hey, pigs!" he called out. "Why did the chicken go to school?"

The pigs, eager for some humor, snorted and replied, "We're not sure, Featherly. Why did the chicken go to school?"

Featherly chuckled and said, "To improve its eggucation!"

The pigs squealed with laughter, rolling around in the mud with delight. Featherly's jokes were always a hit, and word quickly spread across the farm about his comedic talent.

From that day on, Featherly became the resident comedian of Featherlandia. The farm animals eagerly awaited his daily jokes, which brought joy and laughter to their lives. Even the grumpy old rooster, who was usually stern and serious, couldn't help but crack a smile at Featherly's clever humor.

Featherly continued to entertain his farm friends with his witty remarks, and his reputation as the funniest chicken in the land grew far and wide. Visitors from neighboring farms would come just to hear his jokes and join in the laughter.

And so, with his feathered wit and infectious humor, Featherly brought laughter and happiness to Featherlandia, reminding everyone that a little joke and a smile can make even the dreariest day brighter.

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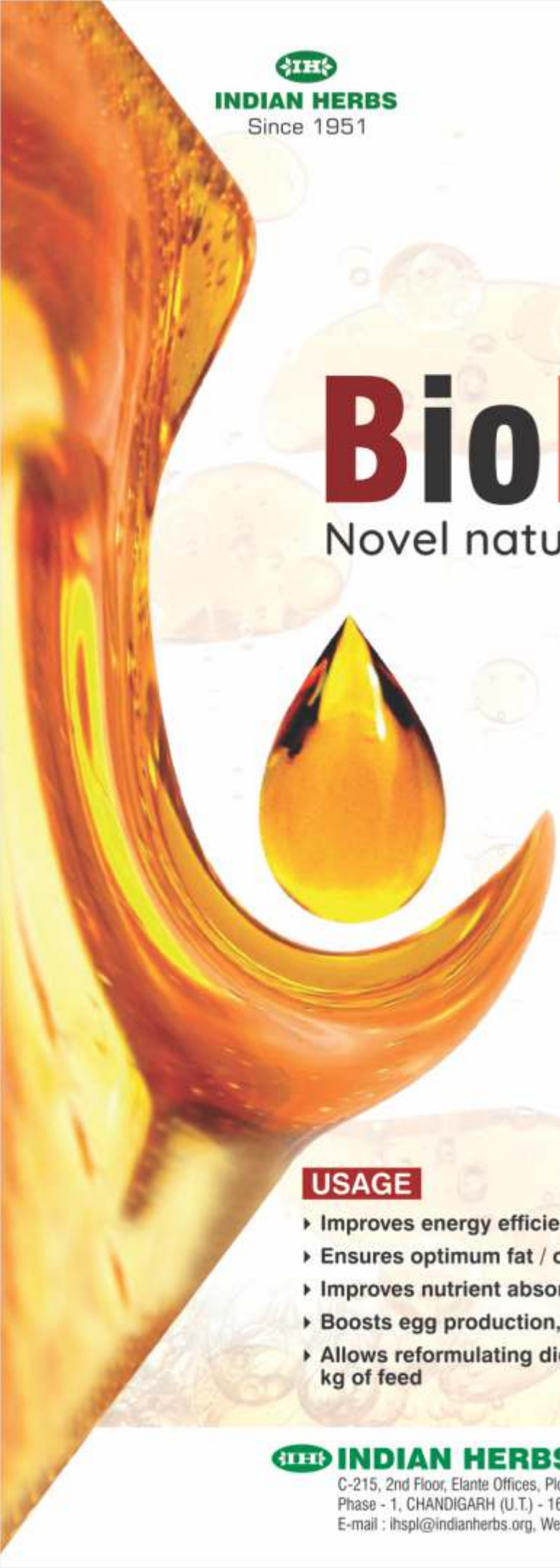

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$82 million in loans approved by the World Bank for prevention of zoonotic disease in India

The World Bank's acceptance of the $82 million loan is a crucial step in improving India's One Health strategy and addressing the dangers posed by zoonotic diseases.

The Board of Executive Directors of the World Bank has approved a $82 million loan to assist India in implementing international best practices for animal health management. Given the interdependence of humans, animals, and the environment, the loan strives to prevent, identify, and respond to endemic zoonotic, trans boundary, and emerging infectious illnesses.

India has the greatest population of animals in the world, hence the hazards of animal disease epidemics are extremely significant. In addition to endangering public health systems, these epidemics have a huge financial impact. For instance, the cost of foot and mouth disease to the nation as a whole is about $3.3 billion a year.

The loan would help India's livestock health and disease management programme, which aims to reduce the spread of zoonosis and other animal diseases. The risks of animal disease outbreaks can be decreased by executing this programme, which will strengthen disease surveillance and veterinary services in the livestock and wildlife sectors.

At least 2.9 million livestock producers in the participating states of Assam, Karnataka, Maharashtra, Odisha, and Madhya Pradesh will have easier access to better animal health care thanks to the Animal Health System Support for One Health Programme. This will make it easier to spot illness outbreaks early and respond quickly when they do occur.

Modern laboratories will be built as part of the programme to encourage communication and information sharing between the human and animal health industries. This integrated approach will allow for a more thorough understanding of disease patterns and assist in the creation of evidence-based management strategies for animal illnesses and zoonosis.

The programme will put a special emphasis on boosting food quality and safety, especially in livestock and wet markets, in addition to disease control. By ensuring that animal products adhere to strict quality requirements, this action seeks to lower the possibility of disease transmission to people through food intake.

Program-for-Results (PforR) financing is used in the $82 million loan from the International Bank for Reconstruction and Development (IBRD). According to this strategy, funding is allocated in accordance with the accomplishment of particular programme results. The loan has an 11.5-year term with a 4.5-year grace period.Key points about the World Bank:

The World Bank: The World Bank is an international financial institution that provides loans and grants to the governments of low- and middle-income countries for development projects. It aims to reduce poverty and promote sustainable economic growth.

World Bank Group: The World Bank Group consists of five institutions, including the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). The other three institutions are the International Finance Corporation (IFC), the Multilateral Investment Guarantee Agency (MIGA), and the International Centre for Settlement of Investment Disputes (ICSID).

Board of Executive Directors: The World Bank is governed by its Board of Executive Directors, which represents its 189 member countries. The Board makes decisions on key policies, strategies, and financial assistance provided by the World Bank.

President of the World Bank: The President of the World Bank is the highest-ranking official in the institution. Indian-American business leader Ajay Banga has been appointed as the President of the World Bank for a five-year term.

OVO Farm introduces blockchain technology in Egg Industry

OVO Farm, the biggest egg-producing firm in East India, is leading the charge to disrupt the Indian egg industry with its product and process innovation in order to bring trust and transparency for the benefit of customers. The Egg Major just debuted its own blockchain technology, which makes it possible to track eggs at every point along the production chain, from the farm to the final customer. High-quality, fresh, and sanitary eggs are provided by OVO Farm under the umbrella brand "Kenko"; the authenticity of each egg can be verified by scanning the QR code that is printed on it.

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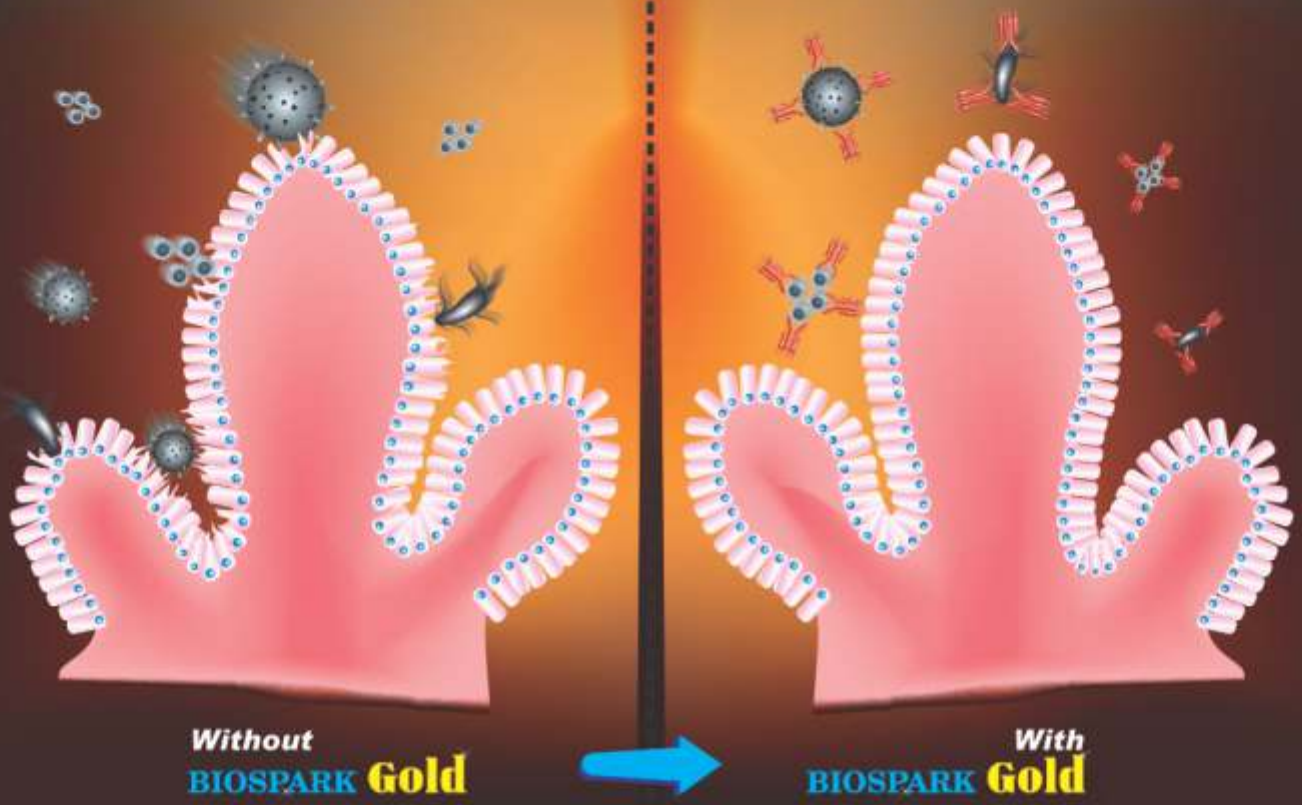

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Through this blockchain technology they want to assure quality and make sure that the proper items are arriving to their clients. Every one of their items has a unique scan code on the label that provides details on the product's journey from the manufacturing facility till it reaches the buyer. The objective of OVO Farm is to produce and provide fresh, sanitary, and nutrient-rich eggs for a healthy community.

Through a QR code on the package, customers can access this data and learn specifics about the farm where the food was grown, the day it was processed, how it was packaged, and how it was transported.

In boxes of 6, 10, and 20 eggs, Kenko, the company's signature brand, offers goods from six different kinds, including Hi-Pro, Brown, Immuno, MoreOVOr, and On-Day. Each of its products, which come directly from the farm with no human intervention, has a special nutritional worth of its own.

OVO Farm has opened KENKO AGSTRA, a one-of-a-kind flagship shop that is Odisha's first unique egg store that provides consumers with a variety of wholesome eggs as well as other products, straight from the farm. In the near future, the firm intends to build locations in each neighbourhood of Bhubaneswar. Consumers may purchase KENKO items in Bhubaneswar and Kolkata via a vast network of retail establishments, including general trade retail units and contemporary trade stores, in addition to the exclusive store. In addition, a number of e-commerce websites provide the items, allowing customers to place online orders.

OVO Farm has twenty years of experience producing high-quality eggs, making it an authority in the field. The farm now produces one million eggs per day in its three Balangir-based units. The eggs from OVO Farm, which is well-known for its high-quality goods, have been consistently shipped to nations all over the world, including those in Africa and the Middle East.

ICAR-NIANP inks MoU for technical knowledge exchange with Karnataka Poultry Farmers and Breeders Association (KPFBA)

ICAR- National Institute of Animal Nutrition and & Physiology, Bangalore signed a Memorandum of Understanding (MoU) with Karnataka Poultry Farmers and Breeders Association (KPFBA). The KPFBA is an apex body, representing poultry farmers & breeders of Karnataka. It was established in 1991 to promote the development of poultry breeding and farming in Karnataka, where occupation is a major activity. The KPFBA collects and exchange information pertaining to poultry breeding and farming with farmers, businesses, educational, research institutions, and other organizations in Karnataka and the rest of India.

The MoU was signed by Dr. Raghavendra Bhatta, Director, ICAR-NIANP, Bangalore, and Dr. Sushanth Rai Bellipady, KPFBA, President, KPFBA on behalf of their respective Organizations.

The MoU is aimed at promoting an Inter-Organizational knowledge exchange, and facilities sharing in the areas of common interest.

Dr. Bhatta appraised the poultry research initiatives at ICAR-NIANP and invited mutual areas of interest from the members of KPFBA present on the occasion. He further emphasized that ICAR-NIANP has state-of-the-art facilities for feed and mineral analysis, in ovo nutrition.

Dr. Rai expressed the need for active collaboration between the researchers and the poultry sector and promised to share the commercial flock facilities for evaluation of the technologies developed by the Institute.

(Source: ICAR- National Institute of Animal Nutrition and & Physiology, Bangalore)

Innovative egg stamping system to ensure quality, nutrition in Anganwadi centers of Telangana

The State Government has introduced a new method to detect irregularities in the supply of eggs to Anganwadi centers. Eggs are now being stamped with a round-shaped 16 mm diameter and 3 mm height letter stamp in Telugu language. The stamp includes the words 'Anganwadi Guddu', 'Telangana Government', and indicates the zone in the middle.

While the stamping system has already begun in certain districts, other districts will begin using it starting next month. Through Anganwadi centres, the government seeks to give children, expectant women, and nursing mothers with nourishing food, such as eggs, milk, meals with pulses and vegetables, and snacks.

The contractors in charge of distributing

eggs to the centres, however, have been giving out low-quality ones, including rotting and little ones. Despite the government spending a lot of money on eggs, the target population, particularly children and mothers, is hesitant to eat bad eggs.

Eggs are being sold outdoors in certain centres to those who do not often attend the centres. The government came up with the creative concept of stamping eggs to remedy this problem.

Peacock blue, red, and green are the three colours used to produce stamps. To avoid inconsistencies, the stamp's colour will change every 10 days. Eggs will be provided in three batches each month from March through June during the summer season, according to ICDS officials.

The first batch, which will be stamped in peacock blue, will be delivered between March 3 and March 10, the second batch, which will be stamped in red, will be delivered between March 13 and March 20, and the third batch, which will be stamped in green, will be delivered between March 23 and March 30.

The supply will be completed in two batches throughout the usual months (July to February). The first batch, marked in peacock blue, will be delivered between March 3 and March 10, while the second batch, printed in red, will be delivered between March 18 and March 24.

In the erstwhile Karimnagar district, 3,135 Anganwadi centers (3,050 main centers and 85 mini centers) registered the names of 1 lakh children below the age of three, 76,100 children aged between three and six, and 39,000 pregnant and lactating women. The district has 14 ICDS projects.

Eggoz Launches Nationwide Campaign To Spread Awareness About Egg Industry

India's egg-focused consumer brand, Eggoz, has launched a nationwide online campaign to spread awareness about the status of the current egg industry and the importance of

choosing farm-fresh and chemical-free eggs for a healthy diet.

Eggoz is a Gurgaon-based company founded by IIT Kharagpur alumni, the first consumer-focused and integrated farmer egg brand in India. Through the campaign, Eggoz is trying to educate its customers on what a fresh egg looks, feels and smells like.

According to Abhishek Negi, co-founder of Eggoz, Eggs in India are typically 7-10 days old from laying and by the time they reach consumers' kitchen, their nutrition is lost and there is also the usage of chemicals, antibiotics for egg production which are harmful for long-term consumption. Through this campaign, they intend to create awareness about eggs in India and guide consumers to select perfectly fresh and healthier eggs for better nutrition.

With their vision to build the 'Amul of eggs,' this campaign will help them in educating consumers about the category and also help them expand their customer base. The special campaign of Eggoz has been released in the form of four video assets, supported with static assets across digital platforms. The primary objective of the entire campaign is to provide customers with a fresh perspective on eggs and guide them to select the best quality eggs.

Eggoz works under a tech-enabled asset-light farmer integration model, through which it offers all-around support to local farm owners to facilitate quick and smooth distribution of egg produce – making the company one of the fastest-growing D2C and the leading egg brand in India. It provides farmers with holistic care, including doctor support, input structure and market linkages.

All eggs sold under the brand are cleaned and UV-sanitised and made available at stores within 1 day of laying. Eggoz Nutrition is the leading egg brand in the country with the largest presence in North India through physical and online retail formats. The company claims that farmers working with Eggoz have improved their income by 25-30 per cent.

Sri Lanka expands egg imports from Indian farms to tackle growing demand

As Sri Lanka battles an economic crisis that has impacted livelihoods and diminished buying power, this action intends to offer a steady supply of eggs to important industries.

To accommodate its expanding market demand, Sri Lanka will import one million eggs per day from five poultry farms in India, the island nation's main importing agency said on Tuesday.

According to Asiri Valisundara, Chairman of Sri Lanka State Trading Corporation (STC), 20 million eggs were imported from India, of which 10 million have been put on the market.

In addition, the Animal Production Department has authorised the procurement of eggs from three more chicken farms. The eggs were imported from two poultry farms in India.

Since last year, Sri Lanka has been experiencing a terrible and unheard-of economic catastrophe. Due to the excessive inflation, many people's livelihoods have been impacted, earlier development achievements have been undone, and buying power has decreased. After announcing its first-ever financial default in April of last year, the island country is battling to restore order to its economy, which is suffering from the crisis.

DCBL & Nabard collaborate to promote backyard poultry farming

DCBL and NABARD and introduced a new sustainable livelihood programme called "Promotion and Formation of Farmer Producer Organisation on Backyard Poultry Farming" in Rajgangpur.

As part of the Memorandum of Understanding(MoU) signed between DCBL and NABARD, the project will provide sustainable income opportunities via poultry farming to 300 families in rural communities within a span of three years.

A dedicated FPO named “Fleshy Chicken Farmer Producer Company Ltd” has been established and registered under the MSME sector. To monitor project operations, market linkage, and management and ensure successful execution, the community chose Mr. Lalmen Nag as CEO and Mrs. Lilendri Naikhas as Chairman.

In the initial phase, 40families from peripheral villages had received 100day-old broiler chicks each. In FY 23-24, the project is on the process of adding upto 100 families by this quarter.

At the FPO's registered office in Bihabandh, DCBL hosted a celebration to mark the occasion. There were several people in attendance, including Dr. Niladri Bhusan Parhi (AEDDCBL), Om Prakash Khelkar (AED-DCBL), Tapas Kumar Behera, District Development Manager of NABARD Sundargarh, Bikash Pattanaik, Branch Manager of UCO Bank, Rajgangpur, and Mrs. Lilendri Naik, Chairman of Fleshy Chicken Farmer Producer Company Ltd.

According to Chetan Shrivastav, poultry farming has a great deal of potential to provide rural communities a stable source of income. Numerous programme participants have already benefited from this effort, and we want to keep bringing about revolutionary changes and making a beneficial influence. The NABARD officers' assistance is appreciated, and we thank them.For the second phase of the project, 60 beneficiaries from the land affected villages have been identified.

Punjab will consider increasing poultry growing charges: Laljit Bhullar

Punjab Animal Husbandry, Fisheries, and Dairy Development Minister S. Laljit Singh Bhullar, assured the representatives of the Contract Broiler Farmers' Association that the state government will consider increasing the growing charges of poultry.

The Cabinet Minister was presiding over a meeting of broiler farmers of different districts, who are doing broiler contract farming with various poultry companies, here at Punjab Bhawan. Bhullar said that the state government is taking care of the needs of all sections to save them from of inflation.

Hence, he will raise the issue with Chief Minister S. Bhagwant Mann to increase the growing charges of chick to chicken, given by the companies to poultry farmers. Bhullar also instructed the officials of the Animal Husbandry Department to prepare action plan to resolve the issue at the earliest. He said that it will be ensured that the people involved in the poultry industry could get due value of their product.

Broiler Farmers' Association representatives said that they are satisfied with the broiler contract farming. About other demands of the Broiler Farmers, Laljit Singh Bhullar assured that all legitimate demands will be resolved soon.

Prominent amongst others who were present in the meeting included; Principal Secretary Mr. Vikas Pratap, Director Animal Husbandry Dr. Rampal Mittal, Joint Director Dr. Ranbir Kumar Sharma and Dr. GS Bedi, and Deputy Director (Poultry) Dr. Jaswinder Pal Kaur and Director Dairy Kuldeep Singh.

Brazil declares 180-day animal health emergency amid avian flu cases in wild birds

In a statement signed by Agriculture Minister Carlos Favaro, Brazil announced a state of animal health emergency for 180 days in reaction to the nation's first-ever discovery of the highly deadly avian influenza virus in wild birds.

According to the World Organisation for Animal Health's regulations, wild bird infections with the H5N1 subtype of avian influenza do not result in trade restrictions. However, a farm with avian flu often has to destroy the whole flock and may face trade restrictions from importing nations.

With $9.7 billion in sales last year, Brazil, the world's largest supplier of chicken meat, has so far verified eight instances of the H5N1 virus in wild birds, including seven in Espirito Santo state and one in Rio de Janeiro state.

The government is on high alert after the confirmed cases, despite the fact that Brazil's primary meat-producing states are in the south, since avian flu in wild birds has been known to spread to commercial flocks in certain nations.

Prior to the government statement, shares of BRF SA (BRFS3.SA), the largest exporter of chicken in the world, were up 3.6%. They finished the day down 0.5%.

In Espirito Santo, where Brazil verified the first cases in wild birds last week, the Health Ministry said over the weekend that samples from 33 suspected human cases of avian influenza had tested negative for the H5N1 variant.

EGG
Daily and Monthly
Prices of May 2023

Name Of Zone / Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
NECC SUGGESTED EGG PRICES																																
Ahmedabad	440	445	455	460	460	460	465	470	480	490	495	495	495	495	495	495	498	500	500	500	500	500	500	480	480	480	485	490	495	500	505	484.13
Ajmer	410	435	437	437	437	447	465	465	475	475	465	460	450	450	453	457	460	460	450	450	445	435	435	437	440	446	452	455	465	468	468	451.10
Barwala	409	431	433	433	436	442	444	459	469	471	471	471	450	450	453	457	460	460	460	460	445	435	435	437	440	446	452	455	463	467	467	450.35
Bengaluru (CC)	445	450	460	470	475	475	480	490	500	510	515	515	515	515	515	515	515	520	520	520	525	525	525	525	525	525	525	530	530	540	545	507.74
Brahmapur (OD)	443	448	460	470	470	480	485	488	495	505	508	508	508	490	490	495	497	502	502	507	507	507	507	492	492	497	502	507	512	517	522	493.97
Chennai (CC)	470	470	470	470	485	485	485	495	505	505	520	520	520	520	520	520	520	520	530	530	530	530	530	530	530	530	530	540	540	550	550	514.52
Chittoor	463	463	463	463	478	478	478	488	498	498	513	513	513	513	513	513	513	513	523	523	523	523	523	523	523	523	523	533	533	543	543	507.52
Delhi (CC)	428	428	455	455	455	455	460	464	480	490	490	490	490	470	470	470	480	480	480	475	475	465	450	450	455	458	467	475	480	487	489	468.26
E.Godavari	420	425	435	445	450	460	465	470	475	485	490	490	490	475	475	478	481	484	484	487	487	487	487	475	475	480	485	490	495	500	505	475.16
Hospet	405	410	420	430	435	435	440	450	460	470	475	475	475	475	475	475	475	480	480	480	485	485	485	485	485	485	485	490	490	500	505	467.74
Hyderabad	400	405	415	420	425	430	435	445	455	460	465	465	465	450	450	453	456	459	462	465	465	465	450	450	450	453	460	465	470	475	480	450.42
Jabalpur	435	440	453	460	465	465	465	465	480	490	490	490	490	470	470	470	470	470	477	477	477	477	477	477	465	465	475	482	482	490	500	472.87
Kolkata (WB)	475	495	505	510	525	530	530	540	550	550	550	550	550	540	540	540	550	550	560	560	560	560	550	540	542	545	547	550	560	562	565	541.32
Ludhiana	400	409	435	435	435	437	442	443	464	468	468	468	468	458	445	452	457	458	458	458	450	450	445	440	440	440	451	453	453	465	468	448.81
Mumbai (CC)	465	465	465	475	480	485	490	495	505	515	520	525	525	525	510	510	513	516	519	522	525	525	525	510	510	510	513	520	525	530	535	508.16
Mysuru	455	460	465	475	475	480	485	495	505	515	520	520	520	520	520	520	520	525	525	525	530	530	530	530	530	530	530	535	535	545	550	512.90
Namakkal	405	410	415	425	425	430	435	445	450	460	465	465	465	465	465	465	465	470	470	470	475	475	475	475	475	475	475	480	485	490	495	459.35
Pune	475	485	485	485	485	485	495	501	511	521	525	525	525	525	525	525	525	525	525	525	525	525	525	510	510	510	515	520	530	535	540	513.65
Raipur	430	440	450	455	455	465	475	475	490	501	501	501	501	501	501	490	492	495	495	495	495	495	495	480	460	462	464	464	480	495	505	480.74
Surat	465	465	475	480	480	480	485	490	500	510	515	515	515	515	515	515	515	515	515	515	515	515	515	500	500	500	500	505	510	520	525	502.74
Vijayawada	420	425	435	445	450	460	465	470	475	485	490	490	490	475	475	478	481	484	484	487	487	487	487	475	475	480	485	490	495	500	505	475.16
Vizag	425	430	435	445	450	460	465	470	475	485	490	490	490	475	475	480	485	490	490	495	495	495	495	480	480	485	490	495	500	500	505	478.06
W.Godavari	420	425	435	445	450	460	465	470	475	485	490	490	490	475	475	478	481	484	484	487	487	487	487	475	475	480	485	490	495	500	505	475.16
Warangal	402	407	417	422	427	432	437	447	457	462	467	467	467	452	452	455	458	461	464	467	467	467	452	452	452	455	462	467	472	477	482	452.42
Prevailing Prices																																
Allahabad (CC)	476	481	486	486	486	500	505	533	533	533	533	533	524	514	510	505	505	505	505	505	505	505	500	500	500	500	500	500	505	509	509	506.16
Bhopal	415	415	415	445	450	455	460	460	485	485	485	485	485	485	465	465	465	465	465	465	465	455	455	455	440	435	440	440	475	490	490	459.84
Indore (CC)	435	450	460	460	460	470	470	480	495	495	485	480	470	470	475	480	485	485	475	475	475	460	460	465	465	470	475	480	490	495	495	473.71
Kanpur (CC)	471	486	486	486	486	500	500	514	529	529	529	529	514	500	500	500	500	500	500	500	500	490	471	471	471	471	481	481	481	500	500	496.00
Luknow (CC)	500	513	513	513	513	523	523	540	557	557	557	557	547	533	533	533	533	533	533	533	533	520	520	510	510	500	500	500	500	523	523	525.26
Muzaffurpur (CC)	465	485	500	500	500	505	507	520	535	540	540	540	530	515	515	520	525	528	528	528	520	508	500	500	505	508	520	520	525	530	532	515.94
Nagpur	460	460	460	460	490	475	475	475	490	490	490	490	490	490	490	480	480	485	485	485	485	485	475	465	465	470	475	495	495	510	510	481.61
Patna	465	485	500	500	500	505	507	520	535	540	540	540	530	515	515	520	525	528	528	528	520	508	500	500	505	508	520	520	525	530	532	515.94
Ranchi (CC)	471	457	467	500	500	500	500	510	514	524	524	524	524	524	514	514	514	514	514	514	524	524	514	514	514	514	514	514	524	529	529	510.87
Varanasi (CC)	483	486	486	486	486	500	507	517	533	533	533	533	533	523	523	523	517	517	510	510	513	500	500	500	500	507	513	513	517	523	523	511.23

Editorial Calendar 2023

Publishing Month: **January** Article Deadline : **30th, Dec. 2022** Advertising Deadline : **3rd, Jan. 2023** Focus : **Winter Disease Management**	Publishing Month: **February** Article Deadline : **30th, Jan. 2023** Advertising Deadline : **3rd, Feb. 2023** Focus : **Health & Nutrition Management**	Publishing Month: **March** Article Deadline : **28th, Feb. 2023** Advertising Deadline : **3rd, March 2023** Focus : **Vaccination & Immunization**	Publishing Month: **April** Article Deadline : **30th, March 2023** Advertising Deadline : **3rd, April 2023** Focus : **Summer Management**
Publishing Month: **May** Article Deadline : **30th, April 2023** Advertising Deadline : **3rd, May 2023** Focus : **Cold Chain Management**	Publishing Month: **June** Article Deadline : **30th, May 2023** Advertising Deadline : **3rd, June 2023** Focus : **Feed Production**	Publishing Month: **July** Article Deadline : **30th, June 2023** Advertising Deadline : **3rd, July 2023** Focus : **Layer Farming**	Publishing Month: **August** Article Deadline : **30th, July 2023** Advertising Deadline : **3rd, August 2023** Focus : **Genetics & Breeding**
Publishing Month: **September** Article Deadline : **30th, August 2023** Advertising Deadline : **3rd, September 2023** Focus : **Biosecurity Practices**	Publishing Month: **October** Article Deadline : **30th, September 2023** Advertising Deadline : **3rd, October 2023** Focus : **Winter Breeding Management**	Publishing Month: **November** Article Deadline : **30th, October 2023** Advertising Deadline : **3rd, November 2023** Focus : **Environment Control**	Publishing Month: **December** Article Deadline : **30th, November 2023** Advertising Deadline : **3rd, December 2023** Focus : **Industry Outlook**

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