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#### The Edit

#### A PILLAR OF NUTRITION, LIVELIHOOD AND SUSTAINABLE GROWTH



y. N. Yhorh

G. N. Ghosh Managing Editor

The Indian poultry sector stands today as one of the most vibrant examples of rural transformation and agribusiness success. Today's technologically advanced poultry industry from modest backyard beginnings has evolved into a powerful driver of nutrition security, countrywide employment generation, rural and women's empowerment and to the most prominent and affordable source of protein, with products ensuring balanced nutrition for millions while generating income and opportunity across the Indian subcontinent.

Women play a pivotal role in this story—participating actively in small-scale farming, hatcheries, and allied services—making poultry a true instrument of inclusive growth and empowerment. The sector also continues to be a major contributor to rural livelihoods, with millions engaged directly or indirectly across production, feed, transport, and marketing chains.

As India transitions from traditional wet markets to processed and value-added poultry products, a new era of consumer awareness, food safety, and nutrition-driven demand is unfolding. Modern retail, organised supply chains, and smart packaging are expanding rapidly, bridging the gap between farm and fork. To sustain this momentum, capacity building, skill development, and agro-technological innovation are imperative. Integrating cold-chain infrastructure, digital traceability, and automation can enhance both efficiency and safety standards.

The way forward lies in policy coordination and government support—encouraging small producers to formalise, adopt green technologies, and tap into growing domestic and export markets. By aligning with national goals of Viksit Bharat and sustainable agriculture, the Indian poultry industry can continue to be a cornerstone of economic resilience and food security.

Innovation, inclusivity, and sustainability will define the next leap—transforming poultry from a source of nutrition to a symbol of India's agrarian progress and global competitiveness.

#### Indian Research

# Smart Farming: Al in Poultry Production

By Dr. Aatif Revaz

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#### **Abstract**

Poultry farming in the modern world is a vital contributor to global food security, offering not only affordable, high-quality protein but also supporting millions of livelihoods. However, increasing production demands, disease outbreaks, and sustainability concerns have created a need for new, innovative methods and aids in rearing them. Artificial Intelligence (AI) is emerging as a transformative tool in poultry production, enabling early disease detection, optimisation of feeding, environmental control, and improved welfare monitoring. By integrating machine learning, IoT (Internet of Things) systems and automation, Al-driven solutions allow farmers to make informed decisions, reduce antibiotic use, improve productivity and ensure food safety. Despite having the constraints such as high implementation costs, technical expertise requirements, and data privacy issues, ongoing technological advancements are making Al more accessible. Future prospects include fully automated farms with predictive disease modeling, blockchain based traceability, and integration with renewable energy systems. This review highlights the role of AI in reshaping poultry farming into a sustainable, efficient, and welfare-oriented industry prepared to meet the demands of a growing global population.

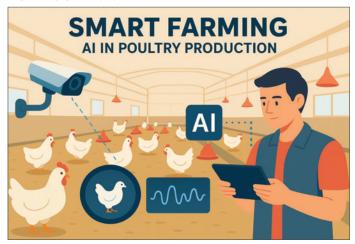


Fig.1: Overview of smart poultry farming using Al-powered monitoring

#### Introduction

Poultry farming is one of the most significant areas of world agriculture producing meat and eggs that provide an essential supply of high-quality, cost-effective protein. Millions of farmers and workers are employed in the poultry sector, which supports their livelihoods and nutrition as poultry products are an essential part of diets around the world. Due to its efficiency in converting feed, marginally low environmental impact when compared to other livestock and broad regional cultural acceptance, the demand for poultry is predicted to increase dramatically as the world's population continues to grow (Talebet al., 2024). The future of poultry farming depends on integrating innovation, efficiency, and environmental responsibility to ensure that a steady supply of safe, affordable, and nutritious food for the world population.

#### The Rise of AI in Poultry Production

To address these issues, Artificial Intelligence (AI) isproving to be revolutionary, as it helps farmers to detect disease outbreaks, optimised housing and feeding conditions, monitor flock health, and accelerate processing operations by utilising automation, machine learning, and advanced data analytics. In addition to increasing productivity, this technology also helps in achieving environmental and animal welfare objectives (Kalita et al., 2024). Essentially, AI is assuring that the poultry business stays robust and remains prepared for the future challenges by bridging the gap between traditional poultry farming and the demands of a fast changing global food chain.

#### Al-Powered Health Monitoring in Poultry Farming

In poultry farming, early disease identification is one of the most important objectivesof artificial intelligence. High-definition cameras and microphones linked to artificial intelligence algorithms help in 24×7 surveillance helping to study bird movements, feeding habits, and vocalisations which are analysed continuously by these systems. Small changes like erratic movements, erratic chirping, decreased activity, or unequal feed intake can be the early indicators of heat stress, respiratory diseases, or any other health problems (Yajie et al., 2023). Farmers can take timely action to segregate affected birds, modify environmental conditions, or administer targeted therapy by identifying these issues before they become apparent to people. Al is a crucial tool for both animal welfare and farm economics because of this strategy, there is decrease inflock mortality, decrease in the need for antibiotics, all together helping in maintaining constant productivity.



Fig. 2: Scientists at the Georgia Tech Research Institute have equipped a robot to perform a variety of tasks around poultry barns.

Photo Credit: Branden Camp

#### Indian Research

#### Obstacles in Contemporary Poultry Production

Farmers and producers are facing a number of difficult obstacles as chicken production needs to grow to satisfy the growing demand worldwide. Disease outbreaks continue to pose a major risk because diseases like Newcastle disease and avian influenza can spread quickly and result in enormous financial losses. It is challenging to discover health or welfare issues early with manual monitoring alone since managing big flocks, which can number in tens of thousands, demand ongoing attention (Bao &Xie, 2022).

#### Al-Driven Solutions for Smarter Poultry Management

Consider a chicken house where cameras record every movement, microphones listen to every chirp, and software promptly alerts the farmer if something seems odd, thanks to Artificial Intelligence (AI), this is already a reality, AI is transforming chicken farms into intelligent, data-driven systems by fusing sensors, automation, alert systems and machine learning.

- 1. Disease Detection Systems: Early disease detection is one of Al's greatest advantages. Instead of waiting for visible symptoms, Al-powered tools help us to analyse subtle changes in bird vocalisations, feeding habits, and activity levels to detect illness before it spreads (Science Direct IoT system, 2024). This not only saves time and money but also reduces dependency on antibiotics, improving overall flock health (Taleb et al.,2025).
- 2. Watering and Feeding Systems: In order to save waste and guarantee that birds are receiving just what they want, smart feeders now automatically modify diets based on flock's behavior and growth pattern (Stevan Cakic etal.,2023) Furthermore, Al-powered climate management systems maintain ideal humidity, temperature, and ventilation, creating a cozy atmosphere that supports overall growth of the flock.
- 3. Hatchery and Processing Facilities: Even processing facilities and hatcheries are evolving with smarter systems with advanced vision systems checking carcasses for contamination or flaws, ensuring safer products for consumers, while Aldriven chick sorting machines can assist us to identify sex with almost perfect accuracy.

Al essentially serves as an additional set of knowledgeable eyes and ears for farmers, working around the clock, scrutinising every aspect, and assisting them in making better choices. The future of farming is being rewritten by this fusion of Al technology and poultry knowledge.



Fig. 3: Applications of AI in poultry farming, including automated feeding, and processing systems

#### Challenges of Al Adoption in Poultry Farming

Although Al holds promise for a promising future in poultry production, there are a number of constraints that need to be tackled. The most significant one is cost is installation of Alpowered monitoring systems, smart feeders, and automated processing lines can be expensive, particularly for small and medium sized farmers. Additionally, many developing regions lack reliable electricity and high speed internet, which makes it more challenging to fully implement these systems. Also, there is a steep learning curve, as farmers and staff must receive training to operate and maintain Al systems, which can be difficult for thosepeople who are familiar with conventional methods. To keep things running smoothly, technical support and frequent system updates are thus increasing operating costs.

Data privacy is another issue, sensitive data regarding supplier networks, sales, and production cycles is being kept in cloud systems as farms get more interconnected, which raises concerns about ownership and security. These obstacles should gradually decrease as technology becomes more accessible and user-friendly, opening the door for the poultry growers to widely adopt AI.

#### Al's future potential in Poultry Farming

Artificial intelligence is at the center of a technological revolution that is about to occur in the poultry sector. With robots that gathereggs, AI algorithms anticipating disease outbreaks weeks in advance, and drones flying through barns that examine flocks, farms may soon look like completely automated ecosystems (Sajad & Chisti, 2025). In addition to saving farmers time and money, these advances will raise the bar for sustainability, food safety, and animal welfare. All is also anticipated to connect with other cutting edge technologies, such as sophisticated genetics to produce healthier, more resilient birds, blockchain for product traceability, and renewable energy systems for greener operations. The overall goal of this change is to empower farmers, not to replace them (Essien & Neethirajan, 2025). Farmers will be able to concentrate more on long term growth and strategic decisions with AI serving as their 24/7 assistant, while technology takes care of the data and daily tasks. Poultry farming has an intelligent, networked future that is prepared to satisfy the needs of a rising population in the world.

#### Conclusion: Smarter Farms Better Future

Poultry farming is shifting from a labour-intensive, traditional profession to a high-tech, data-driven enterprise because of Artificial Intelligence. Al helps farmers, consumers, and the environment by enhancing bird health, maximising efficient use of resources, guaranteeing food safety, and promoting overall sustainability.

Technology helps farmers by giving them the knowledge and resources that they need to make better decisions and manage more resilient, humane, and efficient businesses. The poultry sector is expected to grow more productive, sustainable, and more equipped to satisfy the rising demand for wholesome, premium food worldwide as AI develops.

To put it briefly, AI is the future of chicken farming, not just a tool.

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#### **Article**

## Building Flock Resilience: Trouw Nutrition's Systemic Approach to Gut Health and Antibiotic Reduction

#### Dr. J. Pothanna Technical Manager Trouw Nutrition South Asia

The poultry industry is steadily shifting towards antibiotic-free production, driven by growing concerns over antibiotic resistance, consumer demand, and regulatory changes. As a result, many farms are exploring how to maintain bird health and performance without the conventional use of antibiotic growth promoters (AGPs).

As the poultry industry moves towards antibiotic-free production to tackle antimicrobial resistance, natural alternatives-often called natural growth promoters—are becoming essential. Acidifiers help keep the gut environment unfriendly to harmful bacteria, improving digestion and feed efficiency. Probiotics, prebiotics and synbiotics support the growth of good microbes and strengthen birds' natural defences. Plant-based additives and essential oils from herbs provide antimicrobial and antioxidant benefits and can make feed more appealing. By unlocking nutrients in feed, enzymes help birds absorb more and reduce undigested material that fuels bad bacteria. Newer tools, like immune-boosting compounds and bacteriophages (viruses that target specific pathogens), offer precise and sustainable ways to control disease. Together-along with good management-these options help maintain flock health and performance without relying on antibiotics.

| Items                          | Poultry |   |  |  |  |
|--------------------------------|---------|---|--|--|--|
| Probiotics                     | • •     | Growth Promotion and Strong scientific<br>evidence for efficacy and commercial used           |  |  |  |
| Prebiotics                     | • •     | Disease prevention and strong scientific<br>evidence for efficacy and commercial used         |  |  |  |
| Organic acids                  | • •     |   |  |  |  |
| In-feed enzymes                | • •     |   |  |  |  |
| Antimicrobial peptides         | 00      | Growth Promotion, Disease prevention and some scientific evidence suggests potential efficacy |  |  |  |
| Phytochemicals                 | • 0     |   |  |  |  |
| Minerals Immune modulators     |         |   |  |  |  |
|                                |         |   |  |  |  |
| Vaccines                       | •       |   |  |  |  |
| Bacteriophages                 | 0 •     | Disease treatment and some scientific evidence suggests potential efficacy                    |  |  |  |
| Source –2017-WATT Global Media |         |   |  |  |  |



Acidifiers, particularly organic acids, are considered the foremost and most effective alternatives to antibiotics in poultry feed. Feed acidification using organic acids is a key strategy in poultry production for layers and broilers. By lowering the gastrointestinal pH, it inhibits harmful bacteria like Salmonella and E. coli, promoting beneficial gut microbes and improving bird health. Furthermore, organic acids in their undissociated form can penetrate bacterial cell walls, disrupting vital cellular functions through the release of hydrogen ions inside the bacterial cells. This action effectively kills or suppresses harmful bacteria. Organic acids also enhance nutrient digestibility and strengthen immunity, leading to better growth performance and egg production. This makes acidification an essential alternative to antibiotics in sustainable poultry farming.

In the concept of acidification in poultry feed, the main composition of acids includes:

- Short-Chain Fatty Acids (SCFA) C1-C6: These include formic acid, acetic acid, propionic acid, and butyric acid. SCFAs are effective in lowering gut pH and inhibiting pathogens, mainly targeting gram-negative bacteria
- Medium-Chain Fatty Acids (MCFA) C7-C12: These include caprylic acid (C8), capric acid (C10), and lauric acid (C12). MCFAs have strong antimicrobial properties against various

gram-positivebacteria and fungi, enhancing gut health and immunity

■ Long-Chain Fatty Acids (LCFA)>C13: These are less commonly emphasised in acidifiers but may include fatty acids like stearic acid. LCFAs mainly serve as energy sources and contribute to feed stability when combined with other acids

When stone grit is added to poultry feed to help hens develop strong eggshells, the calcium carbonate in the grit raises the alkalinity (pH) of the bird's digestive system. If the gut becomes too alkaline, it can hinder the bird's ability to absorb calcium efficiently. While simple chemical calculations may indicate that a large amount of acidifier-sometimes up to 8 kilograms per ton of feed-is necessary to counteract this alkalinity, the reality is different.

In practical poultry feeding, much smaller amounts of acidifier, typically between 1 and 3 kilograms per ton of feed, are sufficient. This is because commercial acidifiers are blends containing less pure acid along with other beneficial ingredients. Additionally, the bird's digestive system naturally produces acids, and the beneficial gut bacteria work alongside the acidifier to maintain a balanced gut environment. Other feed components also influence gut pH, reducing the need for higher acidifier amounts. Using the right level of acidifier ensures better calcium absorption, stronger eggshells, reduced feed costs, and improved gut health.

When selecting an acidifier for poultry nutrition, several important factors must be taken into account to ensure it works effectively.

- Factors influencing the efficiency of dietary organic acid supplementation
- pKa-value
- Chemical form (acid, salt, coated or not)
- Molecular weight
- MIC-value of the acid
- Kind of micro-organism
- Animal species
- Site and location in the gastro-intestinal tract
- Buffering capacity of the feed

Buffering capacity (B-value) is a measure of how much resistance a feed has to changes in pH. A feed with high buffering capacity requires more acid to reduce its pH, while a feed with low buffering capacity is easily acidified.

Feeds rich in protein (soybean meal, fish meal) and minerals (limestone, dicalcium phosphate) tend to have high buffering capacity. High buffering capacity can make it challenging to create the acidic gut environment needed for optimal enzyme function and microbial balance. Cereal grains typically have lower buffering values.

The relationship between buffering capacity and acidifier dose is direct and important: the higher the buffering capacity of the feed, the greater the dose of acidifier needed to effectively lower the pH. In feeds with low buffering capacity, only a small amount of acidifier is required to achieve the desired acidification.

Proper balancing of acidifier dose with the feed's buffering capacity is essential. If too little acidifier is added to a high buffering capacity diet, the pH will not decrease enough, reducing the benefits of acidification. Conversely, adding excessive acidifier

| Poultry GIT Site | Approximate pH<br>Range | Common Organic<br>Acids | Approximate pKa Value |  |
|------------------|-------------------------|-------------------------|-----------------------|--|
| Crop             | 4.5 - 5.5               | Lactic acid             | 3.85                  |  |
| Proventriculus   | 2.5 – 3.5               | Formic acid             | 3.75                  |  |
| Gizzard          | 2.5 –3.5                | Propionic acid          | 4.87                  |  |
| Duodenum         | 5 .0- 6.0               | Acetic acid             | 4.76                  |  |
| Jejunum/Ileum    | 6.0 - 6.8               | Butyric acid            | 4.82                  |  |
| Cecum            | ~6.5 - 7.0              | Benzoic acid            | 4.2                   |  |
| Large Intestine  | Near neutral            | Sorbic acid             | 4.76                  |  |
|                  |                         | Ammonium Formate        | 9.2 to 9.25           |  |

can cause feed palatability issues or irritate the digestive tract.

Single acids like formic, propionic, or citric acids are used for targeted effects, such as rapid pH reduction or energy provision in specific gut sections. For example, formic acid-with a low pKa-efficiently lowers the gut's pH, suppressing pathogenic bacteria predominantly in the crop and proventriculus. Blends of acids, on the other hand, are preferred during periods of heightened disease risk, stress, or following the withdrawal of antibiotics. The synergistic interactions among acids in blends provide a broader antimicrobial spectrum, cover more intestinal segments, and usually require lower effective doses.

Based on the pH and pKa concept, the use of organic acid blends is important in poultry nutrition because gut pH varies across different segments. Since the antimicrobial effectiveness of an acid depends on it being undissociated—which is influenced by the pH relative to its pKa-a blend of acids with different pKa values ensures consistent activity throughout the entire gut. Acid blends combine short-, medium-, and sometimes long-chain fatty acids to target multiple gut regions, improving pathogen control, enhancing gut integrity, and supporting nutrient absorption. Thus, acid blends provide a broader and more reliable antimicrobial effect in the variable pH environment of the poultry gastrointestinal tract compared to single acids alone.

#### Conclusion

As the poultry industry embraces antibiotic-free production, a science-based approach becomes indispensable. Trouw Nutrition's integrated model-built around Selacid Green Growth and hydroxy trace minerals-shows how gut health and performance can be optimised without antibiotics.

- Selacid Green Growth, a blend of free and buffered shortand medium-chain fatty acids, promotes gut microbial balance, supports digestive health, and sustains performance under antibiotic-free production. Surpassing AGP equivalents in trials, it delivers comparable growth and feed efficiency without compromising bird health
- Hydroxy trace minerals (e.g., hydroxychloride forms of zinc, copper, manganese) demonstrate superior bioavailability and stability over traditional sulphates. Broilers fed these minerals show improved growth performance, enhanced gut microbiota diversity, and even better carcass traits-while reducing environmental mineral excretion

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#### Article

# Powering Poultry Processing for a Fast-Moving World: Meeting the Rising Demand for Chicken-Based Convenience Foods



As daily life accelerates, global eating habits are transforming. Traditional, home-cooked meals are increasingly being replaced by quick, on-the-go options. This structural shift in consumer behavior is fueling steady growth in the global food service sector—expected to rise by 5-6% annually in the years ahead.

At the heart of this evolution is chicken: a lean, versatile, and affordable protein that's

perfectly suited for convenience menus around the world. From crispy nuggets and strips to marinated wings and bowls, chicken is the foundation of modern fast food.



Chicken meat offers a winning combination of great taste, convenience, and versatility Picture Courtesy: BAADER

#### Chicken: A Global Protein Powerhouse

What sets chicken apart is its ability to fit seamlessly into almost any culinary tradition. It is just as at home in Western-style fried recipes as it is in Asian-inspired skewers or rice dishes. Its perception as a healthier alternative to red meat also enhances its appeal in wellness-focused markets.

For food service operators, chicken provides consistency and ease of preparation—making it simple to standardise offerings and maintain quality across locations. Yet with demand for preprepared poultry products on the rise, processing plants face new challenges: delivering uniform cuts, precise weights, and top-tier quality at industrial scale.

#### Precision and Speed: The New Standard in Poultry Processing

Leading food service brands demand accuracy. Whether it is the size, shape, or appearance of a chicken portion, specifications are tight and the tolerance for error is low. For processors, the solution lies in combining speed with surgical precision.

That is where automation and advanced in-line processing technologies come into play. Today's high-performance poultry plants employ vision systems capable of real-time quality grading, and in-line weighing units that precisely capture individual bird weights. This data feeds directly into intelligent production software, optimising yield and ensuring every product meets exact customer requirements.



BAADER's advanced distribution software automatically matches each bird to its most suitable processing path, aligning weight and quality with specific market demands

Picture Courtesy: BAADER

#### Customised Cut-Up Solutions for a Diverse Market

Global food service isn't one-size-fits-all. Some markets prefer traditional 8- or 9-piece cuts, while others—especially across Asia—demand 10, 11, or even 12-piece configurations. Flexibility is key.

BAADER's ProFlex cut-up systems are built for exactly this purpose. Designed with modularity in mind, these systems offer unmatched versatility, enabling processors to produce a variety of cuts on a single line. Whether catering to a multinational chain or a regional quick-service restaurant, processors can adapt quickly—without compromising on quality or efficiency.

#### Future-Proofing with Modular Flexibility

Cutting flexibility is only part of the story. The ProFlex system supports additional modules such as Tail Cutters, Fat Removers, and synchronised conveyors that gather all bird parts for seamless downstream packaging. This modular approach means processors can expand or reconfigure their lines easily as market needs evolve.

It is an investment in long-term adaptability—allowing processors to scale operations, adjusting to shifting demands, and continue delivering excellence as food service standards grow more demanding.

#### Driving Sustainability with Smarter Systems

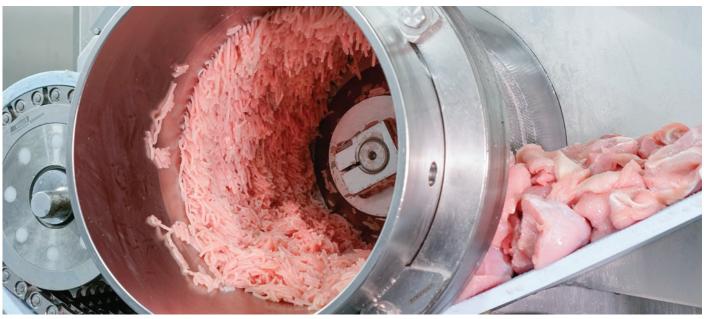
Efficiency is not just about output—it is also about reducing waste. Modern in-line processing helps maximise yield from every bird, improving resource utilisation while shrinking the environmental footprint. With less waste and better output, processors can meet sustainability goals without sacrificing profitability.

BAADER Refiner technology adds another dimension to smart processing. This gentle soft separation method allows for the recovery of high-quality minced meat from trimmings and carcasses-transforming what was once waste into premium inputs for convenience products like patties, nuggets, and meatballs.

#### Partnering for a Convenience-Focused Future

The growth of the global food service industry presents a significant opportunity for poultry processors. Success in this space isn't just about volume-it is about precision, adaptability, and innovation.

With solutions like BAADER's ProFlex systems and intelligent in-line technologies, processors can meet the needs of today's fast-moving food landscape-delivering consistent, high-quality, ready-to-cook and ready-to-eat chicken products that exceed expectations.



BAADER Refiner technology is a well-proven, gentle way to separate soft components from hard

Picture Courtesy: BAADER



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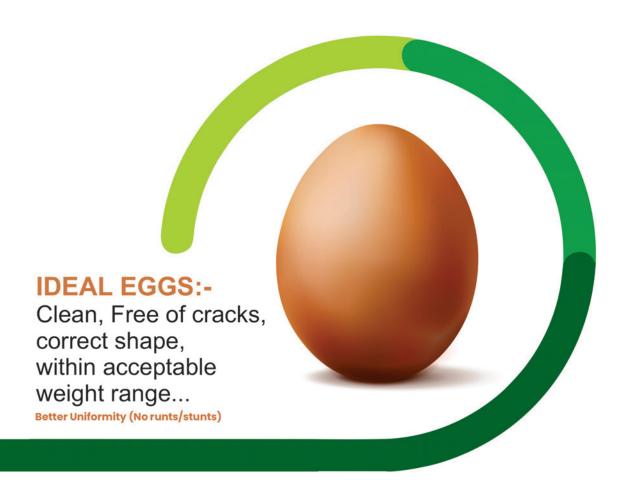
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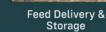
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#### **COVER**

# Processing, Value Addition and Export Potential of Indian Poultry Sector Towards Viksit Bharat



Poultry is the most affordable and widely accepted source of animal protein in India. With the right policy push, investment in cold-chain and processing infrastructure, skill development of rural youth, and a focus on export-oriented clusters, Indian poultry can deliver immense value to farmers, consumers, entrepreneurs and the national economy. **Prof. (Dr.) P. K. Shukla** highlights this journey of Indian poultry for **IPR**, from being a largely fresh-meat market to a diversified, processed and globally competitive poultry sector as a strategic imperative for achieving the aspirations of a Viksit Bharat by 2047

#### Poultry in India's Agri-Economy and the Vision of Viksit Bharat 2047

The poultry sector has emerged as one of the fastest-growing and most transformative components of Indian agriculture, both in terms of economic value and its contribution to nutrition security. From a modest beginning in the mid-20th century, India's poultry industry today stands among the top two in the world, producing more than 142 billion eggs and over 4.5 million metric tons of broiler meat annually. This meteoric rise has been driven by a combination of scientific breeding, feed innovation, veterinary healthcare, private sector investment, and a large consumer base that is gradually shifting towards protein-rich diets. Yet, despite this impressive growth, the Indian poultry sector continues to be dominated by the sale of fresh, unprocessed chicken meat and table eggs, with processing and value addition still occupying a small fraction of the market. As India embarks on its ambitious journey toward becoming a developed nation by 2047—popularly envisioned as Viksit Bharat-the poultry sector has an enormous role to play not only in feeding a population of 1.6 billion by then, but also in contributing to economic growth, job creation, export earnings, and sustainable rural livelihoods.

Processing, value addition, and export potential are three critical levers through which the poultry industry can be aligned with the vision of Viksit Bharat. Globally, the processed poultry market has outpaced the raw poultry market due to lifestyle changes, urbanisation, food safety demands, and the rise of modern retail and food services. In developed economies such as the United States, Brazil, and the European Union, more than 70% of poultry is processed and sold in ready-to-cook (RTC) or ready-to-eat (RTE) forms, whereas in India, processed chicken accounts for barely 10-12% of consumption, and value-added poultry products less than 6%. This indicates both a gap and a tremendous opportunity. Value addition goes beyond simple processing; it includes the creation of diversified product lines such as marinated cuts, nuggets, sausages, fortified eggs, protein powders, and by-product utilisation into high-value biomaterials like collagen, gelatin, and biofertilisers. Export potential too remains underexploited: while India exports limited quantities of egg powder, frozen poultry meat, and processed products mainly to the Middle East and some Asian countries, it has the capacity to emerge as a global hub for ethnic, safe, and affordable poultry products if infrastructure, compliance, and branding are strategically strengthened.

The vision of Viksit Bharat demands that agriculture and allied sectors not only meet domestic nutritional needs but also integrate with global value chains and adopt international best practices in quality, innovation, and sustainability. Poultry, being the most affordable and widely accepted source of animal

protein in India, can become a flagship sector that exemplifies this transformation. With the right policy push, investment in cold-chain and processing infrastructure, skill development of rural youth, and a focus on export-oriented clusters, Indian poultry can deliver immense value to farmers, consumers, entrepreneurs, and the national economy. The journey from being a largely freshmeat market to a diversified, processed, and globally competitive poultry sector is thus not merely an industrial evolution but a strategic imperative for achieving the aspirations of Viksit Bharat by 2047.

#### Current Status of the Indian Poultry Industry

The Indian poultry industry has undergone a remarkable transformation in the past five decades, moving from a backyard, subsistence-oriented activity to a highly organised, commercial, and technologically intensive sector. Today, it is valued at more than INR 3.3 lakh crore (approximately USD 40 billion) and accounts for a significant share of the livestock GDP. The sector is broadly divided into two major segments: broiler production (meat) and layer production (eggs). Broiler farming, which was once confined to peri-urban areas, has spread across rural India, supported by contract farming models, integrated companies, and improved genetics. Layer production, on the other hand, has become a stable source of daily nutrition, with per capita egg availability crossing 103 eggs annually-though still below the National Institute of Nutrition's recommended level of 180 eggs per year. This demonstrates both the achievements and the challenges of the industry, highlighting the need for expansion, efficiency, and greater consumer outreach.

One of the key strengths of the Indian poultry sector is the integration model, especially in broiler farming. Large integrators provide day-old chicks, feed, veterinary services, and buy-back arrangements to farmers, ensuring stability of production and prices. This model has minimised risks for smallholders and has led to consistent year-round supply. Feed production, which constitutes nearly 65–70% of the cost of poultry, has also modernised, with the industry consuming over 15 million tons of maize and 6 million tons of soybean annually. However, dependence on maize and soybean makes the sector vulnerable to price volatility and supply shocks. On the disease management front, India has developed strong veterinary networks and vaccination programs, though periodic outbreaks of avian influenza continue to pose risks and invite temporary export bans from importing countries.

Despite these strengths, certain structural challenges persist. The majority of poultry meat is still marketed as live birds or freshly slaughtered chicken through wet markets, where hygiene standards vary greatly. Only a small fraction, about 10-12%, is processed in hygienic facilities with chilling, deboning, and

packaging systems. Eggs are also largely sold loose, without grading, branding, or cold storage, making them vulnerable to spoilage and food safety concerns. Cold chain infrastructure remains underdeveloped, particularly in Tier II and III cities and rural areas. Further, consumer awareness about processed poultry products, although growing in urban centres, is still relatively low in semi-urban and rural markets, where fresh meat continues to be preferred due to cultural habits, perceptions of quality, and price sensitivity.

Another defining feature of the Indian poultry sector is its role in employment generation and rural livelihoods. The industry directly and indirectly supports over 20 million people, including farmers, feed millers, veterinarians, transporters, and retail vendors. Women's participation, particularly in backyard poultry, adds a crucial dimension of nutritional security and income diversification at the household level. As India aims for Viksit Bharat 2047, scaling up poultry processing and value addition could substantially enhance job creation, especially in rural and semi-urban areas, where youth can be trained in deboning, marination, packaging, and cold-chain logistics. The current status of the industry thus reflects both a strong foundation and



a pressing need for modernisation in order to fully harness its economic, nutritional, and export potential.

#### The Rise of Processed Poultry - Drivers and Consumer Trends

In recent years, India has begun to witness a steady shift from traditional consumption of fresh, wet-market chicken towards processed and packaged poultry products. This transition is being driven by a confluence of demographic, socioeconomic, and lifestyle changes that reflect broader global patterns. Urbanisation is one of the most significant drivers: with over 35% of India's population now living in cities and towns, and the figure expected to reach 50% by 2047, the demand for hygienically processed, convenient, and time-saving food options has grown rapidly. Busy work schedules, increasing participation of women in the workforce, and changing family structures have further encouraged consumers to prefer ready-to-cook (RTC) and ready-to-eat (RTE) poultry products over traditional whole-bird purchases. The rise of nuclear families and young professionals, who value convenience and hygiene, is directly correlated with the growing adoption of marinated cuts, chicken nuggets, sausages, cold cuts, and packaged eggs.

Income growth and aspirational consumption have also played a pivotal role. As disposable incomes rise, consumers

are increasingly willing to pay a premium for branded, packaged poultry that assures consistency, food safety, and flavour innovation. Studies show that middle-class households are driving demand for RTC products like chicken drumsticks, fillets, and boneless breasts, while affluent urban segments are experimenting with gourmet, flavoured, and functional poultry items. At the same time, India's expanding retail ecosystem has facilitated access to processed poultry. The proliferation of supermarkets, hypermarkets, quick-service restaurants (QSRs), and cloud kitchens has provided multiple distribution channels, making processed chicken more visible and acceptable to consumers. E-commerce and food delivery platforms have further accelerated this trend, especially post COVID-19, when hygiene and safety concerns reshaped consumer preferences toward packaged and traceable food products.

Health and nutrition concerns are another driver. Poultry meat is often perceived as healthier compared to red meat, being low in saturated fat and high in protein. This perception has boosted demand among fitness-conscious youth, working professionals, and aging populations seeking high-protein diets. Value-added products such as low-fat chicken sausages, fortified

eggs enriched with omega-3 fatty acids, and protein-rich poultry snacks are beginning to carve out niche markets. Importantly, the COVID-19 pandemic served as a catalyst, as misinformation initially hurt demand but later resulted in heightened awareness about hygienic handling, cooking, and packaging of poultry. Consumers increasingly trust branded, packaged chicken over open wet-market sales, marking a critical behavioural shift.

Cultural and regional diversity in India also shapes poultry consumption patterns, creating opportunities for ethnic and customised value addition. For instance, demand for spicy marinated cuts in southern states, kebab-style RTE products in northern markets, and biryani-ready mixes in western India reflects localised preferences that processing companies are beginning to

tap into. Younger consumers are more experimental, seeking fusion cuisines, international flavours, and innovative formats, while older generations still prefer traditional dishes but are gradually adopting RTC products for convenience. Together, these trends indicate a gradual but irreversible transition towards processed poultry, suggesting that by 2047, India could see a structural transformation where processed products account for more than half of total poultry consumption, aligning with the vision of Viksit Bharat.

#### Processing Infrastructure: Strengths and Weaknesses

Processing infrastructure forms the backbone of any modern poultry sector, enabling hygienic slaughter, chilling, deboning, packaging, and storage of meat and eggs in forms suitable for consumer and export markets. In India, poultry processing has evolved significantly in the last two decades, yet its scale and reach remain limited compared to global standards. Presently, India has a few large automated poultry processing plants operated by integrated players in states like Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu, and Punjab. These facilities meet international norms, with capacities ranging from 2,000 to 10,000 birds per hour, and are equipped with technologies such as scalding tanks, plucking machines, conveyor-based evisceration,

blast freezers, and modified-atmosphere packaging systems. Such units are capable of producing deboned cuts, marinated portions, and further processed products for domestic modern retail as well as export markets. They represent the modern, industrial face of Indian poultry processing.

However, the organised processing sector accounts for only a fraction of the market—less than 12% of total poultry meat passes through hygienic, automated facilities. The overwhelming majority is handled by small-scale wet markets or semi-formal slaughter points that lack chilling and cold-chain infrastructure. This dualistic structure creates challenges in food safety, traceability, and value realisation. Many medium and small enterprises that wish to enter the processing segment face high capital costs for machinery, land, and compliance certification (HACCP, ISO 22000, FSSAI). As a result, only a few large integrators dominate modern processing, while small players struggle to scale. Moreover, India has limited cluster-based processing parks, meaning that cold-chain facilities are scattered and not uniformly accessible to farmers and entrepreneurs.

Another weakness is the underdeveloped egg processing infrastructure. Globally, significant volumes of eggs are processed into dried egg powder, liquid egg products, and specialised derivatives for use in bakeries, confectionery, and pharmaceuticals. In India, only a few plants in states like Andhra Pradesh and Tamil Nadu produce egg powder, mainly for export. Domestic consumption of processed eggs is negligible, reflecting both lack of awareness and limited capacity. This prevents India from capturing the higher-value markets for specialised egg products. Similarly, by-product utilisation infrastructure—such as rendering plants for feathers, blood, and offal—is still inadequate, leading to wastage and environmental concerns.

Despite these weaknesses, several strengths can be built upon. India's processing sector benefits from a large supply base of broilers and layers, a growing domestic market for RTC/RTE products, and supportive government schemes under initiatives like the Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME) and the Animal Husbandry Infrastructure Development Fund (AHIDF). The presence of strong private sector integrators provides anchor investment for processing plants, and technological collaborations with global equipment suppliers are gradually improving standards. With focused policy support-such as subsidised cold-chain infrastructure, credit access for SMEs, and establishment of common facility centres-India can overcome its infrastructure gaps and create a robust processing ecosystem aligned with global benchmarks. Such progress will be indispensable for achieving the goals of Viksit Bharat 2047.

#### Value Addition in Poultry: Scope and Strategies

Value addition in poultry goes beyond the basic function of slaughtering and chilling; it represents the transformation of poultry meat and eggs into diversified, convenient, nutritious, and premium products that command higher margins and cater to evolving consumer preferences. Globally, more than half of poultry consumption is in the form of processed and value-added items, whereas in India this proportion remains under 10%. This gap is not merely a challenge but a vast opportunity. As consumer lifestyles change and disposable incomes rise, the scope for value addition in Indian poultry expands across several dimensions: convenience foods, functional nutrition, ethnic and gourmet offerings, by-product utilisation, and sustainable innovations.

The first major scope lies in ready-to-cook (RTC) and ready-to-eat (RTE) product categories. Indian urban consumers are increasingly seeking hassle-free cooking solutions—pre-marinated drumsticks, boneless fillets, chicken nuggets, sausages, kebabs,



and cold cuts are all gaining popularity. RTC products save preparation time while ensuring hygiene and consistency, while RTE products cater to quick meals, snacking, and on-the-go consumption. The strategies for expansion in this segment include developing region-specific marinades (tandoori, Malvani, Chettinad, Hyderabadi), innovative portion sizes, and healthier formulations such as low-fat sausages or grilled rather than fried products. Food service outlets, quick-service restaurants, and cloud kitchens provide strong demand anchors for these items.

Another dimension is nutritional and functional value addition. With rising health consciousness, there is scope to produce fortified eggs enriched with omega-3 fatty acids, selenium, or vitamin D; low-cholesterol eggs; and high-protein chicken snacks. Similarly, poultry meat can be positioned as part of functional diets, such as keto-friendly, high-protein meal kits or muscle-building products for athletes. Internationally, fortified eggs and functional poultry are already well established, and India can develop this niche both for domestic and export markets. Linking value addition with health outcomes—such as improved immunity, cardiovascular benefits, or muscle health—can create strong consumer pull.

Ethnic and gourmet product development offers another strategy. India's cultural and regional diversity provides endless possibilities for developing customised poultry items: kebabs, curries, biryani kits, masala-coated cuts, or even festive specialty products. Exporting such ethnic products can help India build a unique brand identity in global markets, positioning itself as a hub for "Indian ethnic poultry delicacies." Similarly, gourmet offerings such as smoked chicken, artisanal sausages, and premium cuts can target affluent domestic consumers and niche international markets.

Finally, value addition must encompass by-product utilisation and sustainability innovations. Feathers, blood, and bones can be converted into feather meal, blood meal, bone meal, biofertilisers, collagen, and gelatin, creating additional revenue streams. Eggshells can be processed into calcium supplements, while yolk derivatives can find applications in pharmaceuticals and cosmetics. These not only improve profitability but also reduce environmental burdens, contributing to a circular bioeconomy. Strategic collaboration between industry, research institutions, and start-ups can accelerate innovations in this domain.

In essence, the scope of value addition in Indian poultry is vast, ranging from consumer-centric products to industrial applications. The strategies for capturing this opportunity include product

diversification, technology adoption (marination, IQF freezing, retort processing), branding and packaging innovations, and alignment with nutritional and sustainability trends. For India to move toward Viksit Bharat 2047, value addition in poultry must shift from being a peripheral activity to a central pillar of the industry, driving growth, competitiveness, and global integration.

#### Ready-to-Cook (RTC) and Ready-to-Eat (RTE) Segments

The Ready-to-Cook (RTC) and Ready-to-Eat (RTE) poultry product segments represent one of the fastest-growing opportunities for value addition in India's food sector. Driven by rapid urbanisation, changing lifestyles, increasing workforce participation (especially among women), and exposure to global cuisines, Indian consumers are shifting away from raw wet-market poultry towards hygienically processed, portioned, and flavoured options. RTC products—such as marinated chicken tikka, breaded nuggets, burger patties, sausages, or frozen drumsticks—require minimal preparation before cooking, while RTE products like grilled chicken strips, kebabs, cold cuts, or ready-packed curries offer instant convenience without any additional cooking. This trend aligns with the broader evolution of India's food consumption pattern from staple-based diets to diversified, protein-rich, and convenience-oriented meals.

The demand drivers for RTC/RTE poultry are multifold. Urban



consumers, particularly in metro cities, prefer time-saving options that do not compromise on taste or nutrition. Young professionals and students are a major consumer base, seeking affordable, protein-rich meals. Quick service restaurants (QSRs) and modern retail outlets increasingly rely on standardised poultry products to maintain consistency in their menus. Additionally, the COVID-19 pandemic accelerated awareness of food safety and hygiene, with packaged RTC and RTE items perceived as safer alternatives compared to wet-market purchases. The growing penetration of e-commerce, online food delivery platforms, and cold-chain logistics has further expanded the accessibility of such products to Tier II and Tier III cities, widening the consumer base.

However, scaling the RTC/RTE segment requires overcoming several bottlenecks. One challenge is the cold-chain infrastructure gap—maintaining temperature integrity during storage, transport, and retail display is critical for product safety but often

compromised in India. Another challenge is consumer trust and perception; many buyers still associate frozen foods with inferior quality, although advanced technologies such as Individual Quick Freezing (IQF) preserve freshness and nutritional quality. Companies must invest in consumer education and branding to shift perceptions. Additionally, price sensitivity in the Indian market demands cost-efficient production, packaging, and distribution strategies to make RTC/RTE products affordable to the middle class without compromising quality.

From an export perspective, RTC and RTE poultry products offer vast opportunities. Countries in the Middle East, Africa, and Southeast Asia import significant volumes of ready-to-cook and ready-to-eat items, especially halal-certified products. India, with its cost advantages, culinary diversity, and growing number of processing plants, is well placed to tap into these markets. Developing ethnic Indian-flavoured RTC/RTE poultry items for export—such as chicken kebabs, masala fillets, or biryani meal kits—can differentiate Indian exports from global competitors like Brazil and Thailand.

To fully realise the potential of this segment, a multi-pronged strategy is needed: investment in advanced processing and freezing technologies, expansion of cold-chain networks, development of innovative flavours and health-oriented variants, aggressive branding campaigns, and alignment with export

certifications. If pursued systematically, the RTC and RTE poultry segments can serve as a flagship model of value addition, enhancing farmer incomes, generating rural and urban employment, reducing food wastage, and positioning India as a global hub for convenience poultry products in the journey towards Viksit Bharat 2047.

#### Nutritional and Functional Value-Added Poultry Products

Beyond convenience and taste, the future of value addition in poultry lies in the domain of nutritional and functional products, which directly address the growing global demand for health-oriented foods. Functional foods are those that provide additional health benefits beyond basic nutrition, such as improved immunity, cardiovascular support, or enhanced muscle growth. In the context of poultry, both meat and eggs offer significant potential for innovation in this area, opening new frontiers for India's poultry sector to

differentiate itself in domestic and international markets.

Fortified eggs are among the most promising functional poultry products. By modifying the diet of laying hens with supplements such as flaxseed, fish oil, or algal extracts, eggs can be enriched with omega-3 fatty acids, selenium, vitamin D, and other micronutrients. Such "designer eggs" are already popular in countries like Japan, the USA, and China, where consumers pay a premium for nutritionally enhanced products. In India, a few private players and cooperatives have begun marketing omega-3 eggs, but the market is still at a nascent stage. With increasing awareness of lifestyle-related diseases such as obesity, diabetes, and cardiovascular disorders, fortified eggs could emerge as a high-demand product segment both for health-conscious Indian consumers and for export markets in the Middle East and Southeast Asia.

Functional poultry meat products also offer immense scope.

Chicken, already valued for its lean protein content, can be further developed into specialised items such as low-fat sausages, high-protein snack bars, or muscle-enhancing meal kits targeted at athletes and fitness enthusiasts. Innovations in processing technologies—such as extrusion, freeze-drying, and microencapsulation—allow the incorporation of probiotics, vitamins, or herbal extracts into poultry-based products. For instance, chicken soups fortified with immunity-boosting herbs, or grilled fillets infused with antioxidants, could cater to the booming wellness industry. Linking poultry products with dietary trends such as keto, paleo, or high-protein diets can enhance their appeal among urban consumers.

Egg derivatives also hold promise in the nutraceutical and pharmaceutical industries. Egg yolk components like lecithin are widely used in dietary supplements, while egg white proteins have applications in sports nutrition and weight management. Extracts from eggs are being explored for therapeutic applications, including anti-inflammatory and antimicrobial properties. By developing integrated value chains that connect poultry producers with nutraceutical companies, India can create new high-value markets for poultry by-products.

For India, promoting nutritional and functional poultry products requires a holistic strategy: strengthening R&D on feed formulations, establishing clear regulatory guidelines for functional food claims, investing in consumer awareness campaigns, and ensuring premium branding to justify higher price points. Export success in this niche also depends on certifications, quality assurance, and targeted marketing in countries where health and wellness products are in high demand.

In conclusion, functional and nutritional value-added poultry products offer India a dual opportunity: to improve public health domestically by addressing nutritional gaps, and to capture premium export markets by leveraging its production cost advantages. By positioning poultry not just as a source of affordable protein but also as a vehicle for wellness, India can elevate the sector's role in building a healthier and prosperous Viksit Bharat.

#### By-product Utilisation and Circular Bioeconomy

An often-overlooked dimension of poultry processing is the vast potential of by-product utilisation, which, if harnessed effectively, can drive sustainability, profitability, and innovation in line with the principles of a circular bioeconomy. In traditional wet-market systems, poultry by-products such as blood, feathers, bones, offal, and eggshells are either discarded or used inefficiently, leading to environmental pollution, loss of valuable nutrients, and additional waste management costs. However, modern processing plants view these by-products not as waste but as inputs for new value chains that contribute significantly to economic returns and environmental sustainability.

Feathers and feather meal are among the most abundant by-products, constituting nearly 5-7% of live bird weight. Rich in keratin, feathers can be processed into hydrolysed feather meal, a valuable protein source for animal feeds. Advanced technologies are also exploring the conversion of feathers into bioplastics, biodegradable packaging materials, and even keratin-based fibres for textiles and biomedical applications. Such innovations align well with India's ambition to reduce dependency on synthetic plastics and promote eco-friendly alternatives.

Blood meal is another high-protein by-product with applications in livestock feed formulations and fertilisers. Similarly, poultry offal (intestines, other viscera) can be rendered into meat and bone meal, which serves as a cost-effective protein supplement in aquaculture and pet food industries. Bones themselves are rich in calcium and phosphorus, and when processed, they yield bone meal used in mineral supplements and organic fertilisers.

Eggshells, often discarded as waste, are a natural source of calcium carbonate and have applications in poultry feed fortification, nutraceuticals, and even as raw material in industrial products like ceramics and biocomposites.

The growing pet food and aquaculture industries in India create additional opportunities for by-product valorisation. Processed poultry by-products can serve as raw material for high-quality pet food, addressing a rapidly expanding domestic market as well as export demand. Aquaculture, another sunrise sector, benefits from protein-rich rendered poultry meals, creating a synergetic linkage between two animal protein industries. This inter-industry integration is a hallmark of the circular bioeconomy, ensuring that nothing goes to waste.

However, India still faces challenges in scaling by-product utilisation. A large portion of slaughtering occurs in unorganised wet markets, where by-products are neither hygienically collected nor scientifically processed. Limited infrastructure for rendering plants, weak enforcement of environmental regulations, and lack of awareness among producers result in underutilisation. Strengthening rendering infrastructure, incentivising investment in by-product industries, and ensuring regulatory clarity will be essential. Equally important is changing perceptions—what is often seen as waste must be repositioned as a resource.

Harnessing by-product utilisation within a circular bioeconomy framework can reduce the environmental footprint of the poultry sector, generate additional revenue streams, support allied industries like fertilisers, aquaculture, and pet food, and position India as a leader in sustainable livestock systems. For a Viksit Bharat, where growth must be both inclusive and green, poultry by-product valorisation is not a peripheral activity but a central pillar of value addition and environmental stewardship.

#### Quality Standards, Food Safety and Traceability

As the Indian poultry sector aspires to integrate more deeply into global value chains, quality assurance, food safety, and traceability emerge as non-negotiable pillars. While India has made remarkable strides in increasing poultry production, the next stage of growth demands that its products consistently meet domestic and international safety norms, consumer expectations, and regulatory standards. In a globalised market where food scandals can severely damage reputations, adherence to the highest standards is both a strategic and ethical imperative.

One of the key challenges in India is the coexistence of two parallel systems: a highly advanced, integrated processing sector on one hand, and a vast unorganised wet-market system on the other. Wet markets, though still popular among consumers for perceived freshness, often lack basic hygiene, cold chain infrastructure, and standardised slaughtering practices. This creates food safety risks ranging from microbial contamination (Salmonella, Campylobacter) to antibiotic residues. For India to position poultry as a reliable export commodity and a safe domestic product, the modernisation of slaughtering and retailing practices must be accelerated.

The Food Safety and Standards Authority of India (FSSAI) has introduced guidelines for hygienic processing and handling of poultry products, but compliance is uneven, especially among small and medium enterprises. International markets, particularly the European Union, Japan, and North America, demand stringent adherence to sanitary and phytosanitary (SPS) standards, including antibiotic-free certification, hormone-free production, and documentation of feed ingredients. Meeting these standards requires robust monitoring systems, accredited laboratories, and transparent reporting mechanisms. The growing emphasis on antimicrobial resistance (AMR) stewardship also calls for stricter regulations on antibiotic use in poultry production, with a gradual shift towards alternatives such as probiotics, prebiotics, and



phytogenic feed additives.

Traceability systems are gaining prominence as consumers increasingly want to know the "farm-to-fork" journey of their food. Digital tools such as blockchain, QR codes, and IoT-enabled monitoring offer solutions for ensuring transparency in supply chains. For instance, consumers could scan a QR code on a poultry product to learn about its origin, feed regimen, processing facility, and certifications. Such innovations not only build consumer trust but also enhance India's competitiveness in premium export markets. Large integrated poultry companies in India are already experimenting with traceability models, but scaling them across the sector will require significant investment and capacity-building.

From an export perspective, establishing internationally accredited certification and audit mechanisms is crucial. Partnerships with global standard-setting bodies like Codex Alimentarius, as well as bilateral agreements on equivalence of standards, will smoothen market access. At the domestic level, consumer education campaigns can help shift demand toward hygienically processed and certified products, creating a pull factor for producers to adopt safer practices.

In essence, the future of India's poultry sector depends not just on quantity but on quality. By prioritising food safety, standardisation, and traceability, India can protect public health, build consumer confidence, and unlock high-value export opportunities. These measures are central to aligning the poultry industry with the broader vision of a safe, modern, and globally competitive Viksit Bharat.

#### Cold Chain, Logistics and Supply Chain Gaps

One of the most critical bottlenecks in the Indian poultry sector's march toward modernisation and global competitiveness is the cold chain and logistics infrastructure. Poultry meat and egg products are highly perishable, requiring stringent temperature control from the point of slaughter and processing to the end

consumer. Yet, in India, significant gaps in cold chain connectivity, fragmented logistics, and weak supply chain integration limit both domestic market efficiency and export readiness. Without robust cold chain systems, the promise of value addition and high-quality poultry exports cannot be realised.

Currently, India's cold chain capacity is heavily skewed towards a few states and primarily focused on dairy and horticulture. Poultry, despite being the country's second-largest source of animal protein, receives comparatively less attention. As a result, the majority of poultry products are sold fresh in wet markets, where cold chain usage is minimal or absent. This compromises shelf life, safety, and quality. For processed and frozen poultry products, inadequate cold storage facilities, poor last-mile connectivity, and inconsistent power supply further aggravate losses. Studies suggest that India loses nearly 10–15% of its perishable products, including poultry, due to inefficient supply chains—a significant economic and nutritional waste.

Export-oriented processing units face an even higher demand for efficiency. International buyers insist on strict temperature control, HACCP (Hazard Analysis and Critical Control Points) certification, and seamless cold chain documentation. However, logistical challenges, including inadequate refrigerated trucks, limited air-cargo facilities for frozen products, and port delays, undermine India's competitiveness in international poultry trade. For instance, while countries like Brazil and Thailand boast advanced integrated cold chain systems that ensure farm-to-destination temperature consistency, India still struggles with fragmented and disjointed logistics, raising costs and risks.

Strengthening India's poultry cold chain requires multi-level interventions. Investment in energy-efficient cold storage facilities, particularly in poultry production hubs such as Andhra Pradesh, Tamil Nadu, Maharashtra, and Haryana, is critical. Equally important is the development of refrigerated transportation fleets and "cold hubs" near wholesale and retail markets. Integrating renewable energy, such as solar-powered cold storage, can reduce operational costs and support sustainability goals. Digital tools like GPS-enabled trucks and IoT-based temperature sensors can help monitor and optimize logistics, ensuring real-time compliance with food safety standards.

On the policy side, incentives for private sector investment, public-private partnerships (PPPs), and targeted schemes under "PM Kisan Sampada Yojana" or "Atmanirbhar Bharat" initiatives can catalyse the cold chain ecosystem. Encouraging farmer-producer organisations (FPOs) and cooperatives to pool resources for shared cold chain infrastructure can also democratise access for smallholders. Ultimately, efficient cold chain and logistics systems will not only reduce post-harvest losses but also enable product diversification—from chilled and frozen meat to high-value processed poultry exports.

For India to position its poultry sector as a reliable contributor to "Viksit Bharat 2047," bridging cold chain and logistics gaps is imperative. A seamless, integrated, and technology-driven supply chain will ensure that quality products reach both domestic and global consumers with safety, efficiency, and affordability.

#### Export Potential - Regional and Global Market Opportunities

The Indian poultry sector, with its vast production base, skilled workforce, and cost competitiveness, is uniquely positioned to tap into the growing global demand for poultry products. Poultry is currently the most rapidly expanding source of animal protein worldwide, driven by rising incomes, urbanisation, and changing dietary preferences. According to FAO projections, global poultry meat consumption will continue to increase at an annual rate of 2–3%, with Asia, Africa, and the Middle East accounting for the bulk of the demand. For India, this presents a strategic opportunity to expand its poultry exports, diversify product offerings, and

establish itself as a reliable supplier in international markets.

At present, India's poultry exports are modest compared to global leaders like Brazil, the United States, and Thailand. Exports are largely concentrated in processed egg powder, frozen chicken cuts, and live birds, with key destinations including Oman, the UAE, Saudi Arabia, Qatar, and other Gulf Cooperation Council (GCC) countries. The Middle East, with its preference for Halal-certified products and reliance on imports, remains the most promising export market for Indian poultry. India enjoys a geographical advantage in serving this region due to its proximity, lower shipping costs, and existing trade relationships. Beyond the Gulf, South Asian neighbours such as Sri Lanka, Nepal, and Bangladesh also provide steady demand.

Looking ahead, there is substantial untapped potential in emerging markets of Africa and Southeast Asia, where poultry demand is surging due to rapid population growth and urban dietary shifts. Additionally, niche markets in Japan and the European Union, though highly regulated, offer premium opportunities for antibiotic-free, organic, and traceable poultry products. The growing popularity of ready-to-cook and ready-to-eat foods worldwide also opens export avenues for India's value-

added poultry products, provided quality and safety standards are

However, India's export share remains low-partly due challenges like disease outbreaks (notably avian influenza), non-tariff barriers, and stringent sanitary and phytosanitary (SPS) requirements in high-value markets. Competing nations have invested heavily in biosecurity, advanced cold chain logistics, and globally recognised certifications, giving them an edge. To compete effectively, India must not only upgrade its processing and safety systems but also brand its poultry as safe, sustainable, and affordable. Strengthening Halal certification infrastructure, establishing more export-oriented processing zones, and negotiating bilateral trade agreements are crucial steps in this direction.

Government initiatives under "Make in India," "Atmanirbhar Bharat," and export promotion schemes by APEDA (Agricultural and Processed Food Products Export Development Authority) are already pushing Indian poultry into global supply chains. With sustained investment in quality,

compliance, and branding, India can transform from a regional supplier into a global poultry hub. Unlocking this export potential will not only boost foreign exchange earnings but also generate employment, strengthen rural economies, and firmly position poultry as a pillar of Viksit Bharat 2047.

#### Challenges in Export Compliance and Trade Barriers

While India's poultry sector holds significant export potential, realising this vision is complicated by a range of compliance challenges and trade barriers. International poultry trade is governed by stringent sanitary, phytosanitary (SPS), and technical requirements. Exporting countries must demonstrate adherence to global food safety standards, disease-free status, traceability,

and certifications—all of which pose difficulties for India's highly fragmented poultry value chain.

One of the most persistent barriers is the recurring outbreak of avian influenza (AI) in India. Even limited, localised outbreaks result in blanket bans from importing nations, especially in the Middle East, the EU, and Japan. Unlike Brazil or the US, which have adopted compartmentalisation (allowing disease-free zones to continue exports during outbreaks), India has yet to implement this system effectively. The limited availability of such internationally recognised disease management mechanisms undermines India's reliability as a consistent supplier.

Compliance with food safety and hygiene protocols is another area of concern. Export markets require Hazard Analysis and Critical Control Points (HACCP), ISO 22000, and FSSAlequivalent certifications. While large integrators and exportoriented units maintain these standards, small and medium enterprises (SMEs) often lack the financial and technical capacity to upgrade infrastructure. This creates uneven compliance across the sector, weakening India's global competitiveness. Moreover, traceability requirements—tracking products from farm to fork—

remain difficult to implement in India's largely unorganised poultry sector.

Non-tariff barriers (NTBs) imposed by importing countries add another layer of complexity. Some markets mandate zeroresidue levels for antibiotics and growth promoters, while others require conformity with specific animal welfare or environmental example, the EU norms. For demands strict compliance with antimicrobial regulations on use and animal welfare, which India has yet to fully harmonise with domestic practices. Halal certification, though an advantage in Middle Eastern markets, also requires greater standardisation and international recognition to enhance India's credibility.

Logistics-related barriers compound these issues. Export shipments often face delays at ports, limited access to refrigerated cargo, and higher freight costs compared to competitors. Currency fluctuations and rising feed prices also erode export margins, making Indian poultry less competitive globally. Furthermore, global trade dynamics—such as protectionist

policies, preferential trade agreements favouring other suppliers, and geopolitical disruptions—pose additional risks.

Addressing these challenges demands a multi-pronged strategy. Strengthening national biosecurity measures, adopting compartmentalisation in a big way, and upgrading active surveillance systems for disease control are essential first steps. Expanding training and financial support for SMEs to adopt HACCP and traceability systems will help broaden compliance. Diplomatic efforts to negotiate trade agreements, harmonise standards, and reduce NTBs will also be critical. Public-private partnerships can accelerate certification, logistics infrastructure, and branding initiatives.

Ultimately, overcoming these barriers is not merely a matter of

According to FAO projections, global poultry meat consumption will continue to increase at an annual rate of 2—3%, with Asia, Africa, and the Middle East accounting for the bulk of the demand. For India, this presents a strategic opportunity to expand its poultry exports, diversify product offerings, and establish itself as a reliable supplier in international markets

technical compliance—it is about transforming India's poultry sector into a globally trusted brand. By systematically addressing these challenges, India can unlock its full export potential and make poultry a cornerstone of its journey toward Viksit Bharat 2047.

#### Investment Priorities, Infrastructure and MSME Role

For the Indian poultry sector to achieve its full potential in processing, value addition, and exports, strategic investments in infrastructure and technology are indispensable. While large integrators have made significant advances in modern processing plants and cold chain systems, the broader ecosystem—especially small and medium enterprises (SMEs) and farmer cooperatives—still struggles with inadequate facilities. Addressing these gaps is essential to build a competitive, inclusive, and resilient poultry industry aligned with the Viksit Bharat 2047 vision.

One of the foremost priorities is modernising processing infrastructure. Currently, only a small fraction of India's poultry production undergoes scientific slaughtering and processing, with the majority sold in wet markets. Expanding mechanised processing units, certified slaughterhouses, and value-addition facilities such as deboning, marination, and ready-to-eat product lines will not only enhance food safety but also increase export readiness. Government support through capital subsidies, low-interest loans, and public-private partnerships can accelerate this transformation.

Investment in cold chain infrastructure is another critical requirement. Efficient refrigerated storage, transport, and distribution networks are vital for ensuring quality and extending shelf life. At present, cold chain penetration remains low and fragmented, leading to high post-harvest losses and limiting the reach of processed poultry products. Developing integrated cold chains from farm to consumer, with last-mile connectivity in both domestic and export markets, will significantly enhance value addition and profitability.

The role of Micro, Small, and Medium Enterprises (MSMEs) is particularly crucial in this journey. MSMEs are the backbone of India's poultry ecosystem, contributing to feed production, equipment manufacturing, processing, and local distribution. However, they often face constraints in accessing finance, adopting new technologies, and meeting compliance standards. Targeted government schemes to improve credit access, provide technology upgradation grants, and build cluster-based common facilities (e.g., shared cold storage, quality testing labs, and packaging units) can empower MSMEs to scale up and integrate into global supply chains.

Encouraging start-ups and innovation-driven enterprises is equally important. New-age companies are already venturing into areas such as online poultry retailing, smart farm management systems, and alternative protein development. With proper incubation support, digital platforms, and venture capital infusion, these enterprises can reshape the sector by introducing disruptive models that cater to modern consumer needs.

Moreover, attracting foreign direct investment (FDI) in processing and logistics can bring advanced technologies, international best practices, and new market linkages. Complementing these investments with robust policy frameworks, ease of doing business reforms, and streamlined approvals will create an enabling environment for private sector participation.

Ultimately, a balanced investment strategy—focusing on modern infrastructure, MSME empowerment, innovation, and global integration—will lay the foundation for a robust poultry sector. By mobilising capital and aligning it with long-term developmental goals, India can ensure that poultry becomes not only a driver of domestic food security but also a symbol of its global competitiveness in the march toward Viksit Bharat 2047.

#### Skill Development, Entrepreneurship and Start-up Ecosystem

A thriving poultry sector requires not just capital and infrastructure, but also a skilled workforce and entrepreneurial ecosystem capable of driving innovation, efficiency, and global competitiveness. As India envisions itself as a leading agricultural economy in the era of Viksit Bharat 2047, investing in human capital becomes as critical as investing in physical infrastructure. Skill development, entrepreneurship promotion, and a vibrant start-up culture can together create a sustainable engine for processing, value addition, and export growth in poultry.

At the grassroots level, there is a pressing need for vocational training programs tailored to poultry processing, cold chain management, quality control, and value-added product development. Many workers currently employed in poultry handling and processing units acquire skills informally, which often limits productivity and adherence to hygiene standards. Structured training through institutions like Krishi Vigyan Kendras (KVKs), agricultural universities, and specialised skill centres can bridge this gap. Certifications aligned with global standards such as HACCP, ISO, and Codex Alimentarius would also enhance employability and industry credibility.

Beyond skill training, fostering a culture of entrepreneurship in the poultry sector can unlock untapped opportunities. Young entrepreneurs, particularly in rural and semi-urban areas, can set up small-scale processing plants, niche product lines (organic poultry, antibiotic-free chicken, ethnic flavoured ready-to-eat products), and local cold chain services. Government-backed schemes such as Startup India, PM Formalisation of Micro Food Processing Enterprises (PM-FME), and NABARD credit support can provide seed funding, technical guidance, and market linkages for such ventures. Encouraging women entrepreneurs in poultry processing and marketing can also create inclusive growth models, enhancing rural livelihoods while boosting value addition.

The start-up ecosystem in poultry is beginning to show promising signs, especially in technology-driven solutions. Agritech ventures are developing digital platforms for poultry health monitoring, Al-based farm management systems, blockchainenabled traceability tools, and e-commerce marketplaces for processed poultry products. Some start-ups are innovating in sustainable feed alternatives and alternative proteins, aligning with both consumer trends and climate-smart practices. With proper incubation support, mentorship networks, and venture capital funding, these start-ups can revolutionise the poultry value chain and position India as a hub of agri-innovation.

Another critical aspect is capacity building for exporters. Training programs on international quality standards, packaging innovations, branding strategies, and export documentation will equip businesses—especially MSMEs—to compete effectively in global markets. Collaborations between industry associations, government export promotion councils, and international trade bodies can facilitate knowledge transfer and exposure to best practices.

In real sense, the poultry sector's success will depend not only on infrastructure and investments but also on the people and enterprises that drive its day-to-day operations and innovations. By nurturing skills, empowering entrepreneurs, and fostering start-ups, India can create a dynamic human resource base and innovation ecosystem that ensures the poultry sector thrives as a global leader. This human-centric approach will be instrumental in achieving the sector's contribution to Viksit Bharat 2047.

#### Sustainability, AMR Stewardship and Climate-smart Poultry

As India steers its poultry sector towards global leadership, sustainability must remain at the core of growth strategies. Poultry production is resource-intensive, and without responsible practices, it risks exacerbating environmental challenges, public health concerns, and trade barriers. Integrating sustainability

principles, responsible antibiotic use, and climate-smart strategies is, therefore, essential to ensure that the sector contributes positively to the Viksit Bharat 2047 vision.

One of the foremost issues is resource efficiency and environmental sustainability. Poultry farming has a relatively lower carbon footprint compared to ruminant livestock, but scaling up production without safeguards can still lead to challenges such as water use inefficiencies, greenhouse gas emissions, and waste disposal problems. The adoption of renewable energy solutions in processing plants, efficient water recycling systems, and modern waste-to-energy technologies can significantly reduce environmental impacts. By-products like poultry litter can be converted into biofertilisers or biogas, creating a circular economy model that adds value while reducing pollution.

Another pressing concern is antimicrobial resistance (AMR). The misuse of antibiotics in poultry farming—both as growth promoters and for disease prevention—has raised alarms globally. Trading partners, particularly in the EU and developed economies, are

imposing strict import restrictions based on residue levels and AMR concerns. To safeguard public health and protect export competitiveness, India must implement robust AMR stewardship programs. This includes strict regulations on antibiotic use, promotion of alternatives such as probiotics and herbal supplements, farmer education, and mandatory withdrawal periods before slaughter. Integrating these measures will not only boost consumer confidence but also align Indian poultry products with international food safety standards.

Climate change adds another layer of complexity. Rising temperatures, erratic rainfall, and extreme weather events directly affect poultry production by influencing feed availability, disease prevalence, and bird performance. Climatesmart poultry strategies including heat-tolerant housing systems, energy-efficient cooling technologies, and resilient feed formulations are essential to mitigate these risks. Research institutions and industry

collaborations can accelerate the development of indigenous solutions tailored to Indian agro-climatic conditions. Incorporating climate resilience into poultry production will ensure stable growth and protect farmer incomes against climate shocks.

Sustainability also extends to consumer expectations and global branding. Increasingly, both domestic and international consumers prefer products that are labelled as "antibiotic-free," "organic," or "climate-friendly." Developing certification schemes and branding Indian poultry as sustainable and responsible can create a premium positioning in global markets, much like how India has built reputations in tea, spices, and basmati rice.

In summary, the future of the poultry sector hinges on a triple-bottom-line approach—economic growth, environmental responsibility, and social accountability. By embedding sustainability, ensuring AMR stewardship, and adopting climate-smart innovations, India can future-proof its poultry industry. This alignment of productivity with responsibility will ensure that poultry remains not just a driver of food security, but also a global model of sustainable agribusiness in the march towards Viksit Bharat 2047.

#### Roadmap to Viksit Bharat 2047

The Indian poultry sector stands today at a transformative juncture armed with enormous domestic demand, a rapidly modernising processing industry, and expanding global market opportunities. Yet, the path to maximising its contribution to Viksit Bharat 2047 requires a deliberate, multi-pronged roadmap that integrates processing expansion, value addition, export competitiveness, sustainability, and human capital development. Each of these dimensions must operate in synergy to position poultry as a strategic pillar of India's agricultural and nutritional security.

First, strengthening processing infrastructure is non-negotiable. Large-scale integrated plants, decentralised modern slaughterhouses, and region-specific processing hubs must be scaled up to handle rising volumes while ensuring hygiene, traceability, and compliance with global standards. Public-private partnerships can play a decisive role in bridging infrastructure gaps, supported by government incentives under schemes such as PMKSY and PLI for food processing. Simultaneously, investment in cold chain logistics will be critical to extend shelf life, reduce wastage, and enable wider domestic and export penetration.

Second, value addition should be the defining feature of the poultry sector's next growth phase. India must move beyond

being a producer of raw chicken and eggs to becoming a global hub for processed, branded, and functional poultry products. This requires innovations in ready-to-eat meals, fortified poultry products, ethnic recipe-based processing, and by-product utilisation for nutraceuticals, pharmaceuticals, and renewable energy. Developing niche products aligned with consumer health trends and cultural preferences will give India an edge in competitive markets.

Third, unlocking export potential is vital for global leadership. India's proximity to high-demand regions like the Middle East, Southeast Asia, and Africa offers a natural advantage. To convert this into sustained trade, India must harmonise its standards with Codex and OIE guidelines, negotiate favourable trade agreements, and build a reputation for reliable quality. Export-oriented clusters, exclusive poultry SEZs, and branding initiatives can further accelerate global market penetration.

Fourth, ensuring sustainability and resilience will safeguard long-term growth. Climate-smart poultry practices, waste-to-value models, and AMR stewardship programs must become industry-wide norms. Integrating digital technologies—AI for disease prediction, blockchain for traceability, and IoT for precision farming—will further enhance sustainability while boosting efficiency.

Finally, people and enterprises will remain at the heart of this transformation. Skill development, entrepreneurship promotion, and fostering a vibrant poultry start-up ecosystem will generate jobs, enhance rural incomes, and spark innovations that align with global trends. The sector's growth will not just be about producing more food, but about producing food responsibly, innovatively, and inclusively.

In conclusion, if India succeeds in building a poultry sector that is globally competitive, environmentally responsible, and socially inclusive, it will not only meet domestic nutritional needs but also emerge as a global powerhouse in poultry trade. The journey from being a volume-driven producer to a value-driven, innovation-led global leader in poultry will be a cornerstone of India's vision of Viksit Bharat 2047. The poultry sector, with its dynamic processing, value addition, and export potential, is thus poised to be a critical engine of India's transformation into a developed nation.







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#### **Article**

## Megg: Egg that is Mighty, Yet Modest

#### **SHRIDHAR** speaks



Tarun Shridhar
Director General,
Indian Chamber of
Food and Agriculture,
and former Secretary,
Ministry of Fisheries,
Animal Husbandry and
Dairying, Govt.of India

"The present was an egg laid by the past that had the future inside its shell;" this symbol of life is indeed an affordable source of life sustaining high quality nutrition; not carbohydrates, not starch, not fat, but healthy protein, vitamins and minerals.

It would have been about two weeks, at the time of publication of this piece, since we celebrated World Egg Day. Like the rest of the world, the day was celebrated in India too, albeit in a muted way. However, the stellar show was the 5001 egg bhurji cooked at the Nagpur Veterinary College to celebrate the day. This spicy mouth watering Indian counterpart of the scrambled egg was distributed free with pav, a bun bread, to the morning walkers and others attending the celebrations. 5001 eggs for anda bhurji is indeed an incredible achievement. Pomp and show is important when it comes to flag and highlight important things; the egg has been a forerunner in such ostentatious celebrations. A 1,383 square feet omelette, the largest in dimensions at that time, was cooked in Yokohama, Japan in the year 1994. The recipe called for 160,000 eggs. This was the precursor, the curtain raiser so to say, to the creation of the World Egg Day two years later in 1996. There has been a mad scramble since then to beat the record of the biggest/largest omelette.

The Mighty Egg: Packed with Natural Nutrition is the theme of this year's World Egg Day celebrated on 10th, the second

Friday of October as is the day declared. Could we take the celebrations beyond rituals? Our inherent social and cultural compulsion restrains several of us from promoting poultry meat; but then it opens an opportunity to pitch for eggs as the food which is affordable, nutritious, and above all "vegetarian". A rare win-win for both the consumer and the farmer. Benjamin Franklin, the renowned eighteenth century American polymath is a good brand ambassador for eggs, perhaps even among the diehard vegetarians, as he once famously said, "An egg today is better than a hen tomorrow"; a pragmatic compromise. But it is our own revered Bapu, the Mahatma Gandhi who has given a no-nonsense scientific description of eggs in his 1942 monograph titled Key to Health, Mahatma. He writes, "Eggs are regarded by the layman as a flesh food. In reality, they are not...A sterile egg never evolves into a chick. Therefore, he who can take milk should have no objection to take sterile eggs." Hence, the unique Indian English word "eggetarian" describes a person who continues to be a vegetarian.

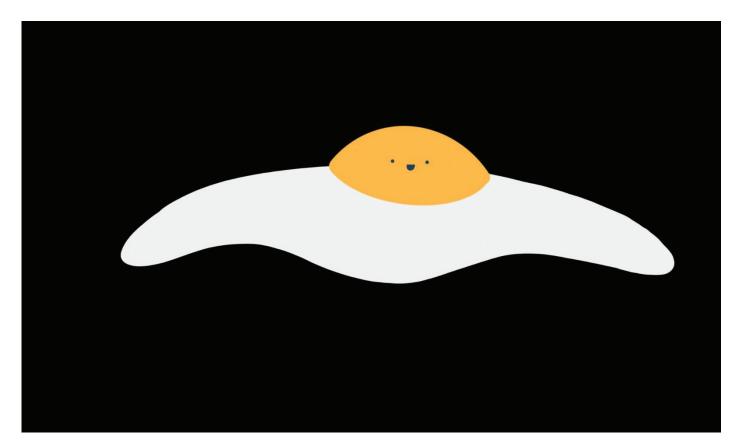
Naturally rich in essential nutrients and accessible worldwide, eggs are a humble yet mighty wholefood supporting health and wellbeing at every stage of life. Beyond their nutritional value, eggs are a key part of diverse culinary traditions and diets, reflecting their versatility and cultural significance across continents.

Some of the Key messages of the World Egg Day 2025 are summarised as follows. Packed with Natural Nutrition: Eggs contain 13 essential nutrients in one simple ingredient, providing key building blocks for health. Minimally processed by nature, eggs offer whole, real nutrition with no added ingredients. Throughout every stage of life, eggs support both physical and cognitive health, from early development to healthy ageing. Modest but Mighty: Although they are one humble ingredient, there are endless ways to enjoy eggs. They adapt easily to cuisines, dishes, and mealtimes all over the world. Thanks to their natural versatility, eggs

can be produced almost anywhere, helping support local food systems and communities. Nutrition for Everybody: Highquality protein from eggs helps support muscle health, contributing to strength, growth, and repair. Choline found in eggs supports brain development, memory, and cognitive function. For maternal health and pregnancy, eggs are rich in nutrients, supplying folate, vitamin B12, and vitamin D, all of which are crucial for healthy pregnancy and foetal development. Lutein and zeaxanthin in eggs promote healthy vision and protect the eyes from age-related damage. Vitamin D and phosphorus from eggs strengthen bones and teeth, supporting skeletal health at every age.

The establishment and development of World Egg Day represent a long-term strategic initiative and continuing effort by the global egg industry to formalize presence, coordinate advocacy and strategy, and proactively promote consumption of eggs worldwide. The origins of this present day institutional mechanism trace back to the formation of the International Egg Commission (IEC) in 1964. The IEC was specifically created with the mandate to globally represent egg producers and actively promote the consumption of eggs as a key component of a balanced diet. This organizational infrastructure provides the foundational framework necessary for executing largescale, coordinated events like the World Egg Day.

However, the egg's significance had been established millennia ago, much before the modern industrial and institutional efforts. Chicken rearing for both meat and eggs is believed to have been introduced in Sumer and Egypt as early as 1500 B.C., underscoring the product's deep, ancient, and cross-cultural nutritional relevance. The industrialization of the value chain saw critical innovations such as the invention of the egg carton in 1911 by Joseph Coyle in British Columbia, signaling the beginning of modern logistical handling and distribution. World



Egg Day itself was formally established in 1996 in Vienna. The organizing bodies decided that the celebration would take place annually on the second Friday in

October. Early promotional efforts demonstrated an emphasis on large-scale publicity to capture global media attention. Creation of the largest omelet in the world at the time, made in Yokohama, Japan was one such prominent strategy for wide publicity; and it was truly eye-catching.

The significance of eggs extends far beyond individual nutrition to broader food security challenges. Approximately 150 million children under five worldwide are said to be stunted, with over a third of children in Eastern and Southern Africa, Western and Central Africa, and South Asia affected by stunting. India has an alarming 48% of children below the age of 5 stunted. Eggs offer an effective and practical solution to these challenges due to their: a) Affordability: Eggs are among the most cost-effective protein sources, providing highquality nutrition at moderate prices, thus accessible even to the poor

populations; b) Availability: Eggs can be produced year-round in diverse environments with relatively low resource requirements; and c) Environmental

sustainability: Eggs have a relatively low environmental footprint compared to other animal proteins, contributing fewer greenhouse gas emissions while requiring

A "reference protein" is how nutritionists explain the virtues of the egg. This is on account of its high biological value and digestibility. Its biological value— the proportion of protein ingested and absorbed into the body— is 93.7%, which is the highest for any food after milk whey protein

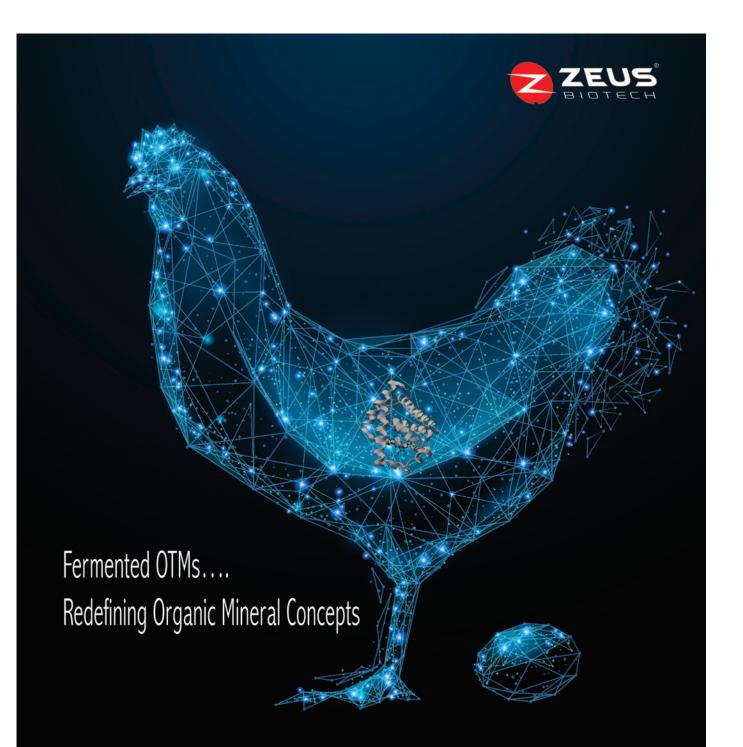
less water and land. Credible research has demonstrated the transformative impact of eggs on child nutrition. A research and survey project in Ecuador showed that daily egg consumption for just six months among young undernourished children led to increased linear growth and a 47% reduction in stunting, along with improvements in

> biomarkers associated with cognitive development. Egg, therefore, could be a potent food source to address the challenge of global hunger and malnutrition.

> A "reference protein" is how nutritionists explain the virtues of the egg. This is on account of its high biological value and digestibility. Its biological value- the proportion of protein ingested and absorbed into the body- is 93.7%, which is the highest for any food after milk whey protein. The consumer should not only be told of the egg's high protein efficiency ratio, but also its low calorie count. A 55-gram hardboiled egg, while packing all the essential amino acids and also Vitamin A, B2 and B12, gives just 77 calories. The so-called hardcore vegetarians have already started veering towards an occasional cake or ice cream containing egg. Just a little push, communicating both the egg's unique nutritional attributes and its likeness with milk as a non-flesh food, could

make a huge difference.

Eggs, the powerhouse of nutrition, are quite aptly referred to as "nature's multivitamin".



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AUGUST-2025

#### **Northern Region**

**COMPANY:** Sampoorna feeds FARMER NAME: Mr. Bhagwan Dass Pol



| AUGUST-2025   | Top #1     |
|---------------|------------|
| Farm Type     | OPEN HOUSE |
| State         | Haryana    |
| Chicks Placed | 15820      |
| Mean Age      | 32         |
| Avg Body Wt   | 2226       |
| FCR           | 1.248      |
| cFCR          | 1.198      |
| Livability%   | 97.3       |
| Daily Gain    | 69.6       |
| EPEF          | 542.3      |

#### **Eastern Region**

**COMPANY:** IB Group **FARMER NAME:** Mr. Sanjeet Sena



|   | AUGUST-2025   | Top #1   |
|---|---------------|----------|
|   | Farm Type     | EC HOUSE |
|   | State         | Odisha   |
|   | Chicks Placed | 5088     |
| 1 | Mean Age      | 37       |
|   | Avg Body Wt   | 2781     |
|   | FCR           | 1.541    |
|   | cFCR          | 1.367    |
|   | Livability%   | 94.1     |
| 5 | Daily Gain    | 75.2     |
| 1 | EPEF          | 458.8    |

#### **Central Region**

**COMPANY:** Jafpa **FARMER NAME:** Mr. Ravaji Laxman B



| AUGUST-2025   | Top #1     |
|---------------|------------|
| Farm Type     | EC HOUSE   |
| State         | Maharastra |
| Chicks Placed | 7275       |
| Mean Age      | 31.7       |
| Avg Body Wt   | 2284       |
| FCR           | 1.303      |
| cFCR          | 1.240      |
| Livability%   | 95.9       |
| Daily Gain    | 72.0       |
| EPEF          | 530        |

#### **South Region**

**COMPANY:** SKM feeds **FARMER NAME:** Mr. Sivaperumal E



| AUGUST-2025   | Top #1     |
|---------------|------------|
| Farm Type     | OPEN HOUSE |
| State         | Tamil Nadu |
| Chicks Placed | 5931       |
| Mean Age      | 35.8       |
| Avg Body Wt   | 2550       |
| FCR           | 1.440      |
| cFCR          | 1.318      |
| Livability%   | 96.2       |
| Daily Gain    | 71.3       |
| EPEF          | 476.3      |

#### AUGUST-Top PERFORMANCE BY AREA

| Area               | Chicks Placed | Mean Age | BW   | FCR   | cFCR(2Kg) | Livability% | Daygain | EPEF  |
|--------------------|---------------|----------|------|-------|-----------|-------------|---------|-------|
| North EC house     | 7305          | 31.9     | 2158 | 1.336 | 1.300     | 95.4        | 67.7    | 484.1 |
| North Open house   | 15820         | 32.0     | 2226 | 1.248 | 1.198     | 97.3        | 69.6    | 542.3 |
| East EC house      | 5088          | 37.0     | 2781 | 1.541 | 1.367     | 94.1        | 75.2    | 458.8 |
| East Open house    | 3254          | 40.0     | 2663 | 1.493 | 1.346     | 96.0        | 66.6    | 428.3 |
| Central EC house   | 7275          | 31.7     | 2284 | 1.303 | 1.240     | 95.9        | 72.0    | 530.0 |
| Central Open house | 8067          | 34.4     | 2436 | 1.374 | 1.277     | 98.0        | 70.8    | 505.4 |
| South EC house     | 22416         | 37.0     | 2675 | 1.464 | 1.314     | 95.7        | 72.3    | 472.5 |
| South Open house   | 5931          | 35.8     | 2550 | 1.440 | 1.318     | 96.2        | 71.3    | 476.3 |

#### AUGUST-Top 10 FIELD PERFORMANCE

| Flock    | Farm Type  | State      | Chicks Placed | Mean Age | BW   | FCR   | cFCR  | Livability% | Day Gain | EPEF  |
|----------|------------|------------|---------------|----------|------|-------|-------|-------------|----------|-------|
| Flock 1  | Open House | Haryana    | 15820         | 32.0     | 2226 | 1.248 | 1.198 | 97.3        | 69.6     | 542.3 |
| Flock 2  | EC House   | Maharastra | 7275          | 31.7     | 2284 | 1.303 | 1.240 | 95.9        | 72.0     | 530.0 |
| Flock 3  | EC House   | Maharastra | 13675         | 32.9     | 2424 | 1.356 | 1.262 | 97.1        | 73.6     | 527.0 |
| Flock 4  | EC House   | Maharastra | 10978         | 33.9     | 2459 | 1.357 | 1.255 | 97.0        | 72.6     | 519.0 |
| Flock 5  | EC House   | Maharastra | 7583          | 34.7     | 2534 | 1.365 | 1.246 | 95.7        | 73.1     | 513.0 |
| Flock 6  | EC House   | Maharastra | 9529          | 31.8     | 2246 | 1.340 | 1.285 | 97.1        | 70.6     | 512.1 |
| Flock 7  | EC House   | Maharastra | 9490          | 32.3     | 2320 | 1.345 | 1.274 | 95.6        | 71.9     | 510.6 |
| Flock 8  | Open House | Maharastra | 8067          | 34.4     | 2436 | 1.374 | 1.277 | 98.0        | 70.8     | 505.4 |
| Flock 9  | Open House | Haryana    | 13051         | 35.0     | 2514 | 1.382 | 1.268 | 97.1        | 71.9     | 505.0 |
| Flock 10 | EC House   | Maharasta  | 5856          | 36.0     | 2557 | 1.360 | 1.237 | 96.5        | 71.1     | 504.3 |

#### Article

## Sapodo— Going Beyond Yucca for Ammonia Management

#### **Team Avitech Nutrition**

PhyGeno, the plant-based feed ingredient division of Avitech Nutrition is dedicated to enhancing the safety and nutritive value of animals through plant-based innovations. Drawing on its legacy of working with animals and combining ancient Ayurvedic knowledge with modern evaluation and manufacturing techniques, PhyGeno offers solutions that lead to healthier products for human consumption and minimal environmental impact. Sapodo, a polyherbal formulation is rapidly emerging as a natural choice to address critical ammonia challenges in poultry farming.

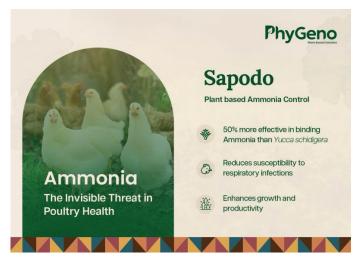
#### Understanding the Impact of Ammonia in Poultry Production

Ammonia, a natural byproduct of animal waste and decomposition, poses significant threats in poultry farms when present at high concentrations. Elevated ammonia levels are harmful to both animal health and the environment, leading to a cascade of negative effects on poultry production. These include reduced body weight gain, impaired feed conversion, decreased survivability, and a weakened immune response. Furthermore, high ammonia can cause respiratory illness, eye irritation, increased susceptibility to pathogens, and compromised immune responses in birds, ultimately impacting overall performance and profitability for farmers. Effectively controlling ammonia is, therefore, crucial for fostering healthy living conditions and improving bird performance.

#### Sapodo: A Comprehensive Strategy for Ammonia Management

Sapodo is a natural phytogenic feed additive specifically formulated for efficient ammonia control. It is a polyherbal formulation containing saponins and glycosides, among other bioactive compounds, which collectively enable a multi-pronged approach to ammonia management. Sapodo's strategy involves two key mechanisms:

- Direct Binding: Sapodo contains bioactive compounds that directly bind lower gut and environmental ammonia levels. This immediate action helps to neutralise existing ammonia, reducing its toxic effects on animals and improving air quality within the farm
- Urease Inhibition: Beyond direct binding, Sapodo's bioactive compounds also control ammonia production by inhibiting the urease enzyme. Urease is responsible for converting urea into ammonia; so by inhibiting this enzyme, Sapodo addresses the root cause of ammonia generation, providing a more sustainable and long-term solution



This dual-action approach ensures a comprehensive reduction of ammonia in the poultry environment, creating a healthier and more productive setting for animals.

#### Unlocking Superior Ammonia Management: Sapodo's Proven Advantage Over Yucca Schidigera Products

#### Comparative Efficacy: Sapodo's Demonstrated Superiority

To validate Sapodo's effectiveness, comprehensive in-vitro evaluations were conducted at the Avitech Centre for Nutrition Science (ACNS), comparing its ammonia binding capability against a commercially available Yucca product. The results unequivocally demonstrate Sapodo's superior performance.

#### Study 1: Quantitative Evaluation (B50 Value)

The first trial focused on estimating the B50 value, a key indicator quantifying the amount of an ammonia-binding substance needed to reduce ammonia concentration in an aqueous solution by 50%. A lower B50 value signifies a stronger ability of the product to bind ammonia.

#### Methodology

The ammonia control agent was weighed, mixed with phosphate EDTA buffer, stirred for 10 minutes, and centrifuged. The supernatant was then used to prepare aliquots for B50 estimation. Samples were treated with ammonium sulphate solution, nitroprusside, and hypochlorite, followed by incubation, and optical density measurement at 630 nm to determine the percentage of free ammonia.



#### Results

The study revealed that only 3.6 mg of Sapodo was required to achieve a 50% reduction in ammonia in the solution, compared to 5.4 mg of Yucca. This critical finding indicates that Sapodo is 50% more effective in binding ammonia than Yucca.

#### Study 2: Qualitative Evaluation (Colorimetric Study)

The second trial employed a colorimetric study, utilising the salicylate method based on the Berthelot reaction, to visually assess ammonia binding efficiency at different dosages.

#### Methodology

Stock ammonia solution was prepared. A reaction mixture was used to assess ammonium concentration with varying levels of ammonia binder (25 mg, 50 mg, 100 mg, and 150 mg). The colour variation was then compared against an ammonia colour chart.

#### Results

- At 25 mg and 50 mg dosages, Sapodo-containing test tubes exhibited a light-yellow hue, indicating a significant decrease in ammonia levels, whereas Yucca tubes showed a light green hue.
- More strikingly, at 100 mg and 150 mg dosages, the Sapodo test tubes demonstrated a complete reduction of ammonia concentration, evidenced by a dark yellow colour. In contrast, Yucca only showed a slight reduction, presenting a light-yellow hue at these higher concentrations.

The colour variation clearly shows that Sapodo is more effective as an ammonia control agent compared to Yucca at different concentrations, demonstrating a superior performance

in reducing ammonia production.

#### Beyond Binding: The Multifaceted Benefits of Sapodo for Poultry **Productivity**

Sapodo's superior ammonia control translates into a multitude of benefits for poultry farmers, directly impacting productivity and animal welfare:

- Improved Nutrition: Optimises feed intake and ensures better nutrient utilisation
- Enhanced Health: Reduces susceptibility to respiratory infections and decreases the incidence of Ascites. Sapodo addresses issues more effectively than Yucca, improving bird performance
- Increased Productivity: Improves overall performance and efficiency, leading to enhanced growth and productivity
- Farm Hygiene: Significantly improves air quality and reduces offensive odour generated by manure

Furthermore, Sapodo is 100% natural and safe, cost-effective, and compatible for inclusion in premixes or complete feeds, demonstrating excellent stability through pelleting and extrusion processes.

#### Conclusion: A Cleaner, Healthier Future with Sapodo

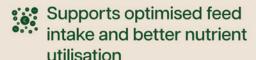
Sapodo's proven superior efficacy in binding and inhibiting ammonia, as demonstrated by rigorous in-vitro trials, positions it as the premier plant-based solution for ammonia management in poultry farming. By effectively addressing ammonia-related challenges, Sapodo not only safeguards animal health and the environment but also significantly boosts farm productivity and profitability.







Prevents production loss caused by high ammonia levels





Lowers respiratory issues and helps in strong immune response





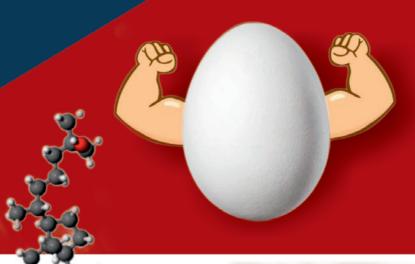
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### Article

## Optima Sets A New Benchmark in Poultry Gut Health

**Dr. Kalyani Sarode**Sr. Product Manager
Optima Life Sciences Private Limited

he poultry industry today is at a crossroads. On one hand, the demand for high-quality protein is rising rapidly; on the other, global concerns over antimicrobial resistance (AMR) are driving the shift away from antibiotic growth promoters (AGPs). This transition calls for solutions that are not only effective but also sustainable, safe, and scientifically validated.

At Optima Life Sciences, innovation is the cornerstone of our mission. In line with our commitment to developing next-generation non-AGP interventions, we are proud to introduce a significant advancement—ButyEster Pro3 upgraded with our proprietary registered strain, Bacillus velezensis BV-OLS11O1.

#### The Science Behind BV-OLS1101

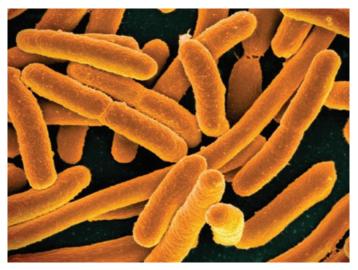
Bacillus velezensis has emerged as one of the most promising probiotic species for animal nutrition, recognised globally for its resilience and multifunctional health benefits. What makes BV-OLS11O1 unique is its ability to:

- Produce potent antimicrobial peptides (AMPs): BV dedicates
   ~4% more of its genome to AMP biosynthesis compared to
   Bacillus subtilis. These AMPs disrupt pathogenic bacteria
   and suppress opportunistic microbes
- Secrete subtilisin: A stable extracellular serine protease, subtilisin provides dual benefits—enhancing protein digestion and contributing to pathogen control
- Strengthen intestinal immunity: By stimulating mucosal defences and secretory IgA production. BV-OLS1101 helps birds resist enteric stressors such as Clostridium perfringens
- Optimise nutrient utilisation: Improved protein breakdown means less undigested protein in the gut, reducing dysbiosis and supporting efficient growth.

A newly characterised Bacillus velezensis strain (BV-OLS1101), taxonomically identified via 16S rRNA sequencing, demonstrates robust probiotic attributes and a unique ability to secrete the serine protease subtilisin.

BV-OLS1101 exhibited thermotolerance (89% survival at 80°C), strong acid and bile resistance, broad-spectrum antibiotic susceptibility, and in vitro antagonism against Clostridium perfringens (CP). Subtilisin production was validated through protease activity assays, PMSF inhibition, and SDS-PAGE analysis.

In a 42-day broiler trial, supplementation with BV-OLS1101(250 or 500 mg/kg feed) under CP challenge improved feed conversion ratio (FCR) by up to 7.9% (P = 0.01), reduced cecal and ileal lesion scores, and significantly modulated mucosal immunity. Specifically, BV-OLS1101 downregulated pro-inflammatory cytokines (IL-  $1\beta$ , IL-6, IFN- $\gamma$ ) while upregulating TGF- $\beta$ , MUC2,



and slgA expression.

These findings highlight subtilisin as a potential immunomodulatory factor, positioning BV-OLS1101 as a next-generation, heat-stable probiotic capable of sustaining gut health and performance in AGP-free poultry systems.

ButyEster Pro3: A Multifactorial Approach to Gut Health

ButyEster Pro3 has been developed as an integrated gut health solution, strategically combining probiotics, postbiotics, and prebiotics to address the multifaceted challenges of poultry production.

The incorporation of the novel strain Bacillus velezensis BV-OLS1101 further enhances its functional efficacy, delivering scientifically validated benefits across key domains:

- Probiotic Innovation broad-spectrum pathogen suppression, improved feed conversion, and resilience under enteric challenge
- Postbiotic Modulation enhanced intestinal barrier function, regulation of mucosal cytokine expression, and immunomodulatory precision
- Prebiotic Support stabilisation of microbial ecology, promotion of beneficial taxa, and reinforcement of long-term intestinal homeostasis

By uniting these mechanisms, ButyEster Pro3 represents a next-generation gut health program, providing a robust, evidence-based alternative to antibiotic growth promoters (AGPs) while sustaining productivity in intensive poultry systems.

Proprietary. Proven. Powerful.

#### Reference

S. Haldar, A.K, Dhara, I. Sengupta, S. Paul, S.S. Arora, R. Kumar, A. Pal, V. Kulkarni. Agrivet Research and Advisory Pvt Ltd., ICMR-NIRBI, Optima Life Sciences Pvt Ltd.



#### INDIAN POULTRY EQUIPMENT MANUFACTURERS ASSOCIATION

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## The Co-Existence of Humans and Pets in Society



he bond between humans and pets has been a cornerstone of human society for millennia, evolving from utilitarian partnerships to deep emotional connections. Today, pets are integral to our communities, shaping social dynamics, influencing mental and physical health, and raising important questions about how we coexist in shared spaces. The co-existence of humans and pets in society reflects a delicate balance of mutual benefits, responsibilities, and challenges, creating a richer, more compassionate world when approached thoughtfully.

Pets-whether dogs, cats, birds, or more exotic companions-offer profound emotional and psychological benefits. Studies consistently show that ownership reduces stress, anxiety, depression. The simple act of stroking a dog or listening to a cat's purr can lower cortisol levels and boost serotonin, fostering a sense of calm. For many, pets provide companionship that combats loneliness, particularly for the elderly or those living alone. In urban societies where isolation is increasingly common, pets serve as social catalysts, sparking interactions among neighbours during walks or at dog parks. These moments of connection strengthen community ties, proving that pets are not just individual companions but contributors to societal cohesion.

Beyond emotional benefits, pets encourage healthier lifestyles. Dog owners, for instance, are more likely to meet daily physical activity recommendations through regular walks. This not only improves human health but also fosters a culture of outdoor engagement, making neighbourhoods more vibrant. Pets also teach responsibility and empathy, particularly in children, who learn to care for another living being. These lessons translate into broader societal values, promoting kindness and accountability.

However, the integration of pets into society is not without challenges. Urban environments, with their dense populations and limited spaces, often strain human-pet co-existence. Issues like pet waste, noise, and aggressive behaviour can spark conflicts among neighbours. For example, uncollected dog waste in public parks



or barking that disturbs the peace can erode community goodwill. To address this, many cities have implemented regulations, such as leash laws and waste disposal mandates, to ensure responsible pet ownership. These rules highlight the need for mutual respect—pet owners must consider their neighbours, while nonowners should recognise the value pets bring to shared spaces.

Another challenge is ensuring equitable access to pet-friendly environments. Many rental properties restrict pets, limiting who can enjoy their benefits. This

disproportionately affects lower-income individuals, who may lack access to pet-friendly housing or the resources to cover pet-related costs. Advocacy for inclusive policies, such as pet-friendly housing initiatives or subsidised veterinary care, is crucial to making pet ownership accessible and sustainable across socioeconomic lines.

Animal welfare is a critical aspect of this co-existence. Society must balance the desire for pets with ethical considerations, such as preventing overbreeding and ensuring proper care. Shelters are often overwhelmed with abandoned animals. a reminder that pet ownership is a longterm commitment. Adoption campaigns and spay/neuter programs are vital steps toward reducing stray populations and promoting responsible ownership. Education also plays a role—teaching owners about proper nutrition, training, and healthcare ensures pets thrive, which in turn enhances their positive impact on society. The co-existence of humans and pets also extends to public policy and innovation.

Service animals, for instance, highlight the remarkable ways pets support humans, aiding those with disabilities and performing roles in therapy and law enforcement. Meanwhile, advancements like pet-friendly workplaces and pet insurance reflect society's growing recognition of pets as family members. These developments signal a shift toward a more inclusive, empathetic society where the needs of both humans and animals are considered. Ultimately, the co-existence of humans and pets is a testament to our capacity for connection and care. By fostering responsible ownership, inclusive policies, and mutual respect, society can ensure that this relationship continues to enrich lives. Pets remind us of our shared humanity, teaching us to nurture, connect, and coexist in harmony-a lesson that resonates far beyond the human-pet bond.



Incubating Tomorrow's Technology: Exploring Cutting-Edge Poultry Tech with Industry Leaders!



#### INDIAN POULTRY EQUIPMENT MANUFACTURERS ASSOCIATION

## **IPR** Espresso

#### IPEMA-Poultry India Champions Protein Awareness on World Egg Day 2025

The Indian Poultry Equipment Manufacturers' Association (IPEMA)-Poultry India, in collaboration with the National Egg Coordination Committee (NECC), marked World Egg Day 2025 with a strong message: it's time for India to close the protein gap through the power of the egg.







Bringing together industry leaders, policymakers, and nutrition experts, this year's theme, "Protein Awareness - Eggs for Nutrition & Health," focused on integrating eggs into daily diets to promote sustainable nutrition across all age groups.

In a commendable outreach effort, IPEMA-Poultry India extended World Egg Day celebrations to three schools in Hyderabad where children learnt about the nutritional value of eggs in a fun, participatory environment.

IPEMA-Poultry India also joined hands with the Department of Poultry Science, College of Veterinary Science (PVNRTVU),

### **NATIONAL**

Rajendranagar, for celebrations themed "The Mighty Egg - Packed with Natural Nutrition."

Speaking to the media, Uday Singh Bayas, President, IPEMA-Poultry India, noted, "Even though India is the second-largest egg producer in the world, the average annual per capita egg consumption in India was only about 103 eggs in 2024. This remains less than half the global average and significantly lower than in developed nations. This gap clearly highlights the urgent need for awareness campaigns such as World Egg Day — to encourage every Indian to include eggs in their daily diet for better health and nutrition."

## NSPDT Delegation Visits Stallen South Asia's Manufacturing Units

The National Smallholder Poultry Development Trust (NSPDT) recently toured Stallen South Asia Pvt. Ltd.'s state-of-the-art facilities in Palghar, Maharashtra, including the Feed Additives Plant in Chahade and the Therapeutics/Formulations Unit in Vevoor. The visit aimed to explore modern practices in animal health and nutrition and included NSPDT delegates Dr. Mokadesh Ali, Dr. Babul Borgohain, Dr. Dula Talukdar, and others.



The Chahade facility is renowned for its highquality feed additives and supplements for poultry and cattle, encompassing antibacterial solutions, dewormers, growth promoters, anticoccidials, mineral supplements, sanitation and water products. The unit



employs advanced machinery for formulation, granulation, liquid filling, and packaging, with rigorous quality control ensuring safety, consistency, and compliance with global standards.

The Vevoor unit manufactures pharmaceutical products, including beta-lactam formulations, in various forms such as tablets, liquids, powders, boluses, and ointments. Both units adhere to Good Manufacturing Practices (GMP) and cater to

## **IPR** Espresso

domestic and international markets, with products registered in over 65 countries.

Delegates engaged with Stallen's leadership, including Aniket Parikh and Dr. Sanjay Singhal, learning about the company's legacy, international collaborations, and third manufacturing unit in Gujarat.

## Boosting India's Meat Exports: ICAR-NMRI Hosts National Dialogue

India's meat export ambitions took centre stage on 16th September at ICAR-National Meat Research Institute (NMRI), Hyderabad with a National Dialogue on "Driving India's Water Buffalo and Poultry Meat Exports: Policy Reforms and Ecosystem Development". The event convened policymakers, APEDA, DAHD, FSSAI, state officials, industry leaders from Frigerio Conserva Allana, Venky's, Indbro Poultry, Licious, Srinivasa Hatcheries, and other key players, along with scientists and academics, reflecting growing momentum for a robust export ecosystem.





Two intensive roundtables focused on "Advancing Water Buffalo Meat Exports" and "Poultry Meat Export Readiness." Discussions emphasised better utilisation of male buffalo calves, harmonising slaughter policies, traceability systems, and upgraded processing, packaging, and certification aligned with global standards. Experts highlighted India's export paradox: buffalo meat earned Rs. 37,665 crore in 2023-24, while poultry exports lagged at Rs. 1,535 crore.

With the right policy support, poultry and egg exports could reach USD 5 billion annually, and water buffalo meat exports could hit Rs. 65,000 crore. Participants agreed that coordinated policy reforms, industrial innovation, and ecosystem development are essential to sustain India's meat export leadership and unlock the full potential of its poultry sector.

### **NATIONAL**

#### MAFSU-Nagpur Veterinary College Creates World Record with 5001 "Power Eggs Bhurji"

It was a landmark day for Maharashtra Animal and Fishery Sciences University (MAFSU) and Nagpur Veterinary College (NVC) as the institution created a World Record by preparing 5001 Egg Bhurjis — "Power Eggs" in a grand public event aimed at promoting protein awareness and the nutritional benefits of eggs.



The event, led by celebrity chef Vishnu Manohar, marked his 30<sup>th</sup> world record — and his first collaboration with a veterinary university. Over 5,000 people enjoyed the recordbreaking Bhurji.

In a heartwarming moment, 10-year-old Ved Kadam urged children nationwide to include eggs in their school meals, drawing applause from the audience and media alike.

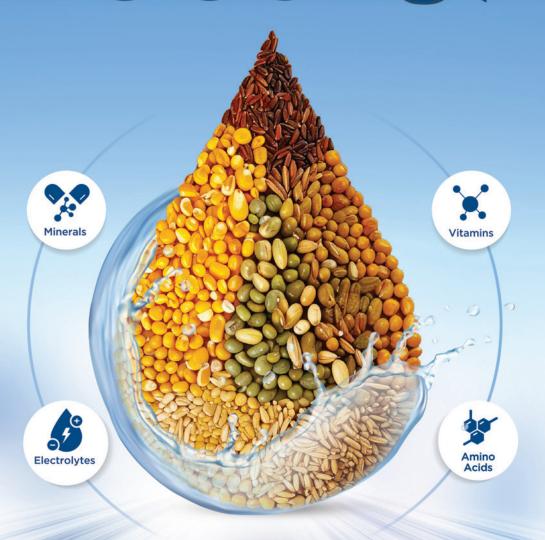






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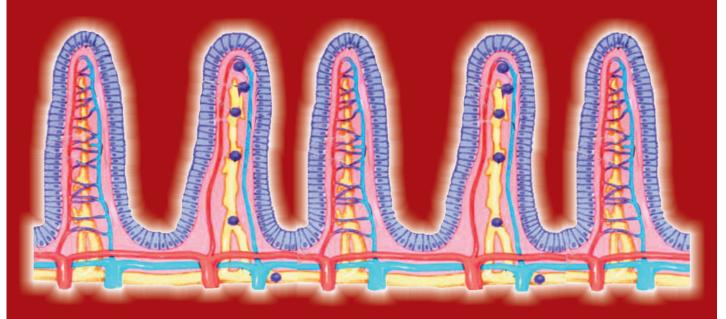
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## Huvepharma Unveils Next-Gen Poultry Solutions at Pan-India Seminars

Huvepharma recently conducted product launch seminars across Coimbatore, Hyderabad, Pune, and Karnal, bringing together poultry business owners, farmers, veterinarians, and technocrats. The events showcased two solutions:

- HuveShield NDK A next-generation killed vaccine for Newcastle Disease with advanced W/O/W emulsion technology for superior protection
- Tylvalovet– An innovative solution for mycoplasma control, enhancing flock health and productivity

Expert sessions by Dr. Monita Vereecken and Dr. Jayaraman highlighted strategies to tackle coccidiosis and Newcastle Disease respectively. Dr. K. S. Prajapati delivered a critical presentation dissecting the multifaceted challenges in controlling Newcastle Disease (ND). The seminars also underscored the importance of R&D investment and sustainable growth in India's poultry industry.

O. P. Singh, Managing Director, Huvepharma SEA, reinforced the company's commitment to innovation, noting that 2% of revenue is dedicated to R&D, setting new benchmarks in poultry health.

The events concluded with a strong call to action: adopt advanced vaccines, strengthen biosecurity, improve cold-chain management, and collaborate for a sustainable poultry future.















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## IPEMA-Poultry India Holds 18th Annual General Meeting in Hyderabad



The 18<sup>th</sup> Annual General Meeting (AGM) of the Indian Poultry Equipment Manufacturers' Association (IPEMA-Poultry India) was organised at Hyderabad on 30<sup>th</sup> September under the chairmanship of Chakradhar Rao.

Uday Singh Bayas, President, IPEMA, presented the Annual Report, highlighting the association's impactful contributions over the past year. He emphasised IPEMA's continued leadership in advancing India's poultry sector through collaboration, innovation, and international engagement.

In 2025, IPEMA-Poultry India demonstrated strong industry stewardship by co-hosting major events such as the Livestock and Poultry Development Conference in North East India, the Poultry Conclave in Raipur, and The Poultry Summit in Chandigarh. The association has been instrumental in promoting innovation, education, and sustainability through technical seminars, academic conclaves, and global partnerships.

A key milestone of the year was IPEMA's recognition as "Top Industry Catalyst" at the Exhibition Excellence Awards 2025, underscoring its growing national impact. Strengthening its global presence, IPEMA forged partnerships with 19 International Associations, 3 International Government Delegations, and 39 National Supporting Associations,

including 12 new members. Its communication network expanded through collaborations with 15 international trade magazines, enhancing global outreach and visibility.

The audited accounts and financial report were presented by Natarajan Ramasamy, Secretary, and M. Srikanth, Treasurer. Members also discussed strategic priorities for the coming year, including preparations for the 17th Poultry India Expo 2025.

A special highlight of the evening was the unveiling of the 17th Poultry India Expo 2025 memento by Jasvinder Kaur of Karamsar Poultry Pvt. Ltd., symbolising IPEMA's enduring commitment to excellence and innovation.

The existing leadership team was re-elected, reflecting members' continued confidence in their vision and direction.

### Office Bearers for the Current Tenure:

- Uday Singh Bayas President
- Natarajan Ramasamy Secretary
- M. Srikanth Treasurer
- Shripad Ketkar Joint Secretary





In his closing remarks, Uday Singh Bayas extended a vote of thanks, emphasising the association's collective resolve to drive growth, innovation, and sustainability in India's poultry industry.

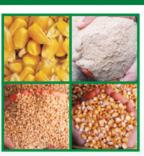


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## Poultry Federation of India Convenes 36<sup>th</sup> Annual General Meeting in Lucknow



he Poultry Federation of India (PFI) hosted its 36<sup>th</sup> Annual General Meeting (AGM) on 8<sup>th</sup> and 9<sup>th</sup> October in Lucknow, bringing together industry leaders, policymakers, technologists, and producers from across the country. Themed, "Survive & Thrive in Difficult Times," the event served as a platform for dialogue, strategy, and collaboration aimed at driving the next phase of growth in India's rapidly evolving poultry industry.

The event witnessed a distinguished gathering of dignitaries including Prof. S.P. Singh Baghel, Hon'ble Minister of State for Fisheries, Animal Husbandry, and Dairying and Panchayati Raj, Government of India; Brijesh Pathak, Hon'ble Deputy Chief Minister, Government of Uttar Pradesh; Mahipal Dhanda, Hon'ble Minister of Education, Government of Haryana; Sanjay R. Bhoosreddy, Chairman, Uttar Pradesh Real Estate Regulatory Authority and Former Joint Secretary, Department of Animal Husbandry & Dairying, Government of India; Prof. (Dr.) P. K. Shukla, President, Indian Poultry Science Association and Former Joint Commissioner (Poultry), Government of India; Dr. P. S. Mahesh, Director, CEAH, Bangalore and Dr. Vijay Sardana, Consultant, PFI, amongst others.



In his welcome address, Ranpal Dhanda, President, PFI, highlighted key issues affecting India's poultry farmers and urged both the Central and State Governments to take corrective action. He reiterated that PFI is the only national body representing the entire poultry ecosystem — farmers, breeders, feed millers, integrators, medicine and equipment

companies, scientists, and veterinarians. Mr. Dhanda added that while the Indian poultry industry is now valued at over Rs. 2 lakh crores and is growing annually at 8-10%, it faces certain challenges and urged government intervention on three major fronts – avian influenza (HPAI) vaccination policy, maize availability and pricing & restrictions on sale of poultry meat and eggs during religious events. The key message from him was that poultry is India's most affordable and essential source of protein — strengthening this sector is vital for farmers, consumers, and the nation's food

security



Prof. S. P. Singh Baghel emphasised the urgent need to establish a National Poultry Development Board to drive growth, streamline policies, and address the challenges of poultry farmers. He highlighted that 80% of India's poultry sector is commercial and 20% rural, yet it operates without a central policy framework. A development board, he argued, would

help the sector become more organised, competitive, and self-reliant, contributing directly to Prime Minister Narendra Modi's vision of a developed India by 2047. Prof. Baghel acknowledged poultry's essential role in nutritional security, farmers' income growth, and public health. Though personally vegetarian, the minister admitted to being "scientifically convinced" that eggs are one of the most efficient and affordable protein options and should be promoted without religious hesitation. He further stressed that to double farmers' income, India must move beyond traditional agriculture and embrace advanced animal husbandry, poultry,

fishery, and organic farming. He pointed out the disparity between southern states and northern ones like Uttar Pradesh, urging U.P. to take responsibility for closing the production gap so India can move from third to first in egg production and fifth to first in poultry meat globally. He concluded that creating a Poultry Development Board would institutionalise policy support, promote innovation, and align India's poultry growth with its national development goals.



Addressing the gathering, Uttar Pradesh Deputy Chief Minister, Brijesh Pathak assured the government's full support for poultry farmers and the industry. He stressed that the state government is committed to strengthening the poultry sector and addressing farmers' issues, marking this as a positive step for the industry. Mr. Pathak highlighted the growth potential of Uttar Pradesh in the poultry

market and noted the increasing health consciousness among people, which has boosted demand for eggs and poultry products. He acknowledged the concerns raised by poultry representatives regarding electricity rates, feed and chick costs, minimum support prices, and small-scale farmer protection, promising to take these up with the relevant authorities. Mr. Pathak also mentioned the state's strong performance in agriculture, milk, and sugar production, emphasising government support for farmers' welfare and economic opportunities. He concluded by assuring PFI and stakeholders that the government would actively work with them to implement their demands and encourage poultry development in Uttar Pradesh, including expanding production and export opportunities.



Mahipal Dhanda made a compelling appeal for the creation of a strong, unified national policy for poultry farming, urging Union Minister Prof. S. P. Singh Baghel and the central government to take decisive action. He emphasised that the absence of a central policy has led to fragmented state-level regulations, excessive documentation, and inconsistent pollution and land-use

norms—issues that severely hinder poultry farmers. He called for a single, cohesive framework to streamline operations, reduce administrative burdens, and ensure uniform implementation across states. Highlighting the sector's role in India's vision of becoming a developed nation by 2047, Mr. Dhanda proposed that a centrally approved policy, once communicated to all states, would simplify compliance and empower farmers to grow sustainably. He pointed to the success of other centrally guided schemes as proof of the model's effectiveness. Mr. Dhanda concluded by reaffirming that India's poultry sector can only achieve its full potential through coordinated policy support, urging the central and state governments to work together with industry bodies to build a future where poultry farmers are integral to national growth.



Sanjay R. Bhoosreddy, highlighted the poultry sector's remarkable rise from Rs 40,000 crore in 2011 to over Rs 3.5 lakh crore today, calling it a key driver of rural income, nutrition, and employment. He recalled launching the National Livestock Mission and a detailed Poultry Manual during his tenure, which helped institutionalise sectoral growth. Mr. Bhoosreddy noted India's success

in controlling avian influenza, empowering women and tribal farmers, and implementing progressive state policies like the UP Poultry Policy (2014-15). Emphasising the need for a

unified national brand for Indian poultry, he urged collaboration among associations to enhance global competitiveness and quality standards. Aligning with the Viksit Bharat 2047 vision, he stressed sustainable growth, farmer prosperity, and protein security. He concluded by celebrating India's achievements, such as hosting its first World Egg Day in 2012, and urged continued collective effort to make Indian poultry a globally respected and resilient industry.



Prof. (Dr.) P. K. Shukla highlighted the urgent need for robust policy interventions to ensure sustainable poultry growth and farmer prosperity aligned with the Viksit Bharat vision. He noted that, unlike dairy and fisheries, poultry, despite contributing 1.3% to national GDP, 15% to livestock GDP, and generating over 6 million jobs, still lacks a dedicated Poultry Development Board.

#### Key policy priorities spotlighted by Prof. Shukla are:

- Integration into National Missions: Poultry can advance four key pillars of Viksit Bharat—women empowerment, youth empowerment, poverty alleviation, and farmer welfare while addressing malnutrition through affordable eggs and chicken meat
- Addressing Sectoral Challenges: Feed scarcity, price volatility, disease outbreaks, market instability, and limited access to technology continue to hinder growth

#### Interventions suggested by him include:

- Establishment of a National Poultry Development Board
- Launch a Poultry Feed Security Mission to manage procurement and buffer stocks
- Extend agricultural credit and insurance to poultry farmers
- Strengthen R&D for feed innovation and disease control
- Integrate poultry under the National Animal Disease Control Programme with digital surveillance
- Foster PPPs for diagnostic and technological infrastructure
- Offer credit-linked incentives through AHIDF for modernisation of hatcheries, feed mills, and processing units
- Develop market intelligence and pricing mechanisms to ensure stability

In conclusion, Prof. Shukla stressed that while poultry is inherently self-sustaining, it remains policy-neglected. With targeted government support in feed, finance, health, and market reform, the sector can emerge as a key driver of nutritional security, rural employment, and inclusive growth under Viksit Bharat.



In his talk Dr. P. S. Mahesh, urged the poultry industry to adopt discipline, data-based decision-making, and unity to ensure sustainable growth and global recognition. He stressed on the need to create a national poultry brand—similar to "Brazilian Chicken" that promotes "Indian Chicken" and "Protein from India." Drawing parallels with India's success in the dairy sector, he highlighted poultry's

massive economic contribution. Dr. Mahesh stressed feed challenges, including maize diversion to ethanol and soybean shortages, and recommended exploring DDGS as an alternative

feed source. He called for self-regulation, transparent data systems, and consistent government engagement, suggesting a centralised registration and information platform for farmers. Finally, he proposed a national campaign to promote egg and chicken consumption, aligning the sector with the Viksit Bharat 2047 vision. His core message: the future of Indian poultry depends on discipline, data, and collective branding.

Dr. Vijay Sardana delivered a powerful address representing the concerns and aspirations of India's poultry farmers before government officials and policymakers.

#### Key points from his address:

 Need for Transparent and Predictable Rules During Festivals – He emphasised that sudden, unannounced restrictions

on poultry sales during religious festivals cause major losses to farmers and proposed a national national festival calendar specifying in advance the dates and regions of such restrictions

- Licensing and Hygiene Standards for Retail Poultry Shops
   Suggested mandatory licensing and hygiene guidelines for small poultry retailers. Also government support (Rs. 50,000-Rs. 2 lakh) for shop modernisation with stainless steel equipment, clean water, and hygienic slaughter practices
- Development of a Value-Added Poultry Supply Chain Pointed out that India lacks a value-addition policy for livestock similar to the food processing sector. He urged the government to create infrastructure for processing and cold-chain logistics to boost domestic consumption and exports
- Promotion of Poultry as a Rural Employment and Export Driver - Described poultry as the most accessible enterprise for rural youth and women's empowerment and called for the creation of an export-oriented policy to utilise India's surplus grains and establish poultry as a global protein supplier
- Skill Development and Training Proposed poultry skill programs in veterinary colleges to train youth in scientific bird management for hygienic and export-standard production
- Linking Poultry with Maize Production and Rural Prosperity

   Recommended promoting maize cultivation through Krishi
   Vigyan Kendras (KVKs) as a profitable crop that directly supports poultry feed
- Policy Learning from Maharashtra Welcomed Maharashtra's move to classify poultry under agriculture, seeking similar recognition at the national level for uniform benefits and incentives
- Consumer Awareness and Misinformation Control Requested universities to host verified, regional-language information on eggs and poultry products to counter misinformation spread on social media.
- Focus on Innovation and Research Stressed the importance of R&D and innovation to make Indian poultry globally competitive through better productivity and value addition

Dr. Sardana concluded by assuring full support from PFI to the government in developing policies for this vital sector. He urged both central and state governments to collaborate in promoting the poultry industry as a key pillar of rural development, nutrition security, and economic growth.

Two extremely intensive panel discussions involving multiple stakeholders were held during the course of the 2-day event.

The AGM also included presentations from leading experts and corporate members on emerging trends. Members reviewed the Federation's annual report, discussed regional progress, and outlined new initiatives to enhance farmer welfare, policy representation, and industry outreach.



Uday Singh Bayas, President, IPEMA – Poultry India, highlighted the pivotal role of global exhibitions such as the Poultry India Expo in uniting diverse stakeholders on a common platform for innovation, collaboration, and capacity building. He said, "The Poultry India Expo is not just an exhibition; it is a movement — a platform that unites farmers, entrepreneurs, breeders, feed

manufacturers, veterinarians, and students to exchange ideas, build collaborations, and shape the future of our industry. Together, we can strengthen India's poultry sector and make Poultry India Expo 2025 a proud milestone for our nation."



The vote of thanks was delivered by Ricky Thaper, Joint Secretary, PFI.



The 36th AGM in Lucknow reaffirmed PFI's commitment to fostering collaboration across stakeholders — from breeders and integrators to small farmers and allied sectors — ensuring that India's poultry industry remains a vital contributor to national nutrition, employment, and rural development.



## Stallen Organises Technical Session in Odisha



Stallen South Asia Pvt. Ltd. recently hosted a successful technical seminar for poultry farmers in Berhampur, Odisha. The event showcased Stallen's commitment to supporting the growing poultry market in Odisha and provided a platform for knowledge sharing on modern disease management and vaccination strategies.

The seminar began with a welcome address by Davinder Kumar, Vice President - Sales (North & Central India), followed by Dr. Sanjay Singhal, COO, who highlighted Stallen's vision, dedication to quality, and innovative solutions for farmers.

The technical highlight was delivered by Dr. Sushil Dhariwal, renowned Layer and Breeder consultant, on "Comprehensive Disease Management in Commercial Poultry: Focus on Marek's Disease, Newcastle Disease (ND), Infectious Bronchitis (IB), and Coryza." Dr. Dhariwal emphasised timely vaccination, biosecurity, and holistic health management to optimise bird performance and profitability.

Dr. Kishor Gedam, Product Manager - Therapeutics, presented Stallen's vaccine portfolio, introducing flagship brands BIO MAREK, OLVAC, IB OLVAC, and CORI VAC 3, underlining their role in strengthening flock health. The program concluded with an interactive Q&A session addressing farmers' field-level challenges.









## Curtain-Raiser for 17th Poultry India Expo 2025



IPEMA-Poultry India organised the Curtain Raiser for  $17^{\text{th}}$  Poultry India Expo 2025 at New Delhi on  $6^{\text{th}}$  October. The event brought together leading media professionals, industry stalwarts, and policymakers to set the stage for South Asia's largest poultry exhibition.

Presided over by Uday Singh Bayas, President, IPEMA-Poultry India, alongside senior members including Anil Dhumal, Founder President, and M. Srikanth, Treasurer, the Curtain Raiser was graced by eminent figures from the poultry sector including Dr. Tarun Shridhar, Prof. (Dr.) P. K. Shukla, Ramesh Chandra Khatri, Divya Kumar Gulati, Dr. Ravinder Reddy, Naveen Pasuparthy,

Suresh Chitturi, Pardeep Nain, Dr. Santosh Ire, Dr. S.P. Singh amongst others.

The session provided an overview of the expo and a preview of Knowledge Day 2025.

The Curtain-Raiser was more than a prelude — it reinforced the poultry industry's importance to India's economy, nutrition, and employment generation. By uniting policymakers, media, and industry leaders, IPEMA set the tone for an even more impactful Expo, reaffirming India's emergence as a global poultry powerhouse.

Addressing the gathering Uday Singh Bayas said, "Your valued presence ensures success. Let's build a stronger poultry sector together."





## From Data to Decisions: Experts Discuss Smart Poultry 4.0 at IPR Knowledge Review, Bangalore

## Knowledge Review

he Bangalore edition of IPR Knowledge Review 2025 series, held on 19<sup>th</sup> September, marked yet another milestone in shaping the future of India's poultry sector. Organised in collaboration with the Karnataka Poultry Farmers and Breeders Association (KPFBA), the seminar brought together leading minds, innovators, and industry stakeholders to deliberate on the theme "Smart Poultry 4.0: Leveraging IoT, AI & Automation for Next-Gen Poultry Farming."

The event set the stage for meaningful discussions on how advanced technologies are redefining modern poultry production—from precision farming tools and smart sensors to artificial intelligence-driven data insights and automation. Industry experts shared real-world applications of these innovations, showcasing how digital transformation can enhance productivity, improve bird health, ensure traceability, and deliver higher profitability.

Speakers emphasised that Smart Poultry 4.0 is not merely a futuristic vision but a practical necessity to meet rising demand, address sustainability challenges, and strengthen India's position in global markets.

The seminar also created a dynamic networking platform, enabling poultry farmers, entrepreneurs, researchers, and technology providers to exchange knowledge and build collaborations. With Bangalore's strong reputation as a hub for innovation and technology, the city provided the perfect backdrop for these forward-looking discussions.

Speakers at the session were:

| Mr. Prashant Kumar<br>Co-founder & Director,<br>Sapience Group                     | AI & Machine Learning in<br>Poultry Health Management |
|--|---|
| Dr. A. Kannan Principal Scientist, ICAR Directorate of Poultry Research, Hyderabad | Tech-powered Precision<br>Poultry Farming             |
| Dr. Shiva Kumar<br>Technical Director,<br>Nutreco South Asia                       | Smart Feed Formulation &<br>Nutritional Optimisation  |
| Mr. Rajendra Rawat<br>Regional Manager South Asia,<br>SKA Poultry Equipment        | Climate-Smart Housing<br>Systems                      |

The overwhelming response to the Bangalore edition reinforced the growing recognition that technology-led farming is the key to resilient, sustainable, and globally competitive poultry production. As the sector gears up for the future, IPR Knowledge Review continues to serve as a catalyst for knowledge sharing and innovation-driven growth.

















## Launch

## dsm-firmenich Animal Nutrition & Health (ANH) Inaugurates Feed Additive Plant in Hyderabad



dsm-firmenich Animal Nutrition & Health (ANH) inaugurated a new, state-of-the-art feed additive plant in Jadcherla, Hyderabad on 30<sup>th</sup> August, marking a major milestone in its growth journey in India. The investment aligns with the Government of India's "Make in India" initiative and further strengthens ANH's leadership position in India and the Asia-Pacific region.

Spread across 11,200 square meters, the facility features a new manufacturing line dedicated to ANH's world-leading Mycotoxin Risk Management solutions and a modern warehouse. Built with advanced Bühler technology, the plant meets the highest international standards of quality, safety, and environmental sustainability.

Located adjacent to ANH's existing Premix Plant, operational since 2018, the

new facility forms part of an integrated "Super Site" that boosts efficiency and ensures faster service for customers across the region.

With the local production of Mycofix Secure and Mycofix Shield, Indian farmers and feed producers will gain improved access to proven solutions for managing complex mycotoxin challenges that arise from changing climatic conditions and improper harvesting practices. Mycofix products help safeguard animal health and food safety by deactivating a wide range of mycotoxins commonly found in feed.

Speaking at the launch, Lu Yuan, Vice President Greater APAC, Animal Nutrition & Health dsm-firmenich, said, "This new plant is a strategic milestone for ANH in Greater APAC — our first feed additive

plant in India, and a powerful step forward in serving our customers with speed, efficiency, and innovation. By producing Mycofix locally in India, we enhance our ability to serve customers across the Asia-Pacific region, supporting our growth strategy and meeting growing demand. This is our vision in action: customer at the heart, sustainability in our DNA, and leading through innovation for the future of animal farming."

Puneet Pokhriyal, Director OU West, Animal Nutrition & Health dsm-firmenich commented, "This new plant brings us closer to our customers and strategic partners in India. We are very proud to serve our customers with feed additives made in India that meet the highest international standards in quality and safety."









On the eve of the plant inauguration, dsm-firmenich Animal Nutrition & Health organised a media interaction with their leadership team comprising Ivo Lansbergen, President, Animal Health & Nutrition, Fredrik Hjelmqvist, Head of Supply & Commercial Operations, Lu Yuan, Vice President Greater APAC, Animal Nutrition, and Ashwin Rajaram, General Manager South Asia.

Here are excerpts from the interview.

## Q: Could you share DSM's global status and India's role? What will tomorrow's inauguration mean for your product portfolio?

A: Globally, DSM operates 50+ manufacturing sites, including

premix and feed additive facilities. Our approach is to stay close to the customer, with each site serving as a market interface. Tomorrow's inauguration represents a strategic investment, not just an expansion. It reflects our commitment to India and the region, both in terms of manufacturing capability and long-term sustainability. Our safety, health, environment, and quality standards remain consistent across all locations. What you'll see tomorrow will demonstrate our global benchmarks in these areas.



getting verified ingredients that work—that's the assurance we provide globally.

## Q: Could you elaborate on DSM's role in the livestock sector in India, particularly poultry and dairy?

A: Livestock, especially poultry, is one of our largest business segments in India. Our offerings range from vitamins and premixes to performance solutions and precision services. One key innovation is our Precision Service tool – VERAX, a data-driven system that helps integrators make smarter, faster decisions. Through blood biomarker analysis, VERAX predicts potential health challenges (e.g., coccidiosis) 7–10 days in advance, helping integrators prevent losses and optimise resources. This

precision approach mirrors human diagnostics—where blood tests guide diet and health decisions—translating directly into feed efficiency, cost savings, and productivity gains in poultry operations.

#### Q: Feed raw material quality remains a challenge in India. How is DSM addressing this issue and exploring alternative protein sources?

A: You're absolutely right—feed quality impacts both animal health and performance. Our first product

line at the new feed additive plant focuses on mycotoxin risk management, addressing one of the biggest feed quality threats. Beyond that, DSM is pioneering single-cell protein development using yeast as a sustainable protein source. This leverages our legacy in fermentation technology (from our acquisition of Gist-Brocades) to explore new nutritional frontiers. While we're still in the assembly and pilot phase, this could redefine future feed formulations and reduce dependence on imported protein sources.

## Q: DSM is known for innovation. What new processes or technologies are being introduced in this new plant?

A: From a production perspective, we are implementing cutting-edge technology, though not entirely new to DSM. We're applying proven processes from other global sites—refined and adapted for India. Our global footprint allows us to learn from 50+ sites worldwide. The Hyderabad facility incorporates the latest technological developments from these learnings, ensuring consistency and robustness. The goal is not reinvention but optimisation—to ensure the same quality, efficiency, and safety standards as any DSM facility globally.

## Q: How does DSM ensure consistent quality and reliability of its feed additive and premix products across different global markets?

A: One of DSM's core principles is "Peace of Mind." Whether you buy from India, the Netherlands, or the U.S., the quality and composition of our premix and feed additive products remain identical. When customers buy from DSM, they know they're

## Q: What is the biggest challenge facing India's poultry and dairy industry, and how is DSM addressing it?

A: If you distill all challenges, they converge on profitability—driven by cost of production, feed quality, and efficiency.

DSM ANH (Animal Nutrition & Health) addresses these through:

- Mycofix: Mycotoxin management for feed safety and profitability
- VERAX: Precision data tools for predictive health

• Performance Solutions: Customised nutritional strategies

Our mission is "Feeding the Planet Without Costing the Earth." Sustainability, to us, is threefold:

- 1. Affordable protein for consumers
- 2. Profitable income for farmers
- 3. Environmental protection

True sustainability must balance all three.

### Q: How do you plan to collaborate with local poultry and dairy farmers?

A: Partnership is at the heart of our model. Collaboration goes beyond products—it includes training, diagnostics, and co-creation of solutions. The new feed additive plant itself is a testament to collaboration with Indian stakeholders. Through initiatives like VERAX and digital precision tools, we aim to build capacity, not dependency. We're also investing in Al-driven process monitoring, enabling global oversight of plant operations and predictive maintenance—bringing Industry 4.0 to animal nutrition.

### Q: How strong is DSM globally in vitamins, premixes, and feed additives?

- A: We are proud to be No. 1 globally in:
- Vitamins
- Premixes
- Feed Additives

With 44 premix plants worldwide and a broad additive portfolio, DSM leads across all major categories. While production volumes vary by type, our network scale and quality leadership are unmatched.

### Q: Could you share details about your India footprint and growth performance?

A: We currently operate two manufacturing units in Hyderabad—

the premix plant and now the new feed additive plant, both co-located for efficiency. The India headquarters is also in Hyderabad, while our global head office is near Basel. India remains our fastest-growing market in the Asia-Pacific region, driven by a strong local team and a holistic approach—combining vitamins, premixes, performance solutions, and digital services. We don't just sell products; we provide solutions tailored to the customer's challenge.

## Q: DSM operates between health and nutrition. How do you see this convergence?

A: The line between nutrition and health is indeed blurring. We're introducing Gut Surf, a postbiotic product that improves gut health and animal resilience—an example of how nutrition supports health directly.

Our focus is preventive health, not antibiotics. Through science-backed nutritional interventions like vitamins, probiotics, postbiotics, and enzymes, we help producers maintain productivity without relying on antibiotics.







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### **Announcement**

## Aviagen India Strengthens Customer Support, Innovation

Aviagen India continues to enhance its support for local poultry producers through expanded expertise and ongoing investments in poultry health, performance, and innovation.

Under the leadership of Business Manager, Dr. Ramakrishna Balasubramanian, the dedicated local team works closely with customers to maximise the performance of their Ross 308 AP flocks. By combining in-depth local understanding with Aviagen's global knowledge, the team delivers practical, results-oriented solutions tailored to the evolving needs of India's poultry sector.

As part of the ongoing focus on customer support and growth, Aviagen has strengthened the India team with broad expertise from their Global Technical Operations including:

- Karthik Kesavan, Poultry Nutrition Specialist Based in Melbourne and originally from Chennai, Karthik advises customers across Asia Pacific and India on nutrition strategies
- Dr. Peter Chrystal, Regional Nutrition Manager APAC Peter helps producers and feed millers overcome practical and economic challenges while building long-term customer relationships
- Dr. Ruben Kriseldi, Poultry Nutrition Specialist With advanced degrees from Auburn and Arkansas, Ruben develops nutritional programs to optimise broiler and breeder performance
- Dr. Scott Dawson, Regional Technical Veterinarian A highly experienced poultry veterinarian, Scott supports producers across Asia in advancing bird performance health, and welfare. His international background includes work in the UK with Aviagen Ltd. in Scotland – home to one of only two of the company's global pedigree operations
- Jason Cormick, Incubation Specialist Jason brings decades
  of hands-on expertise in incubation and chick quality. After
  working in numerous areas of production, quality assurance,
  animal welfare and others his passion is still optimising
  hatchery performance to produce quality chicks

Experienced team members who continue to strengthen support across India include:

- Greg Hitt, Regional Technical Manager, Asia Since 2012, Greg has led Aviagen's largest customer service team in Asia, spanning India and the wider region
- Mike Block, Technical Service Manager Based in New Zealand, Mike provides hands-on broiler expertise and uses remote service and data tools to reach more customers
- Dr. Shantanawar, Senior Technical Service Manager With 26 years of experience, he delivers training and on-farm support to improve breeder and grandparent performance



- Dr. Sivakumar, Senior Technical Service Manager A veterinarian with 25 years' experience, he advises on disease prevention, biosecurity and health management across all generations
- S. Sivakumar, Technical Service Manager Bringing over 15 years of expertise in breeder and parent stock management, he helps customers optimise ventilation and chick start-up
- Eswaran, Senior Hatchery Manager With 21 years' experience, including 13 at Aviagen India, Eswaran provides practical solutions to improve hatchery results and chick quality.

This team of dedicated professionals blends global expertise with local understanding to deliver practical, science-based support to poultry producers across India at every stage of production — building on a strong legacy of progress.

Aviagen established its presence in India in 2009, and since 2016, the Ross 308 AP broiler breeder has been instrumental in driving the growth of the local poultry industry. To further enhance the supply chain, Aviagen India has recently upgraded all 14 breeder production houses with advanced air filtration systems — strengthening biosecurity and ensuring a safe, consistent supply of high-quality breeding stock.

Dr. Ramakrishna Balasubramanian explains, "We're constantly working to improve bird health and performance through global research and development. The Ross 308 AP's continually improving livability, feed conversion, and adaptability are essential to our customers' success and to providing families across India with healthy, affordable chicken."

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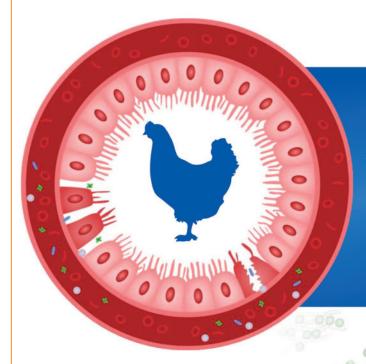
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