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From the Editor's Desk



“Sustainability: The Backbone of Future Poultry Farming”

In today's dynamic world, sustainability has emerged as the cornerstone of responsible poultry farming. With growing environmental concerns, rising input costs, and increased consumer awareness, the poultry industry must rethink traditional practices and move towards more sustainable and efficient systems.

Sustainable poultry farming involves more than just reducing emissions—it encompasses smart resource management, bird welfare, economic viability, and social responsibility. From using energy-efficient equipment and renewable energy sources to adopting precision feeding and water-saving technologies, the industry has ample opportunities to reduce its environmental footprint while improving productivity.

Moreover, sustainable farming practices also mean ensuring better health for birds through improved biosecurity, vaccination protocols, and stress-free housing systems. These efforts not only enhance flock performance but also contribute to food safety and public health.

Empowering small and medium farmers, especially women and rural youth, with knowledge, tools, and access to markets is equally vital. A truly sustainable poultry sector must promote inclusive growth that uplifts the entire value chain.

As the poultry sector continues to grow, sustainability must not be an afterthought—it should be a guiding principle. At Poultry Planner, we are committed to spotlighting innovations, best practices, and success stories that pave the way toward a greener, more resilient poultry industry.

Let us work together to build a future where poultry farming thrives—economically, ethically, and environmentally.

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10 Common Mistakes in Poultry Farming

- Inadequate housing and ventilation
- Poor biosecurity measures
- Poor Nutrition management
- Ignoring hygiene practices
- Failure to monitor health regularly
- Improper handling and management
- Lack of pest and predator control
- Inadequate record keeping
- Ignoring environmental factors
- Overlooking biosecurity training for staff

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Colouring Agents: A Non-nutrient Additive in Poultry Feed



Er. P. Priyanka and Er. K. Bhavadharani
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Introduction:

In the feed industry, colouring agents (colourants) are used as additives to enhance or modify the colour of animal feed or animal-derived products like egg yolks, skin or flesh (especially in poultry and aquaculture). These agents can be natural or synthetic and their use depends on regulatory approvals and consumer preferences.

Types of colouring agents:

1. Natural colourants:

These are derived from natural sources like plants, animals and minerals. For Example carotenoids (from sources like carrots and paprika), chlorophyll (from plants), and beetroot red.



Annatto powder



Marigoldextract



Turmeric powder

Name	Source	Main Pigment	Application
Marigold Extract	Marigoldpetals (Tagetes)	Lutein	Egg yolk and poultry skin pigmentation
Paprika Extract	Redpepper (Capsicum annum)	Capsanthin, Capsorubin	Reddish pigmentation in eggs and broilers
Spirulina	Blue-green algae	Phycocyanin, carotenoids	Color in specialty feeds, minor antioxidant benefit
Alfalfa	Alfalfa leaves	Chlorophyll, lutein	Natural green pigment, used occasionally
Annatto	Bixaorellana seeds	Bixin, Norbixin	Orange to yellow colouring
Turmeric Extract	Turmeric root	Curcumin	Yellow colour and antioxidant properties
Beetroot Powder	Beetroot	Betalains	Reddish tone for specialty feeds

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- 5 ml for 100 chicks
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- 20 ml for 100 layer birds 7 days
- 25ml for 100 breeder for 7 days

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01

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02

Improves vaccination titer against ND & IBD

03

Reduces the stress during transportation, debeaking, vaccination & any oxidative stress

04

Enhances overall growth performance in broiler & egg production in layer

05

Improves hatchability in breeders

06

Reduces problem of exudative diathesis in chick

07

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08

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09

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2. Synthetic colourants:

These were manufactured through chemical processes. They are often more vibrant and stable than natural colourants, but their use would be subject to regulations due to potential health concerns.

Name	Pigment	Application
Canthaxanthin	Cartenoid	Egg yolk, poultry skin, and fish pigmentation
Astaxanthin	Cartenoid	Salmon, trout, shrimp pigmentation



Canthaxanthin



Astaxanthin

Inclusion level:

1. Natural colourants :0.1 – 2%
2. Synthetic colourants: 100ppm(as per Food Safety Standards Authority of India, 2006)

Flow Process:

1. Selection of colouring agents – natural or synthetic colourants
2. Preparation of feed – ingredientmixing
3. Colouring process – should be added as per the recommendation or dosage
4. Consideration – safe and does not have impact on bird's health

Benefits:

- Colouring agents can make feed more visually appealing to consumers.
- Consistent color can indicate uniform blending and mixing during feed production, highlighting potential quality control issues.
- Less amount of dust will be present in the natural colouring agents.

- Colouring agents can help to identify moisture damage or other issues during storage and transportation.
- Colouring agents can improve the technical properties of feed, such as flowability and dust reduction.
- Consistent and appealing colors can contribute to a positive brand image and recognition.
- In some cases, colourants can be used to differentiate between different feed types or to highlight potential problems.
- Colouring agents in poultry feed attract the birds which improves the feed consumption.
- Colouring agents will improve the skin colour of broilers and yolk colour of layers and egg shell colour, yolk colour in breeders.

Regulations:

Regulatory bodies such as the Food and Drug Administration (FDA) in the United States and the European Food Safety Authority in the European Union regulate the use of both natural and synthetic colouring agents in food and feed. In India, the FSSAI sets regulations for permitted colours and their usage limits in food products.

Conclusion:

Colouring agents not only improve marketability and consumer acceptance, but also helps to maintain product consistency. As consumer demand for natural and clean-label product grows, the industry is increasingly shifting toward sustainable, plant-based colouring solutions. Overall, colouring agents are essential tools for feed formulators to meet market standards, regulatory requirements, and consumer preferences, while also contributing to the nutritional quality and economic value of animal products.

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Biosecurity in Poultry Farming: Protecting Flocks, Ensuring Productivity



Jinu Manoj* and Manoj Kumar Singh

* Disease Investigation Officer, LUVAS, Hisar, Haryana
Assistant Professor, COVAS, SVPUAT, Meerut, Uttar Pradesh

Introduction

The World Organisation for Animal Health (WOAH) defines biosecurity as the implementation of strategies aimed at minimizing the risk of introducing and spreading disease agents. The set of actions taken by farm personnel to safeguard their farm against the entry and transmission of diseases is known as farm biosecurity. Biosecurity on a poultry farm refers to the measures taken to prevent the introduction and spread of diseases ensuring the health and well-being of the flock. These biosecurity measures are essential for ensuring the quality and productivity of poultry farming. These measures are crucial for minimizing economic losses and maintaining food safety standards.

With the rapid growth of the poultry population and industry, the incidence of poultry diseases has also significantly increased. The risk of disease outbreaks is high and can lead to substantial economic losses for the poultry sector. The introduction of a disease into any single farm can result in widespread morbidity and/or mortality among birds. Inadequate management practices and lack of effective

disease control strategies can facilitate the transmission of infections both within and between farms. Biosecurity measures serve as practical and effective strategies to block the entry and transmission of infectious agents. Globally, enforcing biosecurity has become a primary defense in combating the occurrence and spread of deadly poultry diseases.

In poultry production, biosecurity measures have gained significant and growing attention as a means to prevent the spread of severe and highly contagious diseases such as avian influenza, Newcastle disease and infectious laryngotracheitis as well as food-borne zoonotic infections like salmonellosis and campylobacteriosis. For poultry farms, biosecurity measures are essential not only for the health of the birds but also for protecting the economic viability of the farm. Effective biosecurity involves a combination of physical barriers, management practices and hygiene protocols.

1. External Biosecurity: This focuses on preventing pathogens from entering the farm. For this, the following measures can be adopted.

a) Perimeter Control:

Restricting access to the farm with fencing, signage, and controlled entry points. People entering the farm are the main carriers of disease. This includes farm employees, veterinarians, truck drivers, vaccination teams, and maintenance workers. Limit visits to only those necessary and strictly prohibit unauthorized persons. Visitors and service personnel should complete and sign a visitor log before entering the farm.

b) Vehicle and Personnel Management:

Implementing procedures for cleaning and disinfecting vehicles and requiring farm-specific clothing and footwear for personnel. Ensuring that farm workers and visitors follow hygiene protocols, such as washing hands and changing clothing or footwear before entering the poultry areas, is vital. Reducing the number of visitors to the farm also lowers the risk of disease introduction.

c) Wild Bird and Pest Control:

Minimizing the risk of disease transmission from wild birds, rodents, and other pests through measures like proper waste disposal and pest control programs. Install bait stations along house walls and in areas with high rodent activity. Check stations weekly and replace bait as needed. Keep a detailed record of each

station's location, usage, chemicals used, and bait replacement frequency.

2. Internal Biosecurity: This focuses on preventing the spread of disease within the farm. The implementing strict hygienic measures are essential to prevent the spread of pathogens. These include bio-exclusion (preventing pathogens from entering the farm) and bio-containment (preventing pathogens from leaving the farm).

a) Shed Hygiene: Regularly cleaning and disinfecting poultry houses, feeders, and waterers.

b) Disease Surveillance: Implementing monitoring programs to detect and respond to disease outbreaks promptly. Regular health checks and vaccination programs, along with careful monitoring of flock health and record keeping are necessary for detecting and managing disease early.

c) Proper Waste Disposal: Ensuring proper disposal of dead birds and manure to prevent the spread of pathogens. The methods such as incineration, composting, or removal by specialized waste management companies can be used for disposal of all farm waste safely. All disposal methods must comply with local environmental regulations.

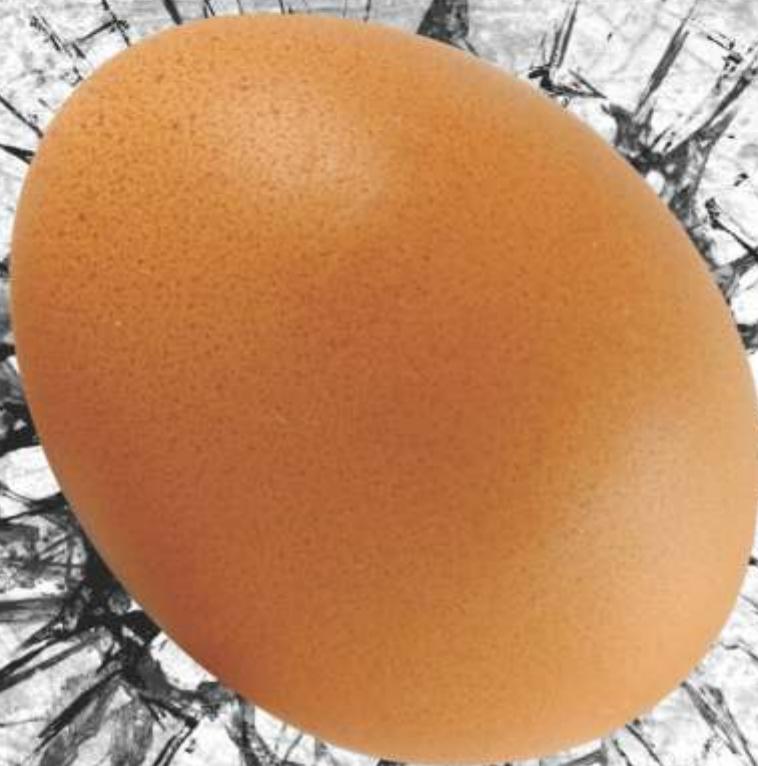
3. Structural and Conceptual Biosecurity

It involves planning the farm layout to minimize disease spread, including distance between poultry houses and other factors. It also includes physical barriers and facilities for waste management. Each farm, ideally each house, should have a single access point and a well-designed changing room. A physical barrier must clearly separate the dirty zone from the clean zone. The dirty area should have a clothes rack for outside clothing. Install a shower if possible. If not, provide a sink with bactericidal soap for hand washing. The clean area should have a closet with clean clothing, including coveralls and disposable caps. It must also provide clean footwear for farm use only. A footbath with disinfectant should be available. Poorly managed footbaths can spread contamination. Clean them daily and refill with fresh disinfectant. Sunlight, rainwater, and dirt can weaken disinfectant effectiveness. Shoe soles can carry pathogens. Brush them before using the footbath and clean them after each visit. Changing rooms must have mandatory showers for all visitors. Farm employees should shower before entering. This is a must if exposed to risks, such as visiting older or unhealthy flocks. Deny access to any

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visitor who poses a risk to bird health and reschedule the visit.

4. Operational Biosecurity

This concept includes all routine farm operations. The farm operating procedures manual must clearly describe these routine operations. It focuses on daily practices like visitor logs, clothing changes and sanitation procedures. Regular cleaning and disinfection of poultry houses, equipment and vehicles would help to remove potential disease agents. A strict disinfection protocol should be followed to reduce contamination.

a) Quarantine and Isolation: New birds or animals should be isolated from the main flock for a set period before they are introduced. This allows any potential illnesses to show up before they can spread to the rest of the flock.

b) Water and Feed Management: Ensuring the quality and hygiene of water and feed is crucial, as contaminated water and feed can be a significant source of disease transmission. Water and feed are to be stored and handled correctly to prevent the introduction of disease agents via these resources. Drinking water and cooling system water, such as in foggers and evaporative panels, must meet good sanitary standards. An efficient water treatment

system should maintain quality. Keeping water tanks closed prevents wild birds from contaminating the water with harmful microorganisms. Pathogens can spread through feed due to contaminated raw materials, cross-contamination after production, or during transport. Feed mills should always follow good manufacturing practices. Chemical and thermal treatments help reduce the risk of disease in feed. To prevent contamination by rodents or wild birds, keep silos closed and clean up any spilled feed immediately.

c) Awareness of Staff: Educating all farm personnel about biosecurity protocols and the importance of following them is essential. Educating all farm personnel about biosecurity protocols and reinforcing the importance of consistently following them is a critical component of effective disease prevention in poultry farming. Everyone working on the farm, from management to laborers, plays a role in maintaining biosecurity. Comprehensive training ensures that the staff understands the risks associated with infectious diseases, recognize potential sources of contamination and are fully aware of the procedures needed to minimize those risks. This includes proper hygiene practices, movement control,

equipment disinfection and the handling of sick or dead birds. When farm workers are knowledgeable and committed to biosecurity, the likelihood of disease introduction and spread is significantly reduced. Continuous education and regular updates on biosecurity practices help build a culture of accountability and vigilance, which is essential for the long-term success and sustainability of the poultry industry.

Conclusions

Biosecurity has become an essential component of modern poultry farming and is critical to the long-term sustainability of the poultry industry. Although vaccines and antibiotics play a supportive role, the prevention and elimination of disease agents remain fundamental to ensuring the health and productivity of poultry flocks. The success or failure of the industry increasingly depends on the effectiveness of biosecurity measures. As such, biosecurity is regarded as an indispensable tool for controlling the spread of infectious diseases and must be implemented not only at the farm level but also through coordinated, country-wide strategies to achieve meaningful and lasting results. By implementing a comprehensive biosecurity plan consistently, poultry farmers can significantly reduce the risk of disease outbreaks, protect their flocks and maintain a healthy and productive farming operation.

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Role of Egg Industry in Livelihood and Nutrition Security



**Dushyant Kumar, Amit Kulhar,
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Introduction

The egg industry plays a crucial role in improving rural livelihoods and ensuring nutrition security, particularly in developing countries like India. Eggs are considered a complete food due to their high-quality protein and nutrient-rich profile. With minimal land requirements, poultry farming—particularly egg production—offers a low-investment, high-return opportunity for smallholder farmers and women entrepreneurs in rural areas. In addition, eggs contribute to combating protein-energy malnutrition, making them crucial for food security programs.

Egg Industry and Rural Livelihood

1. Employment Generation

Poultry farming provides direct and indirect employment such as hatcheries, feed production, egg grading, transport, and marketing. In India, approx over 25 million people depend on the poultry sector, with a significant portion involved in egg production (Mehta & Nambiar, 2007).

2. Women Empowerment

Backyard poultry, especially egg-laying birds, is mainly managed by women in rural households. It empowers them economically and improves household food consumption patterns. According to Rangnekar (2006), backyard poultry with egg-laying hens has become a tool for gender-sensitive development.

3. Income Diversification

Egg production offers an alternative income source, especially in drought-prone or marginal land areas where crop farming is uncertain. Small and marginal farmers benefit from selling table eggs and hatching eggs in local markets, often creating village-level microenterprises (Ahuja & Sen, 2007).

Eggs and Nutrition Security

1. High-Quality Nutrition

Eggs provide high biological value protein, vitamins (A, D, E, B12), minerals (selenium, phosphorus), and essential fatty acids. The inclusion of even one egg per day can significantly improve protein intake and reduce micronutrient deficiencies in



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children and pregnant women (Iannotti et al., 2014).

2. Role in Government Nutrition Programs

In India, several state governments have included eggs in the Mid-Day Meal Scheme and Integrated Child Development Services (ICDS) to tackle malnutrition. Studies show improved weight and height gain in children consuming eggs regularly (Ranjan et al., 2020).

3. Cost-Effective Nutrition

Compared to other animal protein sources, eggs are affordable and requires no processing before consumption. This makes them ideal for low-income groups in rural areas (FAO, 2013).

Challenges Faced by the Egg Industry in Rural Areas

- Lack of Veterinary and Extension Services
- Inadequate Infrastructure for Storage and Transport
- Price Volatility in Feed Ingredients
- Low Awareness of Improved Breeds and Nutrition

According to Alders and Pym (2009), strengthening rural poultry extension services and promoting improved egg-laying breeds can significantly increase productivity and rural resilience.

Case Study: India's Backyard Poultry Success

Government schemes like **Rashtriya Krishi Vikas Yojana (RKVY)** and **National Livestock Mission** have supported rural backyard poultry with dual-purpose birds like Vanaraja and Gramapriya, which are good egg layers. In Andhra Pradesh and Odisha, these programs enhance both incomes and household nutrition levels (Singh et al., 2022).

Global Perspective

In Africa and Latin America, egg production has shown similar impacts. The **"Eggs for Kids"** initiative in Uganda and Kenya reported improved school attendance and nutritional status among children (Iannotti et al., 2014). Globally, the **International Egg Commission (IEC)** promotes the role of eggs in ending hunger and improving health.

Conclusion

The egg sector is a vital contributor to rural development, income creation, and nutritional health. Encouraging small-scale and backyard poultry aimed at egg production, combined with conducive policies, training, and infrastructure, can significantly impact the achievement of livelihood and food security objectives in rural India and other developing countries.

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Successful tools for a holistic approach towards gut health

Lode Nollet, Global Product Manager Poultry Enzymes, Huvepharma

Nutritional strategies to support the production of high quality, low cost and safe animal products are a must nowadays. The relationships between health, nutrition, welfare, and environment need to be considered. In poultry production, increasing feed costs are imposing pressure on the profitability of the farmer, so nutritionists seek to reduce feed costs whilst maintaining animal performance and gut health. Several strategies, with tangible tools to support this, are discussed in this article.

CONTROLLING COCCIDIOSIS

Coccidiosis, caused by protozoan parasites of the genus *Eimeria*, is one of the most widespread and difficult to manage poultry diseases, resulting in considerable economic losses in the broiler industry. Insufficient or inadequate control of coccidiosis will result in gut health damage and provide a pathway for other pathogens to proliferate.

For instance, suboptimal coccidiosis control combined with a high amount of undigested protein will create an ideal situation for the proliferation of *Clostridia* spp. Birds suffering from clinical coccidiosis will show typical signs like diarrhoea, bloody droppings, increased mortality, decreased feed intake and impaired performance.



Inadequate control of coccidiosis leads to impaired growth and feed conversion ratio, without the presence of evident clinical signs. This is subclinical coccidiosis.

Intensive methods of production of poultry favour the reproduction of *Eimeria*. Consequently, coccidiosis is a continuing problem requiring constant attention and, in the case of broilers, a need for continuous supplementation with anticoccidial drugs or coccidiosis vaccines, in addition to in-feed anticoccidials. Coccidiosis control combined with a good monitoring programme will be the base of any gut health management programme.

IMPROVING FEED DIGESTIBILITY

Improving digestibility of the feed can be achieved by selecting highly digestible feedstuffs. However, this will increase the feed price. The improvement of the digestibility of feed by using enzymes able to degrade Non-Starch Polysaccharides (the so-called NSPases) will not only lead to lowering the feed cost at formulation, but also exert a positive effect on the bird's gut health.

The NSPases contain xylanase or xylanase-based enzymatic complexes, and their mode of action includes the hydrolysis of soluble arabinoxylans, which minimises intestinal viscosity, preventing the overgrowth of microflora and thereby reduces gut health disorders.

Together with the efficient reduction in viscosity, NSPases will also hydrolyse insoluble arabinoxylans. This action will unlock nutrients (mainly starch and proteins) which are trapped in the cell walls of the vegetable feed ingredients (the so called 'cage effect' of insoluble fibres).

Using the correct NSPase leads to improved digestibility of starch and protein. The latter is of particular importance as high levels of undigested protein in the (last) part of the intestine is a breeding ground for protein-loving pathogens like *Clostridium* spp, causing necrotic enteritis.

The breakdown of arabinoxylans by NSPase also yields arabino- oligosaccharides (AXOS) which are known to be fermented by the microflora in the lower part of the intestine to butyrate, which is a major energy source for villi regeneration allowing good gut health status.

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Phytases have been shown not only to break down phytate to release phosphorus, but by doing so, to also destroy the anti-nutritional factor phytate.

This not only leads to a reduction of endogenous protein losses, but also liberates protein and amino acids which are complexed by phytate, enhancing their digestibility.

SUPPORTING THE MICROBIOTA

The relationship between a healthy gut and the animal's microbiota is undeniable. As part of the holistic approach, the inclusion of probiotics in the nutritional programme offers a way of supporting gut health from a microbial perspective.

The mode of action of probiotics is usually multifactorial, including (but not limited to) the production of beneficial metabolites or the direct competition with unwanted bacteria. As a result, probiotics often help to balance the present microbiota and improve its robustness, supporting general gut health in the process.

Probiotics can be incorporated into the feed or drinking water, depending on the strain and formulation used. Although there are many commercial options available, the preferred product of choice should be based on a single unique strain, capable of forming spores and with a proven and researched mode of action. Such probiotics increase the ease of use, whilst ensuring product efficacy.

Good examples are B-Act®, containing viable spores of *Bacillus licheniformis*, based on *Clostridium butyricum*. Probiotics allow producers to support their animals' gut health efficiently, setting them up for a successful production period from start to finish.

CONCLUSION

Gut health management is of paramount importance to the profitability of poultry farming. The strategy behind managing optimal gut health should contain a combination of the most important control tools on the market available today: an adequate and well thought-through coccidiosis control programme, combined with an NSP enzyme and a phytase, and topped off by a well-functioning probiotic.

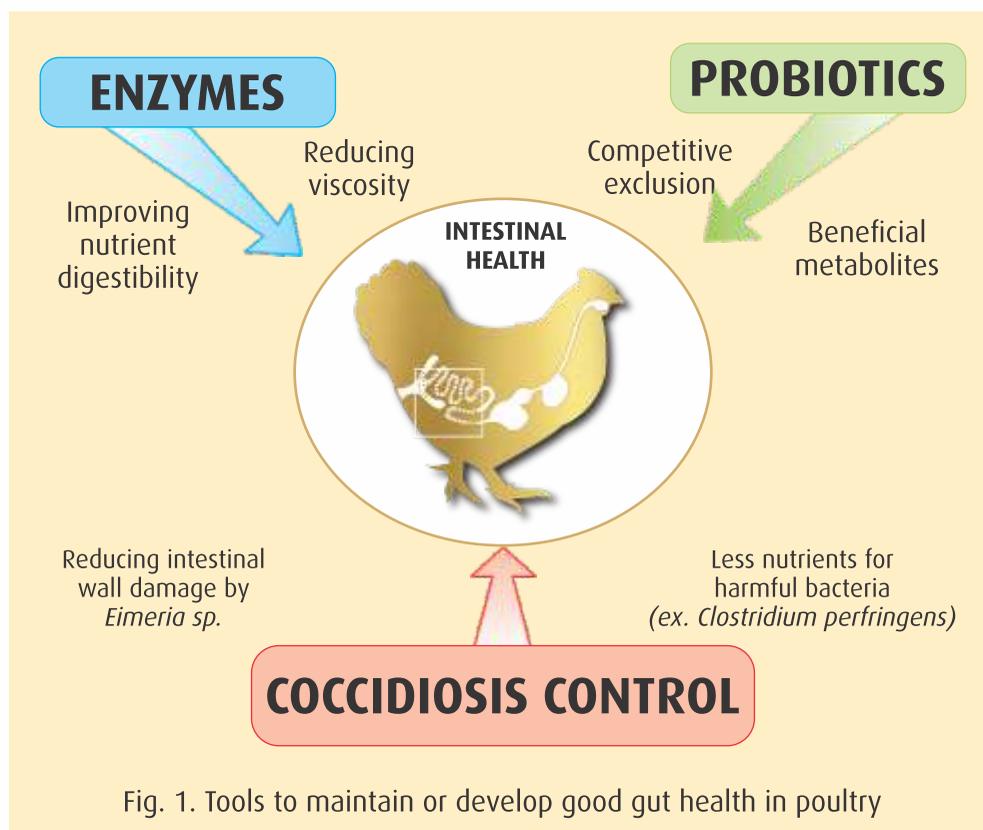


Fig. 1. Tools to maintain or develop good gut health in poultry

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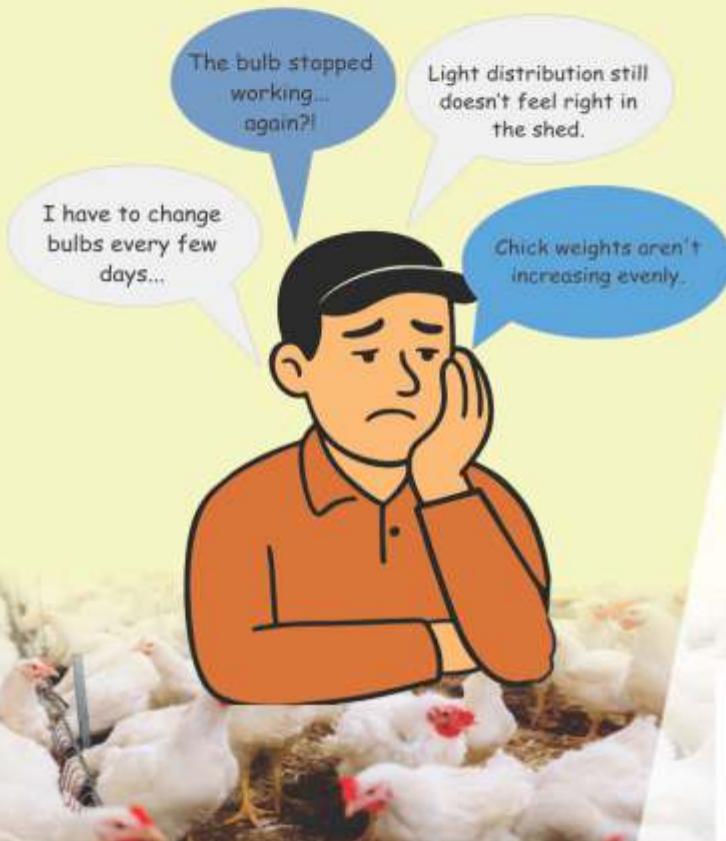
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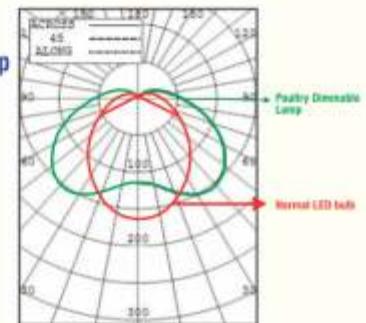
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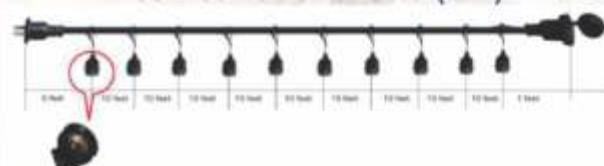


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ProbaesTM

Nurturing Gut Microbiota From Day 1

Authors: Dr. C. S. Bedi, Dr. Himali Kishor Gotarane, Dr. Nithin Reddy, Dr. Arun Kumar

Guybro Animal Health Pvt. Ltd.

In the world of modern poultry production, the first week of a chick's life is not just foundational—it is decisive. This brief window shapes the bird's future health, immunity, and performance potential. At hatch, chicks face a critical challenge: their gastrointestinal tract (GIT) is immature, with an undeveloped immune system, weak digestive functionality, and a sterile or unstable microbial population. As a result, they are highly vulnerable to environmental stressors, nutritional imbalances, and pathogen invasion.

While the industry has long turned to probiotics in an attempt to support gut health, these conventional solutions often fall short during the first week. The immature gut environment simply cannot support the establishment of introduced live microbial strains, much like trying to plant seeds in barren soil. As a consequence, many chicks remain microbiologically unstable in their early days, creating a cascade of health and performance issues that can

persist throughout their lifecycle.

When the gut microbiota is imbalanced in the first week, complications arise swiftly and severely. The most immediate concern is dysbiosis—a disruption in the natural microbial balance—which can weaken intestinal integrity and allow pathogenic bacteria such as Salmonella, E. coli, and Clostridium to dominate. This dysbiotic state often leads to leaky gut syndrome, where weakened intestinal barriers permit toxins and microbes to enter the bloodstream, triggering inflammation and systemic stress. Moreover, nutrient absorption becomes inefficient, immune responses are compromised, and growth trajectories begin to falter. The energy that should be directed toward growth and development is instead diverted to fight infections and stress, resulting in poor feed conversion and higher susceptibility to diseases. These early setbacks can negatively influence overall flock performance, increase production costs, and raise

dependency on antibiotics.

Addressing these challenges requires a deeper understanding of gut biology and a more holistic approach. This is where **Probaes** steps in as a new-generation solution in poultry gut health management. Unlike conventional probiotics that introduce external microbial strains, Probaes adopts a biology-respecting strategy by nurturing the chick's own native gut flora from the first day of life. It recognizes that the most effective way to establish a resilient gut ecosystem is to work with, not against, the bird's natural biology.

Once administered, **Probaes** begins interacting with the gut environment to create favourable conditions for the selective growth of beneficial microbes, particularly Lactobacillus and Bifidobacterium species. These microbes are essential for establishing a balanced and diverse microbial population. **Probaes** significantly increases the count of these beneficial bacteria in the gastrointestinal tract, reinforcing the microbial



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foundation critical for gut development. This targeted stimulation not only improves the competitive exclusion of pathogens but also strengthens the overall resilience of the intestinal ecosystem.

Probaes supports this microbial proliferation and the production of short-chain fatty acids (SCFAs) such as lactic acid, butyric acid, and acetic acid. These SCFAs play a pivotal role in reducing gut pH, creating an inhospitable environment for harmful pathogens, while simultaneously nourishing intestinal cells and strengthening the gut lining.

By supporting microbial fermentation and gut maturation, **Probaes** contributes to improved digestion, better nutrient absorption, and enhanced immune signalling. The intestinal barrier becomes more robust, reducing the risk

of leaky gut, while the improved microbial environment limits the colonization of harmful bacteria. These benefits lead to healthier, more resilient chicks that can withstand environmental stressors and maintain optimal growth without the crutch of frequent antibiotic interventions.

While **Probaes** is designed to act from day one, its influence extends well into the bird's lifecycle. By establishing a strong microbial foundation in the early days, **Probaes** promotes long-term gut stability and resilience. Chicks that begin life with a healthy gut ecosystem are better equipped to handle feed transitions, environmental stress, and disease challenges. They demonstrate improved feed conversion ratios, more consistent growth patterns, and overall superior performance

metrics, giving poultry producers a clear edge in productivity and profitability.

Probaes represents a transformative shift in how we think about gut health in poultry. Rather than attempting to overwrite the bird's biology with foreign strains, it nurtures what is already within. This natural, supportive approach respects the complexity of the gut ecosystem and leverages it for sustainable health and productivity. In doing so, **Probaes** not only solves the problems of early gut imbalance but also lays the groundwork for lifelong performance.

Probaes doesn't just support early life—it rewrites it. By nurturing gut health from the start, it transforms fragile beginnings into a foundation for lifelong strength, setting a bold new standard in poultry nutrition.

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Nurturing Gut Microbiota From Day 1

Emergency Preparedness For Disaster Management – A Way Forward And Mitigation From Veterinary Perspective

ABSTRACT

Disasters can have an extreme impact on animal populations. We may face long-term ecological and economic effects as the loss of animals can be extensive and devastating. India is particularly vulnerable to disasters like floods, earthquakes, tsunamis and cyclones etc. These disasters have a profound impact on our diverse ecosystems and landscapes. They also harm livestock and wildlife as it leads to massive losses of animal life.

The loss can be immense. There is considerable economical impact on the country's food security and livelihood because of the loss of animal life, beyond the immediate human suffering. It also has an ecological impact as animal populations play a crucial role in the ecosystem and leverage the country's biodiversity.

Veterinarians play an important role in alleviating the worst impacts of disasters on animal populations. They have the experience and training to care and treat the injured, sick, and displaced animals. They are the right and key persons actively involved in developing and implementing prevention and preparedness measures for disaster risk reduction in animal populations. They contribute extensively by providing medical care, identifying the necessary resources, and conducting assessments as they are part of a country's emergency response team.

In developing countries like India, emergency preparedness is critical in disaster management to reduce losses and mitigate the impact on animals in terms of livelihood for the animal owners. To be safe we must consider these important steps, prepare contingency plans, conduct drills and simulations, and identify potential threats and their impact on animal populations. Creating awareness, educating people and communities about animal welfare and disaster preparedness can also go a long way in protecting and preserving animal life in the days to come

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KEYWORDS

Disaster, Wildlife, Livestock,
Pets, Super Cyclone, Drought,
Veterinarian, Emergency plans,
Awareness, Public Health
Safety.

Introduction

A disaster is an event, occurring either for a short period or a long period, causing widespread damage to human life and the environment. The World Health Organization (WHO) defines a disaster as 'any occurrence that causes damage, economic destruction, loss of human life and deterioration in health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area [1]. Disasters can be caused by natural, man-made, or technological hazards [2]. Natural disasters are those which are caused by nature. eg., earthquakes, floods,

tsunamis, etc., whereas human-made disasters are those which are caused by man-made activities. eg., Wars, Fire, Industrial accident etc,

It's wiser to be prepared than to say sorry.

When a disaster strikes, not only humans but also animals feel the impact. Disasters like a tornado, tsunamis, floods, and earthquake, makes those helpless animals vulnerable. The catastrophic impact of a disaster on animals is the loss of their habitat, which significantly disrupts their nesting and mating habits. It also contaminates their food and water resources and dislocates

them. Some animals may even be forced to migrate to other habitats, which may be unsuitable for their survival. During these movements, some may be injured, starved, or even killed by predators. So it is the role of a veterinarian to ensure that all animals are safe and sound until the very end.

Nightmare for animal kingdom

Disasters can affect our pets, livestock and wild animals in diverse ways.

In a country like India, the geographical conformation is conducive for natural calamities like, earthquakes, flash floods etc., which are being complicated further by the climate changes due to various factors. The Asian Development Bank has reported that floods account for more than half of climate-related disasters. It has caused damages of \$54.63 billion from 1990 to 2017 in India [3]. So domesticated animals like cattle, sheep, goats, and pigs may drown when floods occur and it may result in a huge economic breakdown as they provide food and income to humans. They may even get trapped in their shelters when earthquakes happen, get burned in wildfires, or even die from electrocution during a hurricane or a tornado. Disasters would also mean the interruption of transport services, which could lead to a lack of animal feed and medicine, putting their health and well-being at risk.

If we turn to the wildlife sector, wildfires are very common, affecting their ecosystem. It has been estimated Rs 440 crores (US\$ 107 million) loss in India. But this estimate does not include biodiversity, nutrient and soil moisture, and other intangible benefits [4]. For instance, when wildfires occur, the soil is left unprotected and prone to erosion. Moreover, there won't be enough food for wild and domesticated animals due to the loss of vegetation cover. Hence animals may venture into other places, making themselves

bait to predators and other dangers. Wild animals may come to human dwelling places in search of food, giving us a sense of fear interrupting their routine.

Our cute little furry buddies(cats) are the first to react when a disaster strikes. In case a disaster strikes when you are far away from your home, it can affect your family pet as well. They become vulnerable just like their owners. They might get injured, or lost or they could find themselves stranded. Without proper care, they may become dehydrated, starved, or even fall ill.

Past data can help us to save future

According to the report, [5] livestock is the second most affected sector after crops. It has accounted losses of \$ 11 billion. It is also reported for 36 per cent of all the damages and losses are due to various natural disasters, out of which 44 per cent of production losses are caused by drought and 39 per cent of losses are caused by floods.

Let us look over an example, in 1999, Orissa was hit by a super cyclone that caused big havoc to the state's economy by mercilessly killing thousands of livestock.

It was reported that there is an estimated loss of 19.04% cows, 2.78% bullocks, 4.07% calves, 4.08% buff aloes, 12.7% sheep, 8.65% Goats, 6.43% pigs, and 24.37% poultry due

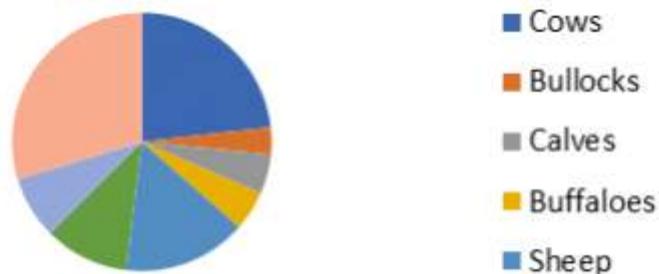
to collapsing of houses, falling off branches of trees, heavy rain, and winds. Moreover, it was reported that the affected areas were the major producers of meat, milk, eggs, etc [6].

Another example is that there was a severe drought period in 2000-2001, which left a huge impact in eight states of India. Both the human and livestock sector were deeply affected. It was estimated that 146.3 million human population and 69.3 million livestock population were severely affected by droughts in the above said period [7].

Another event that resulted in heavy damage to crops, and livestock is the Nilam cyclone that hit the southern state of Andhra Pradesh in 2012. About 1,858 animals were reported dead which included 505 large animals, 1,353 small animals, and 98,757 poultry. An estimated loss of 1286 cattle sheds was reported along with 128 veterinary community health centres that left a huge impact on livestock farmers [8].

The National Disaster Management Agency, India reported that the primary reason for the most recent disaster happened in the Himalayan state of India, Sikkim on 4th October 2023 is attributed to the Glacier lake outburst flood(GLOF) along with incessant rainfall had severe impact on forests, wetlands, river ecosystems upon which the animal species are highly dependent.

Loss due to the super cyclone that hit Orissa in 1999



Role of pet lover

Yes, it's all about the responsibility of a veterinarian. They play a vital role in disaster management. Due to their experience, a veterinarian is skilled enough to provide medical care to animals, that were affected by disasters, manage disease outbreaks as well as ensure the well-being of both animals and humans. Their full-fledged support plays a vital role in disease intervention. The four basic components of disaster management are as follows:

- 1) Mitigation
- 2) Preparedness
- 3) Response/ Emergency Relief
- 4) Recovery

Some specific roles that veterinarians play in disaster management include,

- **Preparing emergency plans**
A veterinarian should preplan and take action before a disaster strikes. He should work on an evacuation plan along with emergency management authorities, to ensure easy transfer of animals to a safe location.
- **Pre-disaster preparation**
He should make sure that all the animals are properly identified, vaccinated, and safely housed.
- **Rescue operations**
Rescuing animals that are struck due to disaster is an important task for a veterinarian.
- **Ensuring public health safety**
Veterinarians are responsible for disease outbreak management, especially in the case of zoonotic diseases [10]. They work along with public health officials to ensure to minimize the spread of disease and to govern the safety of the public. They also make sure that animals that were affected are vaccinated and quarantined.
- **Providing emergency medical care**
Veterinarians play a crucial role in the frontline. They provide

emergency medical care to animals- livestock, wildlife, and pets [11], which were affected by the disaster. It includes administering first aid, performing surgeries, and providing life-saving treatments.

- **Animal welfare management**

The main duty of a veterinarian is to provide shelter, food, and water to the animals as well as to ensure the safety and well-being of those animals affected by a disaster. They also work along with animal welfare organisations to reunite lost pets with their owners.

- **Food safety and security**

He plays a vital role in ensuring the safety and security of the food supply chain. They inspect animal products and ensure that they meet safety standards.

- **Research on disaster management**

Veterinarians also play an important role in conducting research on disaster management, including developing new protocols and treatments for animals affected by disasters and advocating for policies that support disaster preparedness and response efforts.

- **Creating awareness**

The important task of a veterinarian is to educate the public about the proper care and management of animals during disasters. They also provide information on how to prepare for disasters. They also give advice on how to recognize signs of illness or injury in animals, and how to provide basic care during an emergency.

DO'S AND DON'TS IN DISASTER MANAGEMENT

- **Measures to be taken by the veterinarian before the arrival of disaster:**
 1. Animal rescue team must be well trained to overcome obstacles during a disaster and to help the animals.

2. Must well plan to transfer the animals to safe and secure places during a disaster [12].
3. Must be prepared to arrange an alternate source of power (light) during disaster time.
4. Must strengthen and secure the animal shelter for anticipation.
5. Must ensure adequate storage of feed, medicines etc.,
6. Veterinarians must have a disaster first aid kit. This kit should contain all the medicines.
7. Must ensure proper vaccination must be done for livestock.
8. Must teach the animals owner to take care of the animal during a disaster.
9. Must teach the animals owner about the correct procedure of carcass disposal as it may lead to many communicable diseases.

- **Measures to be taken by the veterinarian during disaster:**

1. Veterinarians and animal protection experts should be included in the disaster assessment team and their advice should be used in community disaster planning.
2. Where possible, humanitarian relief bodies and local governments should involve animal care groups such as international animal welfare relief NGOs like an International working group on Animals in Disaster (IWGAID) to provide shelter, rescue and veterinary care and generally augment the humanitarian community [13].
3. Humanitarian aid workers should be given basic stray animal awareness training for safety reasons.
4. Joint training between animal care and humanitarian relief workers will enhance the ability of both communities to work together and ensure an approach to disaster management that saves both people and animals at the least cost.

5. Policymakers should take into account practical indigenous techniques and economic, trade or social restrictions.
6. Veterinarians must co-operate with administrative and public health authorities during surveillance.
7. Veterinarians must implement control measures including isolation and quarantine of animals.
8. Veterinarians must offer guidance to farm owners to know the shelter of the animals during a flood, barn fire, etc,
9. Veterinarians must participate as volunteers with local disaster response teams or a regional-level animal disaster team as veterinarian resource.

• **Measures to be taken by the veterinarian after the disaster:**

1. Veterinarian's main objective is to minimize the suffering of animals.

2. Once the animals are relocated from the rescue centre, the major issue which affects the animals is their security. Generally, animals relate safety and security to familiarity with their surroundings. Therefore, while relocating, if possible, care should be taken to move them to a place where it mimics their familiar surrounding like the feel, smell, layout etc.
3. FEED: Feed/fodder and water play a significant role in disaster recovery. Animals should have access to good-quality feed and fodder.
4. WATER: Ensure that animals have adequate good quality potable water. Animals should not be allowed to consume stagnant or dirty or floodwater.
5. SHELTER: During disasters like floods or earthquakes, most of the structures in the shed might get damaged or destroyed. They should be brought back to their shelter only after ensuring that

the existing structures are safe and secure. Do not overcrowd and provide adequate space to the animals since they are already under stress [13].

6. SAFETY: While relocating the animals, care should be taken to protect the animals from flooded areas, live power lines, debris etc. Protect the animals from wild animals, predators, insects etc. Clean or wash the animals with clean water to get rid of any dirt or debris.
7. MONITORING: Once the animals are relocated and get settled, it is important to monitor them regularly to ensure that they are comfortable.
8. If diseased or injured, treat the animals under the supervision of a veterinarian.

Hence, a well-planned emergency preparedness would avoid the economic, welfare, health associated losses in the event of a disaster.

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Vices of Poultry and Their Management

Introduction

The term "vice" comes from the French word "vitium," which denotes a flaw, an immoral, wicked, or ill habit, action, or feature, a humiliating custom, or a pattern of abnormal behaviour, damaging in nature. Though it can happen to any kind of animal housed in a small area, it is most prevalent in horses, pigs, and chickens.

In the context of poultry, vices are aberrant or detrimental behaviours displayed by birds, typically brought on by inadequate management, stress, environmental conditions, or nutritional inadequacies. These actions have a detrimental impact on the welfare, production, and health of the flock.

The commercialization of chicken farming led to both unthinkable increases in productivity and more stress from confinement. These vices have the potential to directly or indirectly reduce bird populations, their productivity, and farmers' income. But prudent management techniques can prevent or lessen them. As a result, farmers must inevitably be knowledgeable with poultry vice prevention and control techniques.

Common vices in poultry

- Cannibalism
- ⇒ Head picking
- ⇒ Toe picking
- ⇒ Wing and tail picking
- ⇒ Vent pulling
- ⇒ Vent picking
- ⇒ Prolapse

- Egg eating
- Egg hiding
- Flightiness
- Pica

Causes of vices in chicken

- Overcrowding
- Nutritional deficiencies (especially protein, salt, minerals like calcium, phosphorus)
- Boredom / Lack of enrichment
- Improper lighting (too bright or inconsistent light)
- Sudden changes in environment
- Genetic predisposition
- Poor ventilation / uncomfortable housing
- External parasites (mites, lice) causing irritation

Cannibalism

A situation known as cannibalism occurs when a flock of birds attacks and consumes the flesh of their pen mate, causing severe injuries and high fatality rates. Among laying birds, vent pecking is common. As soon as the birds start engaging in this vice, it quickly spreads across the flock. Since there is no direct therapy for cannibalism, poultry farmers must be on guard to prevent it. Cannibalism is indicated by the presence of dead or injured birds that appear healthy except for their wounds.

Head picking, wing and tail picking, vent pulling, vent prolapse, and toe picking are examples of cannibalism, where the vivid colour blood draws other birds to the area.

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Head Pecking



Tail Pecking

Reasons:

1. Overcrowding in poultry house and the less energetic birds to develop vices.
2. Frequent in certain bird breeds and might be genetically predisposed.
3. External vaginal bleeding draws other birds, and as the birds acquire a taste for meat and blood, they start to cannibalize.
4. A diet lacking in protein or one that contains too much maize
5. Methyl and arginine deficiencies.
6. This ailment could be caused by a lack of minerals and salt.
7. A parasite infestation that causes skin haemorrhage or the loss of feathers from the body may make a person more likely to engage in cannibalism.
8. Injuries caused by the birds' fights may also act as a trigger for cannibalism.

Management and prevention:

1. Housing Management:

Provide adequate space (follow recommended stocking densities).

Ensure proper ventilation and temperature control.

Avoid sudden changes in housing conditions.

2. Lighting Management:

Use red or dim lighting to calm birds.

Maintain a consistent lighting schedule.

Avoid sudden increases in light duration or intensity.

3. Nutritional Management:

Provide a balanced diet rich in protein, salt, and essential minerals.

Supplement with methionine, calcium, and phosphorus as needed.

4. Environmental Enrichment:

Install perches, dust baths, hanging greens, and pecking objects.

Keep birds occupied and reduce boredom.

5. Health Management:

Regular parasite control (mites, lice).

Prompt isolation and treatment of injured birds.

Inspect flocks daily for early signs of pecking.

6. Beak Trimming (Debeaking):

Infrared beak treatment at hatcheries is preferred.

Reduces ability to inflict severe injuries.

Should be done by trained personnel to avoid welfare issues.

7. Flock Management:

Separate aggressive birds.

Introduce new birds gradually to avoid conflicts.

Maintain a stable social structure.

Egg eating:

Among poultry, it is one of the most common vices. Birds will occasionally start eating their own eggs; this can happen when an egg cracks or when an egg is inadvertently damaged and the bird then develops a taste for it. The birds start cracking their own eggs after they taste it.

Unintentionally breaking or cracking eggs can cause birds to start eating them. The presence of thin-shelled eggs may make them more likely to break easily, attracting birds. Long-term insufficient bedding material in the laying area combined with eggs in the pens may also tempt the birds to start pecking at and eating the eggs.



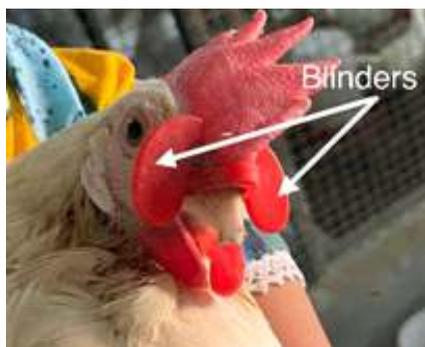
Prevention:

1. Separate the birds that have adopted this behaviour.
2. The expert should be consulted before increasing the amount of protein and lime stone in the diet.
3. Egg eater should be housed in a cage where the slope causes the eggs to roll away when they are laid, out of the bird's reach.
4. This propensity is also lessened by debeaking.
5. This habit might be prevented if the location where the bird lies in dark.
6. The time between egg collections should be shortened.
7. Use dummy (wooden or ceramic) eggs to discourage

pecking. Apply unpleasant-tasting substances to dummy eggs to condition birds against pecking.

8. Reduce boredom with enrichment (perches, hanging vegetables, pecking blocks).

Blinders, commonly referred to as peepers, are tools that are attached to or passed through poultry's beaks to prevent them from seeing ahead and help prevent feather pecking, cannibalism, and occasionally egg-eating. Blinders function by decreasing the precision of pecking at another bird's body or feathers.



Egg hiding:

The practice of chickens laying their eggs in obscure, unique, or difficult-to-reach places rather than in the specified nest boxes is known as "egg hiding". Free-range, backyard, and occasionally semi-intensive systems are more likely to exhibit this behaviour. It causes problems with egg collecting, egg loss, spoiling, and in certain breeds, covert brooding behaviour.

Prevention:

1. Before letting the hens go to the range, confine them in the laying house from the morning until the early afternoon, which is when they lay most. They are enticed to lay in nest boxes by this.
2. Cut down on noise and disruptions near areas where people lay.
3. Any common hiding places, such as bushes, dark corners,



and behind buildings, should be blocked off.

4. If the animals are free-ranging, check the area frequently for concealed nests.

Flightiness:

It describes the anxious, jittery, and easily alarmed behaviour that some flocks of chickens exhibit due to unexpected loud sounds (cars, barking dogs, machines), predators like dogs, cats, hawks, and even the shadows cast by birds overhead, animals or individuals that are unfamiliar coming inside, rough or uneven treatment and sudden movements of caregivers. Flighty birds exhibit frantic behaviours such as fluttering, gathering into corners, stacking on top of one another, or flying into walls in response to small stimuli. The flock is more vulnerable to stress, asphyxia, and injury as a result of this behaviour.

Under bad management, flightiness can affect any chicken, but it is most frequently observed in layers, light breeds, and free-range birds.

Prevention:

1. Minimize loud noises near poultry houses.
2. Install visual barriers to block sudden movements from outside.
3. Reduce access of predators (dogs, cats, rats).
4. Handle birds calmly and consistently.
5. Move slowly and quietly around the birds.
6. Establish a predictable routine for feeding and inspections.
7. Acclimate birds to human presence from a young age.

Pica:

Originating from the Latin word "pica-pica," the term refers to the magpie bird, which, out of curiosity, would indiscriminately gather and eat a wide range of objects. The behaviour problem known as pica occurs when birds peck at, ingest, or try to eat non-food, non-nutritive objects. Feathers, manure, stones, litter, feathers, and strings are among the materials that are frequently consumed. Pica frequently indicates underlying health difficulties, management challenges, or dietary deficits.

Prevention:

1. Give the bird a high-quality, well-balanced diet that is suitable for its age and species.
2. Make sure you have enough protein, salt, calcium, and phosphorus.
3. Make sure the birds always have access to fresh, clean meal and water.
4. Keep the litter secure and tidy, and take out any foreign objects right away.
5. To lessen boredom, provide distractions like foraging toys, hanging cabbages, or pecking blocks.
6. Deworming on a regular basis helps manage intestinal parasites.

Conclusion:

Birds that behave strangely should be treated immediately. Another essential management strategy is to regularly debeak the birds. It's crucial to add enough nutrients to the diet. Injuries need to be handled carefully and quickly. With these easy fixes, the poultry farm's subsequent financial loss from vices can be significantly decreased, and the enterprise can become considerably more lucrative and long-lasting for the farmers.



Managing Parasitic Load in Poultry: Challenges, Strategies, and Sustainable Solutions

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Parasitic infections in poultry are a significant concern for farmers worldwide, impacting both small-scale backyard operations and large commercial farms. These infections can lead to reduced productivity, increased mortality, and higher veterinary costs.

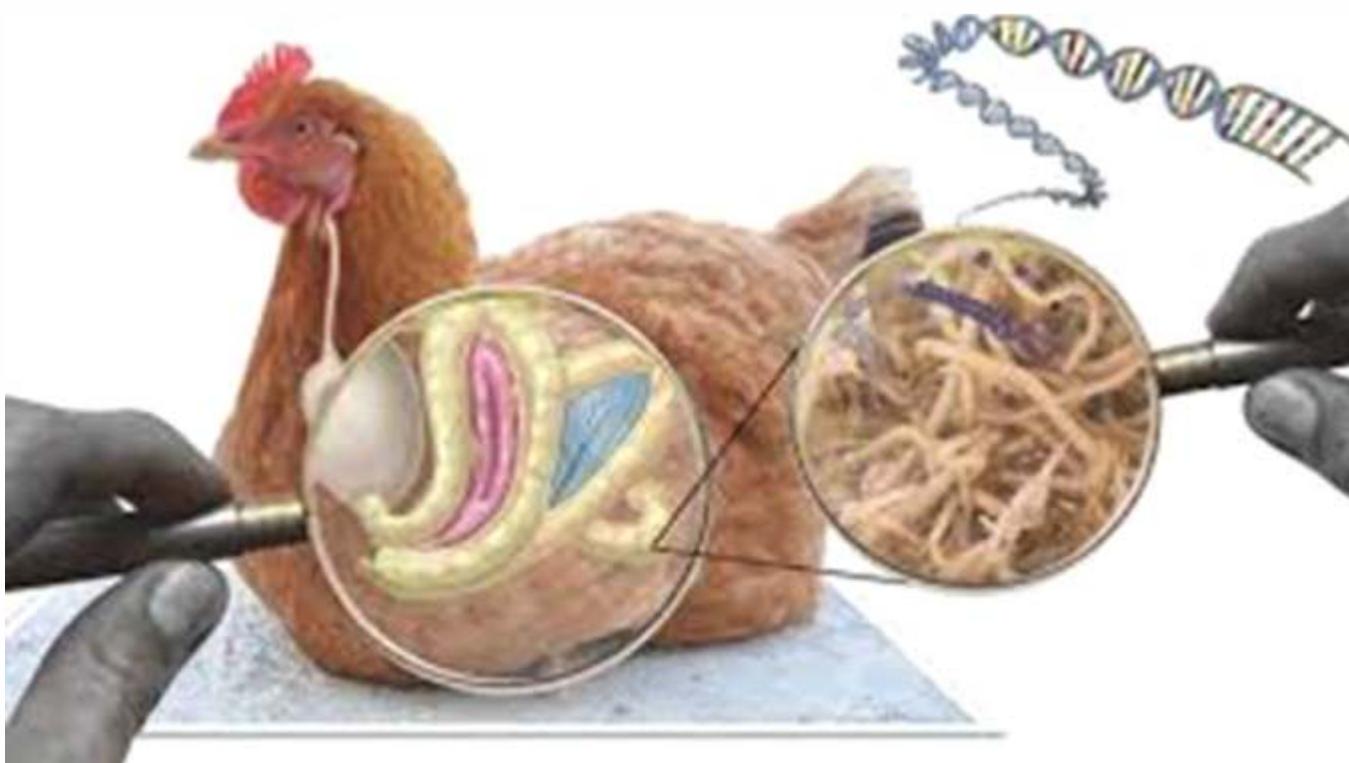
Common Poultry Parasites:

Poultry can be affected by a variety of parasites, which are typically categorized into:

- **External Parasites:** These

include lice, mites, fleas, and ticks, which infest the skin and feathers of birds. They can cause irritation, feather loss, anemia, and decreased egg production.

- **Internal Parasites:** These comprise protozoa (e.g., *Eimeria* species), nematodes (e.g., *Ascaridia galli*, *Heterakis gallinarum*), and cestodes (e.g., *Raillietina* species). They primarily affect the gastrointestinal tract, leading to



malnutrition, weight loss, and reduced feed conversion efficiency.

Prevalence and Risk Factors:

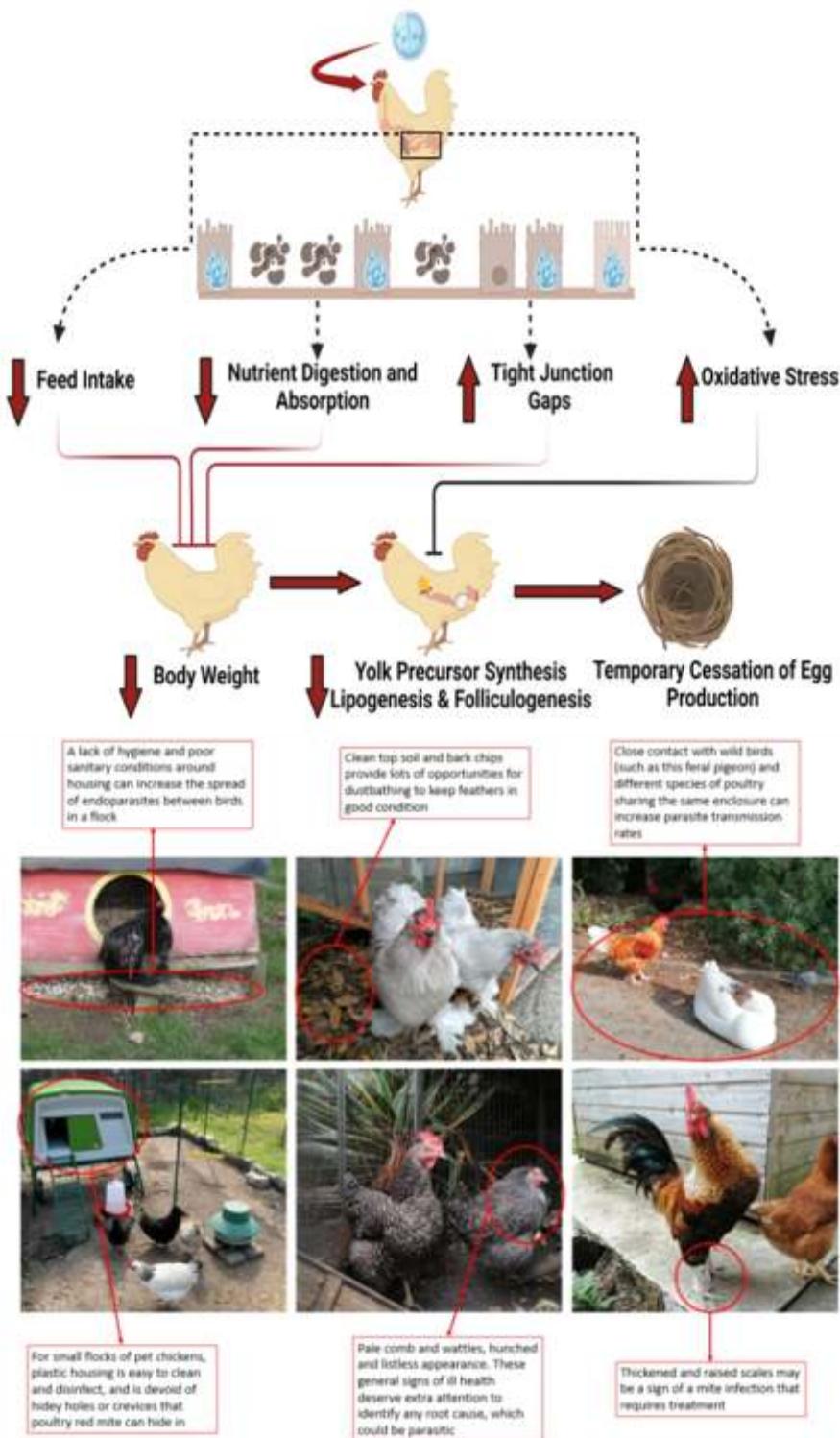
• Geographical Variations and Associated Risk Factors of Gastrointestinal Parasites in Poultry Across India

Epidemiological studies across various regions of India have demonstrated considerable geographical heterogeneity in the prevalence of gastrointestinal (GI) parasitic infections among poultry. In the Central Plain Zone of Punjab, an overall prevalence of 38.36% was recorded, with coccidiosis constituting the predominant parasitic infection, accounting for 86.2% of positive cases. In the Northern Zone, particularly the Kashmir Valley, approximately 49% of domestic fowl were found to be infected with gastrointestinal nematodes.

In the Upper Gangetic Plains, a regional contrast was observed between states: poultry farms in Uttarakhand reported a helminth prevalence of 40%, whereas in Uttar Pradesh, the prevalence was notably lower at 11.62%. In Eastern India, particularly in Odisha, a prevalence of 58.75% was

identified among Banaraja fowls raised under semi-intensive systems. The highest burden was observed in South India (Andhra Pradesh), where 87% of examined birds were infected, with a mean parasite intensity of 139.29.

Multiple risk factors were associated with the observed prevalence patterns, including geographical location, type of husbandry system (e.g., deep litter versus cage rearing), bird type (broilers versus layers), age, genetic



background (crossbred versus indigenous breeds), and seasonal fluctuations, with higher infection rates typically reported during the monsoon and summer months.

- **Seasonal Dynamics:** In Kashmir, India, the prevalence of *Ascaridia galli* was highest during the summer months, while *Capillaria* species peaked in the autumn. These seasonal patterns highlight the importance of timing in parasite control measures.

Diagnostic and Control Measures:

- **Diagnostic Techniques:** Faecal floatation and sedimentation methods are commonly used to detect parasitic eggs and oocysts in poultry droppings. Regular screening is essential for early detection and management.
- **Management Practices:** Implementing good husbandry practices is crucial in controlling parasitic loads. This includes maintaining clean housing, proper disposal of manure, controlling intermediate hosts, and rotating pastures. Incorporating biosecurity measures, such as restricting access to the farm and sanitizing equipment, can also help prevent the introduction

and spread of parasites.

- **Treatment Options:** Anthelmintics and anticoccidial drugs are available for treating internal parasites. However, overuse can lead to resistance, so their application should be based on veterinary advice and sensitivity testing.

Sustainable Practices

For organic and free-range poultry systems, where chemical treatments may be limited, integrating natural control methods is beneficial. These include:

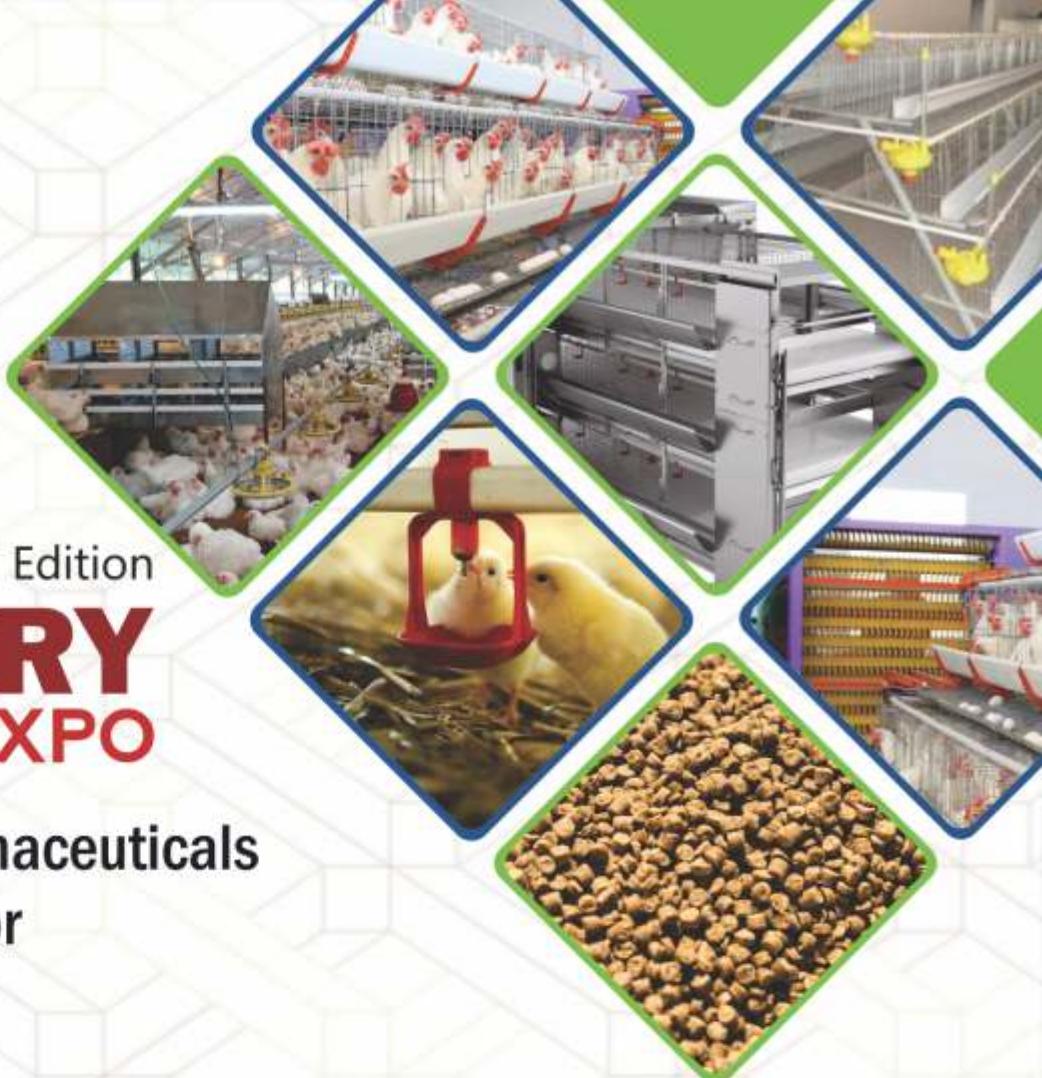
- **Diatomaceous Earth:** A natural substance that can help control external parasites.
- **Herbal Remedies:** Certain plants have anthelmintic properties and can be included in the diet to reduce parasitic loads.
- **Integrated Pest Management (IPM):** Combining biological, cultural, and mechanical control methods to manage parasite populations sustainably.

By understanding the prevalence, risk factors, and control measures associated with poultry parasitic infections, farmers can implement effective strategies to maintain the health and productivity of their flocks.

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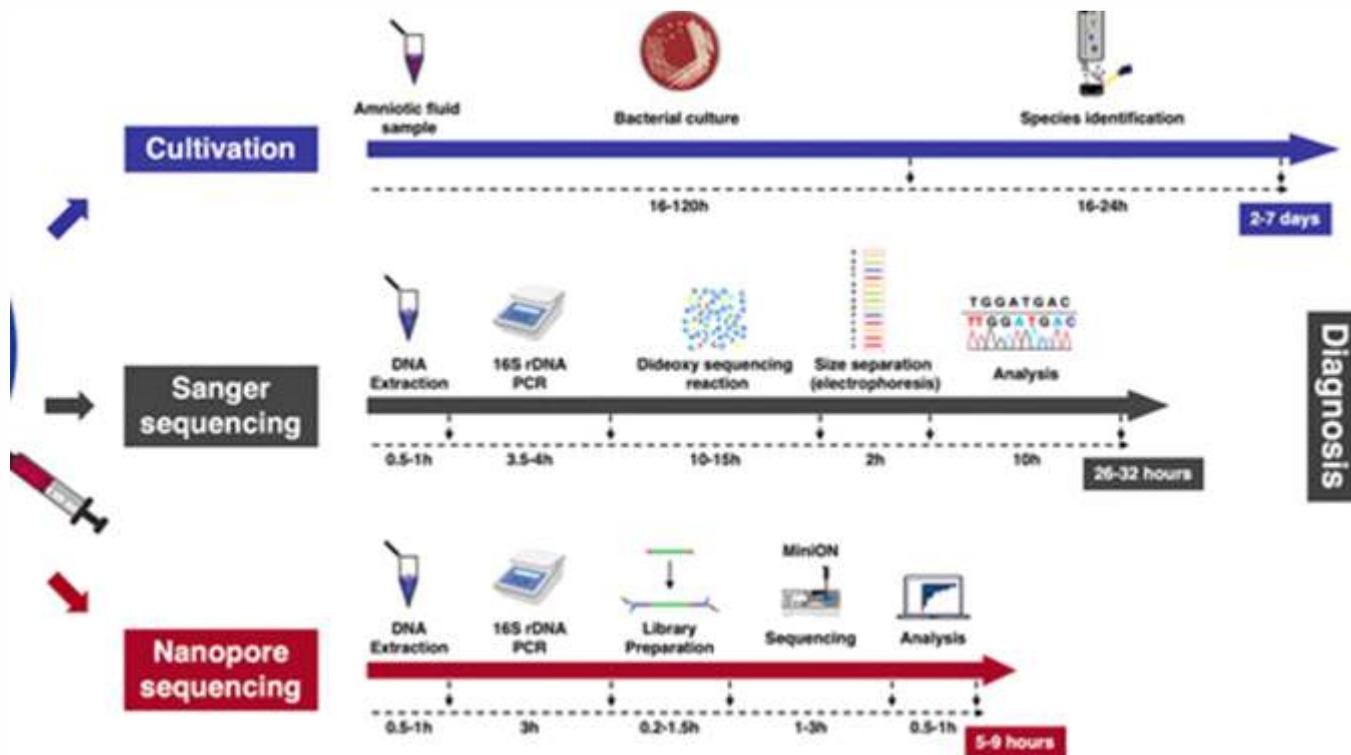


Nucleic Acid Based Diagnostic Approaches For Poultry Diseases

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The profitable poultry production is often influenced by various factors among which infectious diseases remains as a constant and critical challenge. The emergence and reemergence of novel pathogens are potential threat for the effective management of diseases in poultry farms and consequently the productivity. The turnaround time (TAT) is defined as the time interval between the specimens received in the laboratory to the time of reports dispatched with verification. The TAT for the traditional conventional diagnostic assays involving isolation of the pathogen, serological assays etc., generally range from two to seven days (Chaemsaitong et al 2023) although the sensitivity and specificity could be analogous with

molecular diagnostics. The advent of molecular diagnostics targeting the genomic material unique to each pathogen have become the game changer underscored by the time-sensitive nature of many of the treatment decisions associated with infectious diseases (Scott Powell, 2015). Hence, the availability of a rapid, accurate, specific and sensitive diagnostic assay is invaluable during



an epidemic for the veterinarians to decide on the appropriate prevention and control strategies to obviate the economic loss to the farmers.

Molecular Diagnosis/ Nucleic Acid-Based Amplification Techniques

The progress in the culture-independent assays like genomics and proteomics based approaches facilitate to discriminate the closely related species as well as to determine the phylogenetic relationship of the isolates. The sensitivity and specificity for all the molecular tests are governed by three critical control points, including nucleic acid extraction, enzymes used for amplification and the sequence of primers and probes (David. et al2007)

Advantages:

- Rapid, Sensitive and specific
- Cheap and simultaneous detection of multiple etiology
- Detection of pathogens that are uncultivable or difficult and harmful to culture, slow growing viruses in culture, pathogens displaying antigenic variations
- No hazard of handling live pathogen and its dissemination
- Shipping of the sample in an inactivated form (FTA Cards)
- Detects the pathogens in formaldehyde-fixed paraffin-embedded (FFPE) material, body fluids, eggs, feathers, swabs and environmental samples such as dust, soil or litter

Polymerase Chain Reaction (PCR)

PCR is a characteristic example of nucleic acid amplification assay that has revolutionized the field of molecular diagnosis since developed by Mullis and Faloona. PCR is based on extraction and purification of DNA molecule and exponential amplification of the target sequence, using a thermostable DNA polymerase and two specific oligonucleotide primers. After the PCR reaction, the amplified product

can be detected by several techniques, including gel electrophoresis, colorimetric methods, and sequencing. PCR has been used for the detection of pathogens with overall sensitivity and specificity ranging from 77.8% to 100% and 89% to 100% respectively. Hence, PCR can be employed for the detection of pathogens in a variety of specimen types. In addition to the conventional PCR, more advanced variants of the technique are in vogue.

Reverse Transcription-PCR (RT-PCR)

RT-PCR was designed to amplify **RNA targets**. In this technique, reverse transcriptase (RT) is used to convert viral RNA targets into complementary DNA (cDNA), and then the resulting cDNA is amplified by conventional PCR for the detection of infection caused by RNA viruses. RT-PCR demonstrated overall sensitivity and specificity ranging from 73% to 100% and 99% to 100% respectively in the detection of viral infection.

Real-Time PCR

In real-time PCR system, viral nucleic acid amplification and detection steps are carried out at the same time. The detection of the amplification product is relied on the amount of fluorescence emission from the specimen. The fluorescence emission from the specimen is monitored by special thermal cyclers. The computer, with appropriate software connected to the thermal cycler, records the data and produces an amplification plot at every reaction cycle. The detection and quantification of amplification products can be done by using SYBR green, the TaqMan, and molecular beacon chemistries.

The SYBR green dye binds to the minor groove of double-stranded DNA (dsDNA) product and upon excitation by appropriate light, it exhibits improved fluorescence, which is directly proportional to the

accumulated dsDNA product.

The TaqMan probe is a DNA oligonucleotide with a fluorescent dye termed reporter attached to fluorophore one end (5' base) and quencher on the other (3' base). TaqMan probes are designed to hybridize to an internal region of a PCR product. During the annealing stage of the PCR, both the primer and the TaqMan probe bind to the template strand. When the Taq DNA polymerase extends the primer, the polymerase cleaves the probe by its 5'-3' exonuclease activity. Cleavage of the probe leads to the release of the fluorescent dye resulting in fluorescence emission. The amount of fluorescence is directly proportional to the PCR product.

Molecular beacon is a small DNA molecule with a fluorescent dye at the 5' end and a quencher at the 3' end. The sequences at the very 3' and 5' ends are complementary to each other. The internal part of the molecule is designed to be complementary to the target sequence of a PCR product. When molecular beacon is free in solution, it will adopt a hairpin structure. This brings the fluorophore and quencher in close proximity, leading to absorption of emitted light of the fluorescent dye by the quencher and hence fluorescence is not detected. However, when a molecular beacon hybridizes to the target sequence, the fluorophore and quencher are separated, leading to the emission of fluorescence. The amount of fluorescence is directly proportional to the PCR product.

Transcription-Based Amplification Methods

Transcription-based amplification methods have several advantages, since they do not require a thermal cycler, so developing countries and budget-restricted laboratories can afford to perform the assays, they have rapid kinetics (requires fewer

cycles), and they produce a single-stranded RNA product that is suitable for detection by various techniques. Transcription-based amplification methods are suitable for the diagnosis of viral infections caused by RNA viruses. They can amplify viral genomic RNA, messenger RNA, or ribosomal RNA.

This includes nucleic acid sequence-based amplification (NASBA) and transcription-mediated amplification (TMA). NASBA and TMA are similar to each other. They are isothermal amplification methods. The entire amplification process is carried out at the temperature of 41°C. In both cases, the viral RNA target is first converted into cDNA with RT and then RNA polymerase synthesizes multiple copies of viral RNA product. The only difference between TMA and NASBA in the amplification process is two enzymes (RT and RNA polymerase) are utilized in case of TMA while NASBA utilizes three enzymes (avian myeloblastosis virus reverse transcriptase (AMV-RT), RNase H, and T7 RNA polymerase). In NASBA, three enzymes and two primers work together to exponentially amplify a target viral RNA. Primer 1 (P1) carries at its 5' end T7 RNA polymerase promoter region and at its 3' end, P1 carries sequence that is complementary to a target viral RNA sequence. Primer 2 (P2) carries a sequence complementary to cDNA strand. The amplification reaction begins with the production of cDNA copy of the viral RNA by RT using P1. RNase H degrades the viral RNA from RNA-DNA hybrid molecules. Then, RT synthesizes dsDNA molecules using P2 and the released DNA strand. Finally, T7 RNA polymerase uses dsDNA molecules as templates to transcribe many viral RNA copies. The cycle is repeated several times, resulting in the accumulation of many viral RNA copies and ds DNA molecules. The amplified product can either be detected by gel electrophoresis at the end of the

assay or in real time using molecular beacon.

Loop-Mediated Isothermal Amplification (LAMP)

LAMP is another isothermal nucleic acid amplification method that is extensively utilized for sensitive, specific, rapid, and cost-effective detection of both DNA and RNA clinical specimens. The method employs four to six unique primers which include the forward inner primer (FIP), backward inner primer (BIP), forward outer primer (F3), and backward outer primer (B3) and DNA polymerase with strand-displacement activity to amplify target DNA. The addition of RT in LAMP reaction (RT-LAMP) permits the amplification of RNA target. The primers are specifically designed to recognize six precise regions from a targeted nucleic acid sequence. In addition to the above primers, two more loop primers, namely, forward loop primer (LF) and backward loop primer (LB) were included to accelerate LAMP assay. Due to the use of four to six specific primers, LAMP assay has outstanding sensitivity and specificity in the detection of target nucleic acids. The LAMP reaction is performed in constant temperature between 60–65°C, without the need for expensive specialized equipment. The method requires only inexpensive heating block or water bath, making it very useful under poor laboratory settings. The LAMP reaction takes turnaround time of less than 1 hour and the amplified product can be detected by several methods, including the real-time measurement of the turbidity caused by precipitated magnesium pyrophosphate using a turbidometer, visual detection of magnesium pyrophosphate precipitation following completion of the reaction, detection of fluorescence under ultraviolet light or natural light by adding an intercalating fluorescent dye to the final reaction mixture, and visualization of the bands with various sizes using agarose gel electrophoresis.

DNA Microarrays

In DNA microarray diagnosis, fluorescently labeled viral nucleic acids in a test sample are used to screen an array of oligonucleotide probes immobilized on a solid surface (e.g., glass slide). The oligonucleotide probes used here are specific for the genome of the target virus. The results of hybridization between immobilized probes and target sequences labeled with fluorescent dyes are detected and quantified by fluorescence-based detection. It is a high-throughput tool as it allows multiplex detection of a large number of potential viral pathogens in clinical specimens. The limitations of the technique includes, too expensive to be used for routine clinical diagnosis, labor-intensive, and time-consuming (the hybridization process may take hours to days to complete). Nonspecific hybridization between test materials and immobilized probes can affect the sensitivity of the assay. In addition, designing of specific probes requires almost complete information of the genetic makeup the virus of interest. The assay detects only those viral pathogens that have target probes on the array.

Next-Generation Sequencing (NGS)

NGS involves preparation of test sample, sequencing of the target nucleic acid fragments using one of the available NGS platforms, and analysis of the sequence data using suitable bioinformatic tools. Several companies produce different NGS machines that use different methods of sequencing, reagents, and data analysis tools. Eg. ,Pyrosequencing (Roche 454) detects release of pyrophosphate following incorporation of nucleotides in a DNA polymerization process. Illumina's NGS platforms detect release of fluorescent labels from incorporated nucleotides in a DNA polymerization process. The emerging technologies like Oxford nanopore (Minlon) platform sequences the target nucleic acid by

sensing the ionic current of DNA/RNA molecules that pass through the nanopores. Unlike PCR and DNA microarray methods, NGS does not require prior knowledge of

genomic sequences of the viral pathogens. It does not also require target specific PCR primers and oligonucleotide probes. But the limitations like the turnaround time,

the number of samples per run, cost of sequencers, and requirement of skills in bioinformatics are the constraints in its wider usage.

Merits and Demerits of nucleic acid based diagnostic assays			
Detection methods	Qualitative/Quantitative	Advantage	Limitations
Conventional PCR	Qualitative	<ul style="list-style-type: none"> ➤ Sensitive and specific ➤ Widely employed nucleic acid-based detection format ➤ Multiplex detection potential 	<ul style="list-style-type: none"> ➤ (High risk of contamination) ➤ Prone to inhibitors ➤ Time-consuming and labor-intensive ➤ Qualitative ➤ Requires thermal cycler and gel documentation apparatus
Conventional RT-PCR	Qualitative	<ul style="list-style-type: none"> ➤ Sensitive and specific ➤ Multiplex detection potential 	<ul style="list-style-type: none"> ➤ RNA handling might be difficult ➤ High risk of contamination ➤ Time-consuming and cumbersome ➤ Relatively expensive ➤ Prone to inhibitors ➤ Mutation within PCR primer regions may occur in some RNA viruses which have high mutation rates, leading to reduced sensitivity
Real-time PCR/RT-qPCR	Quantitative	<ul style="list-style-type: none"> ➤ Highly sensitive and specific ➤ Lower cross-contamination risk due to closed tube operation ➤ Rapid and less labor-intensive ➤ Multiplex detection ➤ Genotyping ➤ Determination of the viral load (quantitative) 	<ul style="list-style-type: none"> ➤ Requires expensive laboratory equipment and fluorescent probe ➤ Designing of TaqMan probes requires almost complete information of the target nucleic acid sequence ➤ Primer dimer artifact is a problem in case of SYBR green method ➤ Prone to inhibitors
Transcription-Based Amplification: TMA & NASBA	Quantitative	<ul style="list-style-type: none"> ➤ Sensitive and specific ➤ Simple and rapid (fewer cycles are required) ➤ Multiplexing potential ➤ Quantification ➤ Genotyping ➤ Does not require thermal cycler 	<ul style="list-style-type: none"> ➤ RNA handling might be difficult ➤ Requirement of three enzymes in case of NASBA ➤ Use of enzymes that are not thermostable ➤ Nonspecific interactions of the primers may increase as the amplification process occurs at a lower temperature (41°C)
LAMP/LAMP-RT	Quantitative	<ul style="list-style-type: none"> ➤ Highly sensitive and specific ➤ Easy to perform ➤ Does not require expensive thermal cycler ➤ Rapid (Results in <1 h) ➤ Quantitative ➤ Genotyping ➤ Simple detection systems (using naked eye) ➤ Relatively resistant to inhibitors present in the sample 	<ul style="list-style-type: none"> ➤ Requirement of six primers ➤ High risk of carryover contamination ➤ Limitation for multiplexing ➤ Visual detection using naked eye alone is subjective since it depends on observer's perception of color

Molecular assays for diagnosis of important poultry diseases:

S.No.	Disease	Genome	Target gene	Purpose
1.	Newcastle disease	RNA	Fusion gene	Diagnosis, Pathotyping and Genotyping
2.	Infectious bronchitis	RNA	Nucleoprotein gene S1 protein gene	Diagnosis Genotyping
3.	Infectious bursal disease	RNA	VP2 gene	Diagnosis and Pathotyping
4.	Avian encephalomyelitis	RNA	VP2 gene	Diagnosis
5.	Avian Nephritis	RNA	ORF1	Diagnosis
6.	Chicken Astrovirus	RNA	ORF 1b	Diagnosis
7.	Avian Reovirus	RNA	S4	Diagnosis
8.	Marek's disease	DNA	MEQ gene 132 bp repeat	Diagnosis & Genotyping DIVA : Vaccine (multiple bands) and virulent strain (single/ double bands)
9.	Avian leukosis complex	DNA	DNA pol	Diagnosis and genotyping
10.	Reticuloendotheliosis	DNA	LTR	Diagnosis
11.	Fowl adenovirus	DNA	Hexon gene	Diagnosis and genotyping
12.	Chicken infectious anaemia	DNA	VP1	Diagnosis
13.	Infectious laryngotracheitis	DNA	gB, TK, ICP-4	Diagnosis
14.	Infectious Coryza- <i>A. paragallinarum</i>	DNA	HPG1-PCR & HPG2-PCR; 16S rRNA HPG2-PCR HMTp210	Diagnosis Sequencing Species specific identification Multiplex PCR for molecular serotyping
15.	Necrotic enteritis- <i>C. perfringens</i>	DNA	A type strains: Alpha (cpa) C type strains: Beta (cpb), & beta2 (cpb2) toxin genes	Multiplex PCR to Differentiate A/ C strains
16.	Fowl Cholera- <i>P. multocida</i>	DNA	KMT1 gene Multiplex PCR	Diagnosis Capsular typing
17.	<i>Mycoplasma synoviae</i>	DNA	16S rRNA	Diagnosis
18.	<i>Mycoplasma gallisepticum</i>	DNA	16S rRNA; mgc2	Diagnosis
<ul style="list-style-type: none"> ➤ MG and MS strains can be discriminated by core genome MLST ➤ DIVA : MLVA (multilocus variable tandem array) and MAMA (mismatch amplification mutation assay) 				



Reducing Carbon Footprint in Poultry Farming: A Sustainable Future

Aarti Gupta¹ and Hina Ashraf Waiz²

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Department of Livestock Production
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RAJUVAS

Poultry farming is a major part of our global food system. It provides billions of people with affordable meat and eggs, making it a key source of nutrition worldwide. However, like all forms of agriculture, poultry farming has an environmental cost. The industry produces greenhouse gases (GHGs) through feed production, animal waste (manure), and energy use. As climate change becomes a bigger concern, it's increasingly important for poultry farmers to adopt sustainable practices that protect the environment while keeping their businesses profitable.

What Does Carbon Footprint Mean in Poultry Farming

A carbon footprint is the total amount of greenhouse gases—mainly carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O)—released by a specific activity. In poultry farming, this footprint comes from several sources. First is **feed production**. Growing, processing, and transporting poultry feed—especially soybeans—uses large amounts of energy and often leads to deforestation, which adds a lot of CO₂ to the atmosphere. Next is **manure management**. When poultry waste breaks down, it releases methane and nitrous oxide, two powerful greenhouse gases. Poultry farms also rely on **electricity and fuel** to run heating systems, lighting, and ventilation, which can lead to high emissions if powered by fossil fuels. Lastly, **excessive water use and waste** during poultry processing can harm local ecosystems and add to the overall carbon footprint.

How Can Poultry Farms Reduce Their Carbon Footprint

Farmers can take several smart and practical steps to make poultry farming more sustainable without sacrificing productivity.

Sustainable Feed Production

Feed makes up about 60% of emissions in poultry farming. Reducing this starts with sourcing feed locally to cut down on transportation. Farmers can also explore **alternative ingredients** like insect meal or algae, which are more environmentally friendly than soy.

Precision feeding—giving chickens the exact nutrients they need—reduces feed waste and lowers manure-related emissions. Selecting poultry breeds that grow efficiently on less feed also helps save resources and reduce emissions over time.

Using Clean and Efficient Energy

Energy is essential in poultry farming, especially for keeping birds at the right temperature and maintaining ventilation. Switching to renewable energy sources like solar or wind power can replace electricity from fossil fuels. Farms can also upgrade to LED lighting and install smart ventilation systems that adjust automatically to reduce energy use. Some farms use heat recovery systems to reuse warm air from exhaust fans, saving more energy.

Better Manure Management

Managing poultry waste properly can greatly reduce greenhouse gas emissions. Composting manure or processing it in anaerobic digesters (which turn waste into biogas) helps

cut methane emissions and even creates renewable energy for the farm. Processed manure can be used as organic fertilizer, replacing chemical fertilizers and lowering nitrous oxide pollution. Adding biochar (a type of charcoal) to poultry litter helps trap gases like ammonia and improves soil quality when applied to crops. Keeping the litter dry also prevents the release of harmful gases during decomposition.

Saving Water and Reducing Waste

Water is essential, but it must be used wisely. Rainwater harvesting systems collect and store rainwater for farm use, reducing the demand on freshwater sources. Installing automatic drinking systems ensures birds get the water they need without waste. During poultry processing, farms can recycle by-products and minimize slaughterhouse waste to reduce environmental harm. Closed-loop water systems, where water is cleaned and reused, can help lower both water usage and pollution.

Offsetting Emissions and Going Beyond

Even with sustainable practices, some emissions are unavoidable. Farmers can balance this by planting trees around their farms. Trees naturally absorb carbon dioxide, helping to offset emissions. Incorporating agroforestry (combining trees with farming) and regenerative practices

like crop rotation improves soil health and helps store carbon in the ground. Joining carbon credit programs can also give farmers financial rewards for reducing their emissions. Adopting sustainability certifications like Organic or GlobalG.A.P. shows consumers that the farm is committed to protecting the environment.

Case Studies and Research-Based Insights

Recent studies have shown that sustainable poultry farming methods really work. Research published in PubMed found that using insect protein or algae instead of soy can reduce carbon emissions significantly. A TCI-Thaijo study highlighted how solar energy helps poultry farms lower their energy bills and environmental impact. Studies in the *Journal of Environmental Science* showed that advanced waste treatments like anaerobic digestion and biochar can cut methane emissions by up to 50%. The USDA reported that precision feeding improves how chickens absorb nutrients, which reduces emissions from their waste. Another study in the *International Journal of Poultry Science* found that dry litter systems and composting reduce ammonia and make farms more sustainable.

The Future of Sustainable Poultry Farming

Governments and industry leaders

around the world are now supporting the shift to greener farming. Countries like the Netherlands and Denmark are offering financial incentives to help farmers adopt renewable energy and advanced feeding systems. At the same time, technology is playing a huge role. Artificial intelligence (AI) can help optimize feeding, and blockchain systems can track eco-friendly farming practices. Farms are also using automated systems that turn poultry waste into energy. Ongoing research is focused on creating new chicken breeds that eat less and produce fewer emissions.

Conclusion: A Cleaner and Smarter Future for Poultry

Reducing the carbon footprint of poultry farming isn't just good for the planet—it's also good for business. Sustainable practices help farmers cut costs, improve efficiency, and meet the growing demand for eco-friendly products. By improving feed, using clean energy, managing manure responsibly, conserving water, and offsetting emissions, poultry farmers can protect the environment while keeping food affordable and accessible. As consumers become more aware and governments take action, sustainability in poultry farming is not just a trend—it's the way forward for a more secure and climate-friendly food system.

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36th PFI AGM

8 - 9 October, 2025
At Ramada Hotel, Lucknow



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Mr. Sanjeev Gupta
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Poultry Planner and Dairy Planner Announce Official Media Partnership with ILDEX Indonesia 2025

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JAKARTA, INDONESIA**

Haryana, India – Poultry Planner and Dairy Planner, two of the leading industry-specific publications catering to the poultry and dairy sectors, are proud to announce their official media partnership with ILDEX Indonesia 2025. This strategic collaboration will further strengthen the global presence of these premier publications while supporting the growth and innovation of the livestock, dairy, meat processing, and aquaculture industries in Indonesia and beyond.

ILDEX Indonesia 2025, one of the most anticipated international livestock, dairy, meat processing, and aquaculture exhibitions, will take place from September 17 to 19, 2025, at Jakarta International Expo, Indonesia. With a focus on industry advancements, cutting-edge technology, and networking opportunities, ILDEX Indonesia serves as a key platform for professionals, suppliers, and decision-makers from across the

globe.

As an official media partner, Poultry Planner and Dairy Planner will have an exclusive stall at the event, providing a hub for industry professionals to engage, exchange insights, and explore the latest trends in the poultry and dairy sectors. This partnership marks a significant milestone in expanding the reach of these magazines, bringing valuable knowledge and business opportunities to stakeholders in the region.

A Strategic Collaboration for Industry Growth

The partnership between Poultry Planner, Dairy Planner, and ILDEX Indonesia 2025 reflects a shared commitment to fostering innovation, knowledge-sharing, and business development in the livestock and dairy industries. Through this collaboration, Poultry Planner and Dairy Planner will:

- **Offer In-Depth Coverage:** Providing comprehensive coverage of ILDEX Indonesia 2025, including

exclusive interviews, panel discussions, and insights from industry leaders.

- **Facilitate Networking:** Engaging with exhibitors, attendees, and key stakeholders to foster meaningful business connections and knowledge exchange.
- **Showcase Innovations:** Highlighting the latest technological advancements and trends in the poultry and dairy sectors, offering a platform for businesses to showcase their products and solutions.
- **Host Interactive Sessions:** Organizing live discussions, presentations, and networking sessions at the event stall to encourage industry engagement.

About ILDEX Indonesia 2025

ILDEX Indonesia is recognized as one of the premier international trade exhibitions for the livestock

and dairy industry. The event brings together global industry leaders, investors, suppliers, and policymakers, providing a unique opportunity to explore market trends, business prospects, and innovative solutions shaping the future of the sector.

With a strong emphasis on emerging technologies, sustainability, and best practices, ILDEX Indonesia serves as a crucial meeting point for industry professionals seeking to expand their knowledge and business reach.

Commitment to Industry Excellence

Speaking about the partnership, Mayank Arya, Project Manager with Team of Poultry Planner and Dairy Planner, stated, "We are

thrilled to join hands with ILDEX Indonesia 2025 as an official media partner. This collaboration aligns with our mission to provide industry professionals with valuable insights and updates, while also creating opportunities for knowledge exchange and business growth. With our presence at the event, we look forward to engaging with global leaders and driving impactful discussions on the future of poultry and dairy industries."

As part of the collaboration, Poultry Planner and Dairy Planner will also release special editions focused on ILDEX Indonesia 2025, featuring expert opinions, market trends, and exclusive insights into the evolving landscape of the poultry and dairy sectors.

Join Us at ILDEX Indonesia 2025

Poultry Planner and Dairy Planner invite industry stakeholders, business leaders, and professionals to visit their stall at ILDEX Indonesia 2025 to explore opportunities, discuss industry trends, and engage with thought leaders.

About Poultry Planner and Dairy Planner

Poultry Planner and Dairy Planner are leading publications dedicated to delivering in-depth analysis, market trends, and industry news in the poultry and dairy sectors. With a strong readership across India and international markets, these magazines serve as a vital resource for professionals looking to stay informed and ahead of industry developments.



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58th AGM & 66th National Symposium 2025

Theme: "Animal Agriculture in India - The Way Forward"

Date: 22nd & 23rd August 2025 at Taj Deccan, Road No.1, Banjara Hills, Hyderabad - 500034

Day-1: Friday, August 22, 2025	
Time	Session
10:00 hrs	Registration of Delegates
11:00 hrs -12:00 hrs	Managing Committee Meeting
12:00 hrs - 13:30 hrs	Lunch
13:30 hrs -14:30 hrs	58 th Annual General Meeting
Inaugural Session	
16:00 hrs.	Inviting Dignitaries to the Dais inauguration & Lighting of Lamp
16:05 hrs	Welcome Address by Convenor Mr. Vijay D. Bhandare, Managing Committee Member, CLFMA OF INDIA
16:10 hrs	Chairman Address by Mr. Divya Kumar Gulati, CLFMA OF INDIA
16:15 hrs	Thematic Address by Shri. Tarun Shridhar, IAS, (Retd.) - Animal Agriculture: Setting the Context
16:30hrs	Keynote Address by Mr. B. S. Yadav, Managing Director, Godrej Agrovet Ltd.
16:45 hrs	CLFMA Awards & Students Awards Ceremony
17:15 hrs	Address by Special Guest Sri Sabyasachi Ghosh, IAS, Special Chief Secretary, Government of Telangana
17:25 hrs	Address by Guest of Honour , Ms. Alka Upadhyaya, IAS, Secretary AHD*
17:35 hrs	Address by Guest of Honour - Sri Vakiti Srihari, Minister for Animal Husbandry and Fisheries, Sports and Youth Services, Animal Husbandry, Dairy Development and Fisheries Department, Hyderabad, Telangana
17:45 hrs	Address by Chief Guest , Prof. S. P. Singh Baghel, Minister of State of Fisheries, Animal Husbandry & Dairying and Minister of State in the Ministry of Panchayati Raj *
17:55 hrs	Launching Souvenir
18:00 hrs	Vote of Thanks by Mr. Nissar F. Mohammed, Honorary Secretary, CLFMA OF INDIA
19:00 hrs	Networking Dinner & Live Performance Felicitation of Sponsors, Media, Guests, and Invitees

Day-2: Saturday, August 23, 2025	
09:00 hrs	Registration
09:15 hrs	Welcome Address by Mr. Divya Kumar Gulati, Chairman, CLFMA OF INDIA
09:30 hrs	Introduction of Symposium – Dr. Devender Hooda, CLFMA OF INDIA
10:00 hrs	Mr. R. S. Sodhi - Growing Towards a Globally Competitive Dairy
10:20 hrs	Dr. Girish Kolwankar - Managing Emerging Challenges and Harnessing Opportunities in Poultry
10:40 hrs	Dr. Manoj M. Sharma - Aquaculture : Looking Beyond Exports and Expanding Domestic Markets
11:00 hrs	Panel discussions: Feed, Raw materials and Other Inputs- Balancing the Balance Sheet Moderator: Dr. P. S. Mahesh <ul style="list-style-type: none"> ❖ All Indian Distillery associations (AIDA) ❖ Broiler Coordination Committee (BCC) ❖ Poultry Farmers & Breeders Association (MH) ❖ Mr. Reece Cannady, US Grain Council ❖ IFFCO ❖ Dr. O. P. Chaudhary (Retd. JS NLM/PC) ❖ Dr. N. C. Manju
13:00 hrs – 14:00 hrs	Lunch Break
14:00 hrs	Right to Protein initiative USSEC
14:15 hrs	Panel Discussions with National Associations
	Outlook of Animal Agriculture for Viksit Bharat Moderator: Mr. B. S. Yadav <ul style="list-style-type: none"> ❖ Mr. Suresh Chitturi, All India Poultry Breeders Association ❖ Mr. Divya Kumar Gulati, Chairman CLFMA OF INDIA ❖ Mr. Ranpal Dhanda, President PFI ❖ Mr. Daljit Singh, Progressive Dairy Farmers Association ❖ Mr. Saji Chacko, Society for Aquaculture Professionals (SAP) ❖ Mr. Ravi Kumar Yellanki, All India Shrimp Hatchery Association ❖ Mr. Madan Mohan Maity, West Bengal Poultry Federation Association
15:30 hrs	Animal Agriculture: Health Challenges & Potential Solutions Moderator: Dr. P. K. Shukla (Head of Department, Mathura Veterinary College) <ul style="list-style-type: none"> ❖ Poultry Health Dr. M. R. Reddy (General Secretary Association of Avian Health) Professions, Principal Scientist Project Directorate of Research Options. ❖ Poultry Health: Dr. Banibrata Maity ❖ Poultry Health: Dr. Ajay Deshpande ❖ Dairy Health: Dr. Prakash Joti Salunkhe, Gokul Dairy, Head of Department Veterinary Health ❖ Dairy Health: Dr. Mukesh Sharma ❖ Shrimp Health: Dr. Ravikumar Amreneni
16:45 hrs	Valedictory Session: Mr. S. V. Bhawe
	Felicitation of Sponsors, Media, Guests, and Invitees
	Vote of Thanks by – Mr. R. Ramkutty, Treasurer, CLFMA OF INDIA
19:00 hrs	Networking Dinner

Awareness Program for livestock farmers across Western and Southern States/UTs through the Common Service Centres (CSC)



The Department of Animal Husbandry and Dairying (DAHD), under the Ministry of Fisheries, Animal Husbandry and Dairying, organized a Virtual Awareness Program for livestock farmers across Western and Southern States/UTs through the Common Service Centres (CSC) on 11th July, 2025. The program was chaired by Prof. S.P. Singh Baghel, Hon'ble Minister of State for Ministry of Fisheries, Animal Husbandry and Dairying and Ministry of Panchayati Raj. Smt. Alka Upadhyaya, Secretary, DAHD also graced the program with her presence. Prof. S.P. Singh Baghel, Hon'ble Minister of State, highlighted the program as a valuable opportunity for direct engagement with the livestock farmers. He commended the Department's efforts in

enhancing milk production, noting the significant contribution of initiatives such as the use of Sex-Sorted Semen (SSS). He mentioned that the price of SSS has been drastically reduced—making it significantly more accessible and affordable for farmers across the country. He urged the farmers to actively engage in the session as it would help them to translate knowledge “from lab to land” for practical application in livestock farming. He also interacted with farmers from various States, inquiring about their livestock, access to veterinary services, and their awareness of departmental schemes.

Smt. Alka Upadhyaya, Secretary, DAHD, underscored the critical importance of timely vaccination in safeguarding livestock health and

preventing the spread of diseases. She elaborated on the concept of zoonotic diseases, which can be transmitted from animals to humans, highlighting the need for disease control measures. She also emphasized the role of advanced breed improvement techniques in enhancing productivity. She encouraged farmers to actively apply the knowledge gained from the program to their practices, thereby contributing to the overall development of the animal husbandry sector.

Livestock farmers participated in the awareness program through **2,000 locations** across the **Western and Southern States/UTs** of the country. Farmers have joined this program from the locations across the States and UTs including Gujarat, Andhra Pradesh,

Karnataka, Daman and Diu, Dadra and Nagar Haveli, Goa, Maharashtra, Puducherry, Rajasthan, Tamil Nadu, and Telangana. **Over 1 lakh livestock farmers participated** in the session. The program was aimed to

aware farmers on critical aspects of animal husbandry including breed improvement, vaccination, zoonotic disease control, and sanitation practices. The program featured expert sessions and educational videos on SSS, and vaccination.

The initiative is part of the Department's efforts to improve awareness on livestock and dairy sector by leveraging digital platforms and engaging directly with the livestock and dairy farmers.





Ministry of Fisheries, Animal Husbandry & Dairying

Performance of National Livestock Mission

The Department is implementing the National Livestock Mission - Entrepreneurship Development Programme (NLM-EDP) which provides a 50% capital subsidy (upto Rs.25.00 lakh) for setting up rural poultry breed development ventures. Between the financial years 2021-22 and 2025-26, a total of 208 poultry sector projects have been approved under this initiative, expected to generate 1,201 employment opportunities.

Data with regard to increase

As per available records of the Department the percentage of increase in production of meat, egg and goat milk from FY 2019-20 to FY 2023-24 is as follows:

The Department is implementing the Livestock Insurance initiative under the Centrally Sponsored National Livestock Mission (NLM) across all districts of the country. The objective is to help farmers and livestock owners manage risks and uncertainties by offering a protection mechanism against the loss of animals

camels, ponies and male cattle/ buffaloes), as well as other livestock like goats, sheep, pigs, rabbits, yaks and mithuns.

Subsidy benefits are limited to 10 cattle units per household for all animals except pigs and rabbits, where the limit is 5 cattle units (with 1 cattle unit equalling 10 small animals). To improve affordability, the farmer's share of the insurance premium has been simplified and reduced from the earlier 20 to 50% range to a uniform 15%. The remaining 85% of the premium is jointly funded by the Centre and States in a 60:40 ratio for most states, and 90:10 for the Himalayan and North-Eastern regions.

Over the past five years, Rs.135.3215 Cr. has been released under the scheme, insuring a total of 55.86 lakh animals.

This information was given by Union Minister of State, Ministry of Fisheries, Animal Husbandry and Dairying, Prof. S.P. Singh Baghel, in a written reply in Rajya Sabha on 23rd July, 2025.

of per animal productivity through breed improvement is not maintained in the records of this Department.

due to death. The scheme covers insurance for indigenous/ crossbred milch animals, pack animals (such as horses, donkey, mules,

Year/Product	Meat		Egg		Goat Milk	
	Production (000 Tns)	Annual Growth Rate (%)	Production (Lakhs Nos)	Annual Growth Rate (%)	Production (000 Tns)	Annual Growth Rate (%)
2019-20	8599.99	5.98%	1143831	10.19%	5850.14	- 4.08%
2020-21	8797.92	2.30%	1220496	6.70%	6261.87	7.04%
2021-22	9292.14	5.62%	1296003	6.19%	6602.56	5.44%
2022-23	9768.64	5.13%	1383763	6.77%	7599.60	15.10%
2023-24	10252.65	4.95%	1427716	3.18%	7805.56	2.71%



TPF Inaugurates Cull Bird Single Window Hyderabad – 5 Regions Building

On July 27, 2025, the Telangana Poultry Federation (TPF) marked a historic milestone with the grand inauguration of the Cull Bird Single Window Hyderabad Five Regions Building in Hyderabad. This state-of-the-art

facility, strategically located near the Outer Ring Road, Pedda Amberpet and accessible from the airport, serves as a central hub for the poultry sector's collaborative operations. The event, attended by industry

leaders, farmers, and dignitaries, underscored the collective strength and aspirations of Telangana's poultry community, positioning the facility as a transformative achievement for India's poultry industry.





A Vision Realized

The inauguration fulfilled a decade-long dream of the Telangana poultry community, transforming a vision into reality. The 14,000 sq ft building symbolizes the unity and dedication of TPF's leadership and farmers. TPF President Kasarla Mohan Reddy highlighted the federation's journey since its inception in 1976 by Dr. B.V. Rao, the "father of Indian Poultry." Rao, honored with a statue unveiled during the event, pioneered the industry in Injapur in 1970, laying the foundation for its nationwide growth. The facility stands as a tribute to his legacy and the collective efforts of the poultry fraternity.

Financial Contributions

The construction of the building was made possible through generous contributions from key donors. Jagbir Singh Dul and

Surender Singh Dul of Skylark Hatcheries, Ch. Jagapathi Rao and Ch. Suresh Rayudu of Srinivasa Hatcheries and Uday Singh Bayas and the Indian Poultry Equipment Manufacturing Association (IPEMA) made significant contribution in the construction of the building. Other notable contributors included Ch. Gopal Reddy (DV Enterprises), D. Subramaniam (Tara Group), Rajiv Gandhi (Haster Biosciences), Vinod Kapoor (Indovax Private Limited), and several others, showcasing the industry's collaborative spirit.

Historical Context and Financial Turnaround

Mohan Reddy provided a historical overview, noting TPF's establishment in 1976 to connect poultry farmers with the government. Following the 2014 division of Telangana from Andhra Pradesh, TPF inherited

58% of the federation's assets but faced financial challenges, with a monthly income of ₹20,000 and a ₹3,000 deficit due to high rental costs. To address this, TPF initiated a collective funding model, inspired by Siddipet's success under Krishna Reddy, where farmers contributed one rupee per bird across five regions: Vijayawada, Sagar, Shamshabad, Srisailem Road, Chatanapally, and Mahabubnagar. This effort enabled TPF to acquire two acres and two gunta of land in Shamshabad, paving the way for the new facility and future plans, including a grand convention center named after B.V. Rao.

Industry Challenges and Government Appeals

Speakers, including General Secretary Kuditala Bhaskar Rao, highlighted the poultry industry's current struggles, with egg production costs at ₹4.80-

₹5 per egg against a selling price of ₹4. A key demand was the reinstatement of the ₹2 per unit power subsidy, previously discontinued, to ensure the industry's survival. The expansion of Hyderabad Metropolitan Development Authority (HMDA) limits was another concern, as it subjects rural poultry farms to stringent regulations and taxes, hindering shed construction and loan access. Speakers urged the government to classify poultry farming as an agricultural activity, exempting it from taxes, as done in Andhra Pradesh. MLA and former poultry farmer Mallareddy Rangareddy committed to raising these issues with the Chief Minister, emphasizing the industry's job creation potential. Former MLA Martineni Dharmarao supported calls for HPAI vaccination and market intervention schemes, noting the government's focus on domestic vaccine production and livestock support in the upcoming budget.

Economic and Social Impact

The poultry industry was celebrated as a cornerstone of Telangana's economy, employing hundreds of thousands and utilizing agricultural by-products like rice husk and bran to produce protein-rich eggs and chicken. Telangana leads India with a per capita consumption of 180 eggs and 15 kg of chicken annually.

Future Vision and Recognitions

Treasurer Vangeti Abhishek Reddy described the building as a "temple" of farmer unity, while K.G. Anand, G.M – Venkateswara Hatcheries praised its scale, unmatched by other poultry associations. Plans for a Shamshabad convention center were reiterated, supported by Venkateswara Hatcheries. The event also featured felicitations for donors and top cull bird traders. Surender Singh Dhull of Skylark Hatcheries lauded the facility's magnificence, reflecting pride from North India's poultry community.

Felicitations Ceremony

Mr. K. Mohan Reddy and the TPF team were honored by Mr. M.K. Vyas, Editor of Hind Poultry, and Mr. Shashank Purohit, Editor of Poultry Dairy & Feed News Point, with a fiber hen as a symbol of unity. This gesture highlighted the shared connection among all attendees through their dedication to the poultry industry. In response, Team TPF reciprocated by felicitating Mr. Vyas and Mr. Purohit for their significant contributions to the Indian poultry sector.





A Series of Technical Meeting has been conducted by Ventri biologicals div. of VHPL for Layer farmers at Jind, Panipat & Karnal on 25TH & 26TH June'25.



JIND



PANIPAT



KARNAL



The theme of the seminar was to introduce newly launched VENGEM 9 – low pathogenic avian influenza (LPAI) vaccine to Layer farmers.



Mr. Shashi bhushushan kumar (AGM) welcome the entire guest and introduce Dr. Namdeo Bulbule Asst. General Manager, PDRC Pune.



Dr. Namdeo Bulbule spoke on topic "Introducing Vengem- Low Pathogenic Avian Influenza (LPAI) H9N2 in activated Vaccine: An Indian and Global

Low Pathogenic Avian Influenza (LPAI), particularly the H9N2 subtype, has emerged as a major concern for poultry health and production worldwide. Despite being classified as low pathogenic, H9N2 leads to substantial economic losses due to respiratory illness, drop in egg production, and increased mortality when combined with secondary infections. The virus is endemic across Asia, the Middle East, and parts of Africa, with increasing sporadic zoonotic cases in humans, including in India.

First identified in the U.S. in 1966 and later confirmed in Indian ducks in the 1970s–80s, clinical H9N2 outbreaks in poultry have been reported

Jind – Haryana



since 2003 in India. The virus spreads via secretions, contaminated feed, water, and fomites, and is further complicated by poor biosecurity and the presence of migratory birds acting as natural reservoirs. India's poultry sector has taken

proactive steps to manage H9N2. The government approved a national LPAI vaccination policy in 2022. ICAR-NIHSAD developed the first indigenous vaccine strain, leading to licensed commercial products such as VENGEM by Ventri Biologicals Pvt. Ltd.

These vaccines have been instrumental in reducing virus load, improving productivity, and minimizing zoonotic risk.

On a global scale, countries like China, Egypt, and Pakistan have adopted routine vaccination, with WHO, FAO, and WOAHP endorsing it as part of a

Panipat – Haryana





comprehensive control strategy that includes surveillance and farm-level biosecurity. This report highlights the importance of One Health collaboration, continuous surveillance, and sustainable vaccination strategies. India's efforts—spanning policy,

research, and public-private partnerships—serve as a model for controlling LPAI H9N2 and safeguarding both animal and public health. All seminars received positive response from the poultry farmers. In all the seminars queries from the participants

were discussed in details. Mr Sandeep Saini RSM gave vote of thanks at Jind & Karnal. Dr. Kailash Mithia TM gave vote of thanks at Panipat . Mr Sahil (ASM) , Mr. Manoj Kadyan(ASM) & Mr. Sukhvinder Banwala (KCE) had well organized the seminar at Jind , Panipat & Karnal respectively .

Karnal – Haryana







Dear CLFMA Members and Industry Colleagues,
Warm Greetings from
CLFMA OF INDIA!

India's livestock sector continues to be a cornerstone of our nation's economic progress, significantly contributing to nutritional security, livelihood enhancement, and rural empowerment. At CLFMA OF INDIA, we remain steadfast in our mission to foster sustainable and inclusive growth across the dairy, poultry, fisheries, and allied sectors.

As we look back on the month of June 2025, we are delighted to share key highlights, impactful engagements, and collaborative initiatives that shaped CLFMA's journey forward:

CLFMA OF INDIA Celebrates Its 58th Foundation Day – 8th June 2025. Marking more

than five decades of dedicated service to the livestock sector, CLFMA celebrated its 58th Foundation Day on June 8, 2025. This milestone reaffirms our commitment to nurturing a progressive and resilient industry ecosystem.

USSEC, USSOY, SOPA, USDA in collaboration with **CLFMA OF INDIA** successfully organized a **Poultry Conference** on 10th June 2025 at Hotel Residency Towers, Coimbatore.

The conference began with welcome remarks by Mr. Franklin Manual, Country Team Lead – India, USSEC, followed by insights from Mr. D. N. Pathak of SOPA. Mr. Matthew Clark, Director, Feed guys Resources Pte. Ltd., presented on the Global Soybean Meal Composition and broiler feed economics,

highlighting the superior nutritional profile of soybean meal.

Key presentations included:

- Poultry and Soybean Outlook of India by Mr. Jaison John, USSEC
- Comparative Advantages of Soybean Meal by Mr. Susil Silva, USSEC
- Modernizing Poultry through Technical Audits by Mr. Atula Mahagamage, USSEC
- Human Capital Development via Soy Excellence Center (SEC) by Mr. Vijay Anand, USSEC
- Soybean Superiority in Poultry Breeding by Dr. Chandrasekaran Duraiswamy
- Importance of Soybean Meal in Poultry Nutrition by Dr. Bhukya Prakash, DPD, Govt. of India

- Differential Analysis of Soybean Quality by Mr. Matthew Clark

A dynamic panel discussion was moderated by Ms. Deeba Giannoulis, USSEC, with active participation from industry leaders and experts including CLFMA Treasurer Mr. R. Ramkutty.

Mr. R. Lakshmanan, Chairman, Shanti Feeds Pvt. Ltd. and CLFMA Managing Committee Member, offered an industry perspective on feed quality and sustainability. Mr. C. Sarvanan C, South Zone President and Member of PR and Digital Working Committee & Col. Vinay Kumar, CLFMA Executive Director attended the event on behalf of CLFMA OF INDIA, which was concluded with closing remarks by Mr. Susil Silva.

The conference saw active participation from around

50 delegates. The Conference proved to be a dynamic platform for insightful deliberations on feed sustainability, nutritional innovation, and soybean's role in poultry performance.

CLFMA ED Col. Vinay Kumar Visit to Sri Lanka on 19th – 20th June, 2025:

Col Vinay Kumar, ED CLFMA visited Colombo on 19-20 June 2025 to coordinate preparations for the Office Bearers meeting with SLVA & WPSA (Sri Lanka Branch) scheduled on 01-03 July, 2025. A Meeting for the same was held with Mr. Krishnamurti, Dr. Mallawa Arachchi, Dr. Tushara and Dr. Sumdu.

Key discussions were held with prominent figures including Mr. Krishnamurti, Dr. Mallawa Arachchi, Dr. Tushara, and Dr. Sumdu, reaffirming CLFMA's commitment to cross-

border collaboration and knowledge exchange within the South Asian livestock community.

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Media Relations:

We invite you to stay connected and updated on our activities, thought leadership, and industry initiatives by visiting our website and following us on social media:

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At CLFMA OF INDIA, we remain deeply committed to driving innovation, promoting best practices, and strengthening the entire livestock value chain. Your continued trust and collaboration empower our mission to build a vibrant, sustainable future for India's livestock sector.

Warm regards,
For **CLFMA OF INDIA**



Divya Kumar Gulati
Chairman

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AHD Jammu Carries Out An Awareness Campaign In Remote Regions Of The Districts Of Rajouri and Poonch

Publicity Wing. On July 16 and 17, respectively, programs were held at Savjjian and Loran villages in district Poonch. The farmers who attended were also given free veterinary vitamins and medications. Approximately 400 farmers from the twin districts directly participated in the campaign.

The department of animal



The Animal Husbandry Department's Extension and Publicity Wing in Jammu wrapped off a three-day, comprehensive awareness campaign that was started in the remote and hilly districts of Rajouri and Poonch.

Coordination of the campaign was done with the twin districts' Animal Husbandry department authorities. An awareness session was held at Village Planger, Tehsil Thana Mandi in district Rajouri on July 15 by a team from the Extension and

husbandry's many programs and schemes were explained, with a focus on entrepreneurship development, immunisations, and other beneficiary-oriented programs like the Integrated Poultry Development Program (IPDP), the National Animal Disease Control Program (NADCP), the Integrated Dairy Development Scheme (IDDS), and the Holistic Agriculture Development Programme (HADP). In addition to providing publicity materials in

local languages about the programs and the newest technologies in the animal husbandry industry, the officials thoroughly described the advantages of the schemes. Under the direction of Extension Officer Dr. Mohammad Sajjad, the campaign also aimed to increase farmers' knowledge so they could apply cutting-edge methods and strategies in the production and sale of milk and milk products, hence raising their income levels.

In order to make dairy farming a lucrative endeavour, the farmers were also informed on the use of improved cattle breeds, feeding, and disease and pest management. During the camps, movies also offered valuable insights into contemporary poultry production.

Avesterra Group Wants To Raise Its Poultry Population To Ten Million

Avesterra Group plans to boost its chicken population to 10 million, construct a feed mill, and expand its land bank to 25,000 hectares, co-owner Dmitry Dobkin told Liga.net.

He stated that he will establish poultry farms. They presently have a capacity of 4.1 million birds. We need to increase this to ten million birds per batch. As a result, the old feed mill must be modernised or a new one built to keep up with the rapid development. This is because the current one will undoubtedly be unable to deal with the increased manufacturing capacity.

According to Dobkin, the business has amassed 3,000 hectares of land in order to build a state-of-the-art poultry processing facility in the Volyn area. However, there are





plans to expand the land bank to 25,000 hectares of fields in order to provide feed for the poultry farm and to become independent from external calamities.

The Avesterra Group was founded in January 2025. Among them are Lutsk Agrarian Company and Volodymyr-Volynskyi Poultry Farm, which together generate 53,000 tonnes of grill meat annually. It brings in roughly UAH 4 billion a year. Seven hundred tonnes of the 5,000 tonnes produced are sold under the Epicur brand, with the remaining amount being marketed under the Chebaturouchka name.

The group invested EUR 60 million to launch a processing factory in June 2025. It boasts new treatment facilities, is 30,000 square meters in size, and is situated in Volyn. The group invested EUR 60 million to launch a processing factory in June 2025. It boasts new treatment facilities, is 30,000 square meters in size, and is situated in Volyn.

The market share of Volodymyr-Volynskyi Poultry Farm in Ukraine is approximately 5%. Kharkiv, Kyiv, Odesa, Dnipro, Vinnytsia, Lviv, and Volodymyr are its seven branches. A abattoir, a feed mill and 100

chicken houses make up the factory's infrastructure. In addition, the corporation owns 3,000 hectares of land on which it cultivates industrial crops and cereals and legumes for compound feed. There are more than 1,500 workers at the factory.

CM Pledges 40,000 Government Employment By October And Aims For Self-Sufficiency In Dairy, Poultry, And Pork

In addition to promising a large increase in government job appointments and tourism development, Chief Minister Himanta Biswa Sarma on Thursday announced a comprehensive plan for reviving Assam's rural economy through self-reliance in the production of dairy, poultry, and pig.

The Chief Minister gave employment letters to 481 new hires from three departments—26 in education, 12 in tourism, and 443 in veterinary—during a public event held at Srimanta Sankaradev International Auditorium in Panjabari.

1,20,840 employment appointments have been made by the state government thus far, and 40,000 more are expected to be made by October 10. Sarma talked extensively about the state's dairy potential and stated that, like Gujarat and Karnataka, Assam needs to capitalise on its traditional livestock techniques and scale them up.

Beyond domestic use, Amul manufactures 2 crore gallons of milk every day in Gujarat. The Nandini brand handles 80 lakh litres in Karnataka. "Assam has historically fallen behind in comparison," he remarked. With assistance from Amul, Kanyaka, and Sitajkhala, he continued, the state is





DA Removes Import Restrictions On Dutch Poultry And Birds



now able to process over 2 lakh litres per day, whereas Purabi Dairy previously handled only 20,000 litres.

The state has set up North East Dairy and Foods Limited to increase dairy production. It plans to buy 1 lakh litres from Dibrugarh, Dhemaji, Cachar, and Jorhat, 25,000 litres from Bajali, and up to 3 lakh litres from Purabi Dairy in Guwahati. With multiple brand milk parlours planned throughout Assam, the long-term objective is to reach 10 lakh litres per day. "The government will soon provide dairy farmers with an extra Rs 5 per litre in aid on top of the market price," Sarma declared. Sarma also emphasised the state's creative breeding initiatives. In order to get a high milk yield and climate adaptation, Assamese "Lakhimi" cows and Gujarati "Gir" cows are being crossed to create a hybrid breed.

Over 90% of female calf deliveries have been guaranteed since the advent of sex-sorted semen technology, which helps milk producers maintain their operations. The CM brought up the fact that 90% of Assamese eggs are currently imported when talking about poultry. He disclosed that the government now purchases 5–6

lakh eggs every day, with a goal of 1 crore eggs per day in the future. "We want to develop 1,000 egg entrepreneurs and reach industrial-scale production with the establishment of layer farms and assistance from banks and the state," he said.

The importance of biogas to Assam's "Atmanirbhar Bharat" mission was also emphasised by the chief minister. The government hopes to enhance the local economy by promoting biogas as a rural energy alternative utilising cow manure and Nepiar grass. He emphasised how important veterinary field helpers are to this ecology. In Sarma's address, the tourist industry in Assam was also highlighted. He said that, in terms of visitor numbers, Kaziranga came in third place in the nation last year, while The New York Times classified Assam as the fifth most popular Indian destination. Manas has the potential to become a year-round destination, while Kaziranga is still a seasonal destination. Effective promotion of our religious and natural places can lead to a boom in tourism, Sarma stated.

He emphasised making Dima Hasao a high-end travel destination and proposed a homestay model similar to Uttarakhand.

In a late June news release, the Department of Agriculture (DA) announced that the temporary prohibition on importing domestic and wild birds, including poultry products, from the Netherlands had been lifted.

The import embargo was implemented in December after Dutch veterinary officials verified an epidemic of H5 (N untyped) Highly Pathogenic Avian Influenza (HPAI) infecting domestic birds on November 17 in Putten, Gelderland. The prohibition also applied to poultry meat, day-old chicks, eggs, and semen.

After the World Organisation for Animal Health announced that avian influenza was no longer a problem in the Netherlands, Agriculture Secretary Francisco Tiu Laurel Jr. signed Memorandum Order 31, which lifted the prohibition. Furthermore, since May 16, 2025, no additional occurrences have been documented.

The memorandum states that "the risk of contamination from importing live poultry, poultry meat, day-old chicks, eggs, and semen is negligible based on the Department of Agriculture's evaluation."

EFSA: Dangers Of Trade-Related Avian Influenza Transmission Into Europe



According to a new report published by EFSA, the highly pathogenic avian influenza (HPAI) genotype that currently affects US dairy cows may be introduced into Europe through the seasonal migration of wild birds and the importation of specific US products, such as those that contain raw milk. There have been no reports of this virus kind outside of the United States thus far.

Large wetlands like the Wadden Sea on the Dutch, Danish, and German coasts, as well as important European stopovers with high-density bird congregations, like Iceland, Britain, Ireland, and

western Scandinavia, would be helpful locations for early virus detection during the seasonal migration of wild birds, according to EFSA's scientists.

The paper also examines how the virus might be brought into Europe through trade, coming to the conclusion that importing goods made with raw milk from impacted US regions cannot be totally ruled out and may therefore be one possibility. Another possible pathway for viral introduction is the importation of dairy animals and bovine meat. Strict trade restrictions are in place for meat and live animals entering the EU, the virus has hardly ever been found in meat, and there are very few animal imports.

The US situation, where 981 dairy cows in 16 states were impacted by avian influenza between March 2024 and May 2025, is likewise summarised in EFSA's report. The paper, which was reviewed by US authorities, emphasises how the virus spread due to shared farm equipment, insufficient biosecurity, and livestock transportation. EFSA will evaluate the possible effects of this HPAI genotype entering Europe by the end of the year and suggest countermeasures.

Due To A Pay-Fixing Scheme, US Poultry Farmers Are Suing Meat Giants



According to Reuters, poultry farmers filed a lawsuit against a group of large US meat processors on Tuesday, alleging that they colluded to reduce the hiring and recruitment of chicken producers and to restrict their wages below competitive levels.

The meat and poultry sectors are involved in a number of antitrust actions, the most recent of which is the proposed class action in the federal court in Oklahoma. In their lawsuit, the plaintiffs claimed that Foster Farms, Mountaire, George's, House of Raeford, and other prominent processors had unlawfully committed to refraining from bidding on the services of thousands of chicken growers.

Growers nurture their hens on land, with labour and equipment, until they are ready to be killed and sent back to a poultry producer. The chicken firm defendants were accused in the latest case of colluding to enforce a "no poach" agreement in violation of federal antitrust law.

Requests for response from Foster Farms, Mountaire, George's, and





House of Raeford were not immediately answered. The plaintiffs' lawyers did not immediately respond.

Major poultry growers in Texas, Oklahoma, Mississippi, and other states have benefited from the services of some of the claimants. The case expands on earlier legal actions that charged other processors, such as Tyson Foods and Pilgrim's Pride, with similar attempts to limit grower compensation and mobility.

Tyson consented to a \$21 million settlement last year after Pilgrim's announced it would pay \$100 million to settle allegations against the business. Both businesses denied any misconduct.

After the judge decided that over 24,300 growers could join forces in a class action lawsuit to seek damages ranging from \$761 million to \$924 million, Pilgrim's reached a settlement.

Unspecified monetary damages and a court order against claimed

anticompetitive behaviour are sought in the current complaint. The case, *Haff Poultry et al. v. Mountaire Farms Inc. et al.*, is filed in the Eastern District of Oklahoma's US District Court under case number 6:20-md-02977-RJS-CMR.

Experts Caution That RFK's Plan To Allow Bird Flu To Spread Through Poultry Could Prepare Us For A Pandemic

Experts caution that allowing the bird flu virus to "rip" across poultry farms across the United States, as urged by high-ranking federal officials, could accelerate the onset of a new pandemic.

The idea that farmers should allow the highly virulent H5N1 virus to

propagate through flocks rather than removing affected birds has been put forth by Health and Human Services Secretary Robert F. Kennedy Jr. and Agriculture Secretary Brooke Rollins. Farmers can "identify the birds, and preserve the birds, that are immune to it," Kennedy said Fox News on March 11 as a result of this.

The strategy would not only be ineffectual, but it might also raise the possibility that the virus would spread to humans and start a new pandemic, according to a viewpoint article written by a team of virologists, veterinarians, and health security specialists. The researchers' arguments were published in the journal *Science* on July 3.

The bird flu virus known as highly pathogenic avian influenza (HPAI), of which H5N1 is a variant, can kill and seriously infect poultry and other birds. More than 174 million birds in all 50 states have contracted the virus since it started to spread rapidly among U.S. birds in January 2022, according to the

Centres for Disease Control and Prevention (CDC). The virus has caused enormous farm culls and skyrocketed egg prices due to its spread among wild aquatic birds, commercial poultry, and private hobbyist flocks.

Although the virus usually spreads among wild birds and livestock, it has also been documented to infect over 48 mammal species, including seals, polar bears, foxes, skunks, and raccoons. According to current estimates, it has also spread to dairy cattle, resulting in outbreaks in over 1,000 herds across 17 U.S. states.

While the CDC reports that the present health risk to the general population is low, isolated human cases have been identified among the ongoing outbreak in animals, mainly among farm workers. This is due to the fact that although the disease can transmit between animals, humans are not currently able to contract it.

Maharashtra Is The First State In The

Country To Provide Agricultural Status To Livestock Production

The Maharashtra Cabinet has decided to provide animal farming agricultural status in a significant policy change that will provide farmers who raise dairy, poultry, goats and pigs with new advantages and significant relief.

According to the ruling, livestock-based operations will now be given the same treatment as agriculture, giving farmers access to solar subsidies, loan subsidies, local body taxes, and power under agricultural terms.

In place of the higher "agriculture-other" category, poultry farms (up to 25,000 broilers or 50,000 layers), hatcheries (up to 45,000 capacity), dairy units (up to 100 animals), goat/sheep farms (up to 500), and pig farms (up to 200) will now be eligible for agricultural electricity rates. They will also be able to

install solar pumps and solar equipment with subsidies comparable to those for the agriculture sector.

Similar to the Panjabrao Deshmukh Interest Subsidy Scheme, farmers who raise livestock would receive interest relief of up to 4% on loans for livestock agricultural projects on Kisan Credit Cards. Gramme Panchayats will tax livestock and poultry farms at agricultural rates in order to maintain parity and lessen the local tax load.

This action will increase farmers' economic security, provide jobs in rural areas, and support sustainable farming. Since about 75 lakh families involved in animal husbandry will directly profit from the decision's execution, it is anticipated that the industry in Maharashtra will undergo a significant revolution.

Namakkal Achieves A Historic Egg Export Milestone,



Dominating The US Market

which has managed to prevent bird flu epidemics despite competition from countries such as the US and



The renowned Egg Capital of Tamil Nadu, Namakkal, has made history by exporting one crore eggs to the US for the first time. This significant event is changing the narrative surrounding India's agricultural exports.

Namakkal produces around six crore eggs a day and sells about 50 lakh of them to markets abroad, including the United Arab Emirates, Bahrain, the Maldives, Oman, and numerous African countries. Its position as India's leading egg export hub is solidified by monthly exports that reach an astounding 15 crore eggs.

Eggs are transported in refrigerated containers, each containing 4.7 million eggs valued at around ₹30 lakh (\$35,000), according to Jahan R, secretary of the Egg and Poultry Products Exporters Association. Even though Andhra Pradesh produces the most eggs overall, Namakkal leads exports because of its shorter transit times—four days to the Middle East vs fourteen from Andhra.

The head of the Tamil Nadu Egg Poultry Farmers Marketing Society, Vangili Subramaniam, credited the region's international expansion to its decentralised farming system,

Turkey. Currently, only over 10% of Namakkal's 1,300 farms export, indicating a vast amount of unrealised potential.

He emphasised that competitiveness will be increased by reintroducing the central government's 7% transport aid subsidy, which had been cut to 1% in 2014. Additionally, he advocated for long-term trade agreements with nations that import eggs.

But there are obstacles for exporters. Given that Namakkal eggs normally weigh 55g, certification requirements, expensive infrastructure for biosecurity standards, and new grading criteria (such as Qatar's minimum 60g egg guideline) continue to be obstacles.

Philippines lowers Brazil Poultry Embargo To lower Costs And Increase Supply

The interim prohibition on the importation of poultry products from Brazil and six US states (Indiana, Maryland, Missouri, New



York, Ohio, and Pennsylvania) has been revoked by the Philippine Department of Agriculture.

It is anticipated that the action will lessen supply constraints and lower the nation's soaring chicken prices.

The World Organisation for Animal Health stated that no new instances of highly pathogenic avian influenza had been recorded in Brazil since June 18 or in the US states on the list since June 9, which led to the lifting of the prohibitions.

The restoration of Brazilian imports, one of the nation's main sources of chicken, will be a "big help" in relieving supply pressure, according to DA Assistant Secretary Arnel de Mesa. In only a few weeks, consumers may begin to see cheaper chicken costs because Brazilian goods arrive swiftly.

According to DA price monitoring, the retail price of whole chicken in Metro Manila, the largest market in the nation, ranged from USD 3.90/kg to USD 4.40/kg as of July.

According to Mr. de Mesa, import restrictions frequently result in lower supplies and higher costs. Despite limited local supply, lifting the limitations will boost available stock and aid in price stabilisation.

He went on to say that the DA is thinking of establishing a maximum recommended retail price for chicken in order to further control retail costs. By September 2025, this could be implemented.

Francisco Tiu Laurel Jr., the DA Secretary, emphasised that the lifting of the sanctions was supported by international norms and science. Strict veterinary examinations and adherence to food safety regulations will still be required for all imported goods.

This policy demonstrates the DA's dedication to ethical commerce and protecting the regional poultry sector, which is essential to both the economy and food security.

Reopening poultry imports from the US and Brazil would help stabilise prices and ensure affordable protein as people struggle with inflation.

Poland Receives €14 Million From The EU For Avian Flu Agricultural Losses



According to a recent news release from the European Commission, the Commission will give Poland €14 million to help compensate farmers in areas impacted by avian flu outbreaks after Member States voted in favour of the proposal. The

payments, which are funded by the agricultural reserve, are due to farmers by February 28, 2026.

Poland detected and reported 193 incidents of highly pathogenic avian influenza of genotype H5 ("avian flu") between August 9, 2021, and August 3, 2023.

Ducks, geese, turkeys, laying hens, and chickens were among the species impacted. Poland implemented all required veterinarian and animal health measures, including monitoring, control, and preventative measures. Zones for observation and protection were set up. In addition to losses from damaged and degraded eggs and meat, this resulted in a reduction in the production of hatching eggs, eggs for consumption, live animals, and chicken meat in the farms situated in those areas subject to mobility restrictions.

After careful consideration, the Commission agreed to reimburse 50% of Poland's expenses to assist

the affected farmers, totalling €14 059 607 from the agricultural reserve, in response to a formal request from Poland. This sum was determined using a fixed compensation amount for each animal and egg.

This funding will only be available to farms that are situated in those regulated zones and have been impacted by the control measures implemented in response to the 193 outbreaks indicated. State aid or insurance should not have been used to cover losses in order to prevent double funding with public funds. Co-financed payments from the agricultural reserve must be made by no later than February 28, 2026.

The implementing rule will be published in the EU Official Journal following the Commission's formal endorsement of the support package, and it is anticipated to go into effect at the start of August.

Poultry Farmers Lose Tk 20 Billion Over Six Months: BPA.

According to the Bangladesh Poultry Association (BPA), a steep decline in the price of chickens and eggs over the last six months has cost poultry farmers all throughout Bangladesh a significant amount of money, roughly Tk 20 billion.

According to them, almost 10,000 small and medium farms have closed during that time. The BPA provided this information during a press conference on Monday at the Dhaka Reporters Unity.

In order to help the struggling farmers and maintain poultry production, the BPA at the event called for the creation of an emergency fund of Tk 10 billion. The association also demanded the creation of a Poultry Development Board and explicit regulations on contract farming and corporate production.

BPA President Suman Hawlader spoke at the event and said that a



syndicate controls the chicken market. He asserted that they are free to alter pricing at any time.

According to him, the government attempts to step in when prices rise, but when they fall, small farmers suffer and the government does nothing. Although he acknowledged that consumers could be pleased with the current price reduction, he questioned whether this ease might eventually cause more serious issues. Small farmers' dreams, labour, and capital are being destroyed by the current state of affairs.

He claimed that although it costs Tk 150–160 to produce one kilogramme of grill chicken, producers are compelled to sell it for Tk 110–120. Sonali chicken is offered for only Tk 180–200 per kilogramme, even though it costs Tk 230–250 to make. However, farmers are selling each egg for Tk 6.0 to Tk 8.0, even though it costs at least Tk 10 to produce one.

Bangladesh produces around 40–45 million eggs per day in addition to 5,200 tonnes of broiler, Sonali, and layer hens. According to him, small farmers have lost Tk 20 billion over the past six months, while producing 30 million eggs and 3,000 tonnes of chicken daily. According to him, market intermediaries profit the most even while small farmers sell at low

prices, and consumers still pay high rates. With hundreds of farms closing every day, small poultry farmers may vanish if it continues.

Vice-President Bappi Kumar Dey, General Secretary Ilyas Khandaker, Organising Secretary Iqbal Hossain, Office Secretary Mezboul Haque Marufi, and Joint Secretary Kawsar Ahmed were among the other BPA leaders in attendance.

RSPCA Assured Members Can Now Access New RSPCA Chicken Welfare Standards



With a number of revisions intended to enhance the health and welfare of birds on farms, RSPCA Assured has published the most recent edition of the RSPCA's welfare guidelines for chickens. After the customary three-month notice period, the new rules will take effect on September 29, 2025.

Contingency preparations for housing: All producers must now develop a plan, including veterinary advice, for situations in which birds might have to be kept indoors, such as when government housing orders are in effect. This guarantees good welfare even in situations where birds are unable to enter the range. More stringent regulations on antibiotics: There has been a noticeable emphasis on using antibiotics responsibly. As part of their veterinarian health and welfare strategy, farms are also required to conduct an annual evaluation of antibiotic use.

Abattoir technology encouraged: The RSPCA is now heavily advocating the adoption of AI-driven video systems in slaughterhouses to enhance welfare oversight and real-time monitoring, even though it is not required. This is a component of an ongoing investigation on the potential of intelligent camera surveillance to identify problems early. Installation of a veranda is advised for free-range units: Although suggested, this is not currently a necessity.

Secretary Rollins Reveals New Strategy to Improve The Safety of Meat and Poultry

U.S. Secretary of Agriculture Brooke



L. Rollins unveiled a comprehensive plan to support USDA's efforts to combat foodborne illness at the opening of the U.S. Department of Agriculture's (USDA) new, updated Midwestern Food Safety Laboratory. In order to safeguard the country's food supply, this plan puts USDA's Food Safety and Inspection Service (FSIS), which is in charge of making sure meat, poultry, and egg products are healthy, safe, and appropriately labelled, in a better position. To guarantee the safety of the entire food supply chain, FSIS will keep collaborating closely with partners such as the Centres for Disease Control and Prevention and the U.S. Food and Drug Administration.

In order to detect a wider range of Listeria species and give industry faster results, USDA is continuously improving its Listeria testing methodology. These additional findings assist industry and FSIS in identifying possible sanitation issues and indicate the conditions under which Listeria monocytogenes might flourish in

facilities that produce ready-to-eat (RTE) goods. FSIS screened more than 23,000 samples for Listeria in 2025, which is more than 200 percent greater than in 2024.

FSIS is opening its new, updated Midwestern Laboratory in Normandy, Missouri, to support these expanded testing operations. During the first term of President Trump, FSIS worked with congressional leaders and other members of the Trump administration to obtain money for a modern, 70,000-square-foot laboratory to replace the present, antiquated one in St. Louis. This new facility will support efforts to streamline the FSIS laboratory system and be crucial in the analysis of verification samples for chemical residues and foodborne pathogens.

Additionally, FSIS is allocating its resources to conduct more thorough, in-person Food Safety Assessments (FSAs), giving RTE meat and poultry facilities priority. Compared to 2024, the agency

executed 440 FSAs in 2025, a 52 percent increase. Potential issues with food safety are proactively identified and addressed by these reviews.

In order to gather information on particular risk factors linked to Listeria monocytogenes at all RTE establishments, FSIS introduced a new weekly questionnaire for frontline inspectors this year. By gathering crucial information to spot emerging food safety issues, this new technology enables FSIS inspectors and their managers to respond quickly to safeguard customers. Over 840,000 fresh data points on these risk factors have been gathered thus far from about 53,000 weekly questionnaires.



To support this, FSIS keeps improving its guidelines and associated training for inspectors to assist them in identifying and elevating issues with a facility's food safety system. Inspectors can better identify when an institution has systemic issues that need to be brought to light and rectified by following new guidelines that help them see beyond individual infractions. More than 5,200 frontline inspection staff have received updated Listeria-specific training from the FDA since January. Inspectors will have a better grasp of the FSIS Listeria Rule's regulatory criteria and how to confirm that establishments have developed and put in place food safety systems that meet those standards thanks to this course.

SKUAST-K Launches Lactobacillus-Based Probiotic Poultry Feed For Countrywide Manufacturing

Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir today formally licensed its groundbreaking technology—a genetically modified *Lactobacillus plantarum* NC8 construct intended as a probiotic additive in poultry feed—to Kolkata-based Invati Creations Private Limited, marking a major advancement in animal biotechnology and agricultural innovation. Under the brand name "Salnil," the patented and inventive product will be marketed nationwide. Using video conferencing, the "Technology License Agreement Signing Ceremony" was held virtually. Prof. Nazir Ahmad Ganai, Vice-Chancellor, SKUAST-K; Dr. Jitendra Kumar, MD, BIRAC; and Mukesh Agarwal, CEO, Invati Creations Pvt Ltd, formally signed the commercialisation agreement digitally during the first-of-its-kind digital signing ceremony hosted by SKUAST-K.

The main guest at the event, SKUAST-K Vice-Chancellor Prof. Nazir Ahmad Ganai, stated that the institution is transferring a groundbreaking technology to an industry partner for

commercialisation, making today a tremendous day for SKUAST-K. He claimed that although the nation's universities and other R&D facilities create a lot of technology, very few of them are made available to the general people. Prof. Ganai expressed gratitude to DBT and BIRAC for their consistent funding and support of SKUAST-K's numerous creative projects. According to him, SKUAST-K is the most innovative of the nation's 75 SAUs, having registered 75 businesses and 85 patents in recent years.

The strategic significance of such technology transfers in promoting innovation and economic growth was previously emphasised by Dr. Vinita Jindal, DGM & Head of Intellectual Property and Technology Management at the Biotechnology Industry Research Assistance Council (BIRAC). Invati Creations Pvt Ltd's director and CEO, Mukesh Agarwal, presented his company's technological vision and revealed that the product would be marketed under the name "Salnil." He reaffirmed Invati Creations' unwavering dedication to using their knowledge of nanotechnology and bioscience to





guarantee the broad manufacturing and sale of this cutting-edge probiotic under its new name. The first 20-year contract lays the groundwork for a long-term collaboration that will transform the poultry feed sector.

In his remarks, SKUAST-K's Director of Research, Prof. Haroon R. Naik, emphasised the importance of this technology transfer for the food sector. In his speech, BIRAC's managing director, Dr. Jitendra Kumar, emphasised the organization's critical role in expediting the effect of academic research by bridging the gap between scientific discovery and industry application. A detailed description of the system was given by the primary innovator, Prof. Syed Mudasir Andrabi, Head of Animal Biotechnology at SKUAST-K. He described the rigorous seven to eight-year research and development process, highlighting the crucial role played by his PhD student, Dr. Junaid Nazir, in creating this novel Lactobacillus architecture. According to Prof. Andrabi, this

cutting-edge probiotic, which was created as a feed supplement, tackles important facets of chicken health with the goals of enhancing gut health, maximising nutrient absorption, and enhancing overall resilience in birds. For animal biotechnology, this commercialisation is a huge step forward. The Lactobacillus-based probiotic from SKUAST-K, which will soon be marketed as "Salnil," has the potential to revolutionise chicken production by promoting sustainable farming methods, producing healthier birds, and possibly lowering the need for antibiotics. This domestic invention is set to have a big influence on food safety and economic sustainability as an Indian patent has been obtained and international intellectual property rights are being sought.

Strategic Forecast Projects Poultry Market Growth to

Accelerate to \$532.3 Billion by 2029



The market for poultry has grown significantly in recent years. It is expected to rise at a compound annual growth rate (CAGR) of 6.8% from its 2024 size of \$384.95 billion to \$410.98 billion by 2025. Strong economic development in emerging nations, rising meat consumption, very low interest rates, improved public awareness of the health benefits, and a rise in disposable income are some of the reasons for this growth over the historical period.

It is projected that the poultry industry will develop significantly over the next several years, reaching a valuation of \$532.3 billion by 2029 at a compound annual growth rate (CAGR) of 6.7%. Numerous causes, including rising protein demand, pro-protein government policies, rapid urbanisation, and population growth, are responsible for the anticipated growth throughout this time. Technology breakthroughs, an increase in organic poultry production, the use of camera-assisted weighing systems, the adoption of artificial intelligence, increased investment, and strategic mergers and acquisitions are some of the noteworthy trends anticipated within this time frame.

In many developed and developing countries, a stable economic growth forecast supports the advancement of poultry production. The US-based financial institution the International Monetary Fund, for instance, predicted in April 2024 that the global economy will continue to grow at a rate of 3.2% in 2024 and 2025, following the same pattern as in 2023. It is expected that the market's expansion will be further fuelled by the recovery of commodity prices following a significant decline during the previous period.

It is anticipated that mature economies will grow steadily during the projected period. Furthermore, during the forecast period, emerging markets are anticipated to grow at a somewhat faster rate than developed markets. As a result, a strong economic expansion is anticipated to boost investments in the final poultry market, spurring the growth of poultry production over the forecast period.

To increase their yields, more and more businesses in the poultry processing sector are using 3D imaging technologies. To determine the ideal cutting position, these sophisticated devices use sensors and actuators to build a model of the poultry bird. After placing the bird beneath the imaging equipment, measurements and pictures are taken in order to ascertain the bird's geometry. The technology can determine how much meat and bone the bird contains by using near-infrared sensors. The system can make the best cuts based on the size and shape of each bird thanks to this visual analysis. The goal of this data-driven technique is to increase yield while lowering the cost per unit of processing poultry meat.

RSPCA Promises: Stricter Welfare Requirements Are In The Horizon



This autumn, RSPCA Assured in the UK will be enforcing more stringent welfare criteria for its members. The revised guidelines include a number of topics and will take effect on September 29. the necessity of having a veterinary-informed contingency plan for housing confinement in case free-range birds must be

contained (for example, during disease housing orders). Use of antibiotics responsibly: According to the new guidelines, which adopt the stance that "prevention is better than cure," antibiotics must only be used sparingly and responsibly; prophylactic use is now forbidden. To be included in the Veterinary Health and Welfare Plan, each farm must also conduct an annual review of antibiotic use on the farm.

Upgrades to CCTV and AI in slaughterhouses: The new guidelines also strongly advise companies to use new AI technologies to enhance the welfare of animals in slaughterhouses. In order to improve welfare supervision and identify problems in real time, the RSPCA is evaluating Intelligent Camera Surveillance for abattoirs. Installation advice for verandas: All free-range chicken units should have verandas installed, according to a new ibox. This will improve litter, promote range, and offer semi-outdoor cover.

Neil Scott, assistant director of certification for RSPCA Assured, commented on the modifications, saying: "Since the first RSPCA welfare criteria for hens were



released in 1996, our RSPCA Assured members have been assisting us in enhancing the wellbeing of chickens. We hope that these new criteria will enable RSPCA Assured members to continue reaching their higher welfare goals, as all of them desire the best for the animals under their care.

The assurance program has agreements with several supermarkets, and Iceland just announced that it will begin using RSPCA Assured barn eggs in 35 of its locations on July 3. After abandoning its pledge to cease selling eggs from caged hens by the end of 2025, Iceland has been under fire from animal rights organisations.

Stuart Lendrum, director of goods, process, and sustainability for Iceland, stated that the action was a component of the company's proposal to give a greater variety of welfare solutions at cost-effective pricing.

Thailand Faces Agricultural Trade Issues As The US Demands Zero Tariffs On Pig, Chicken, And Beef Imports

There is still no resolution to the ongoing trade talks between Thailand and the US over reciprocal tariffs. The Thai government is under tremendous pressure to act quickly after the US declared a 36% tariff on Thai goods that would take effect on August 1, 2025.

Thailand intends to lower tariffs on 90% of goods in order to open its markets to the United States, according to Deputy Prime Minister and Finance Minister Pichai Chunhavajira. As the deadline of August 1 draws near, the government has met with "Team Thailand" multiple times to make

recommendations for the United States.

Government sources claim that in an effort to rectify the trade imbalance that has continuously benefitted Thailand, the US is looking to open Thailand's markets to a variety of agricultural products, particularly pork, chicken, and beef.

Thailand's agriculture industry, meanwhile, is fiercely opposed. There are worries about the US's proposal to reduce import taxes on pigs, particularly offal sales. Thailand is concerned that permitting these cheaper imports may hurt its own economy and drive out many local pig breeders because US pork is produced at a significantly lower cost. If US pork is allowed to freely enter the market, the anticipated loss in market value might amount to 112.33 billion baht.

There are also health concerns because US pork frequently contains beta-agonists, which are growth-enhancing compounds that are prohibited in Thailand. These





substances have the potential to seriously harm the public's health. Given that it is already a major producer and exporter of chicken, Thailand has voiced reservations about extending the market to US poultry products. Thailand's export sector could be harmed by a flood of US chicken entering the local market if tariffs are lowered to zero.

Thailand presently imports beef from Australia and New Zealand through a Free Trade Agreement (FTA). Thailand would be open to opening the market for imports of US beef provided that it complies with the relevant legal frameworks and meets the requisite criteria and certifications.

Given that Thailand cannot compromise on a number of conditions, sources indicate that the talks with the US would probably take a lengthy time. Due to the significant legal reforms needed, it is deemed impossible to open the market fully to the US with 0% tariffs, as is the case with Vietnam's accord. In order to prevent harming domestic industries, the government maintains that any agreement must be carefully negotiated and in line with the interests of Thailand's agriculture industry.

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The Government Has Banned 18 Antibiotics, 18 Antivirals, And One Anti-Protozoan For Animal Treatment

New Delhi: In order to treat egg-laying birds, milch animals, bees, cattle, buffalo, sheep, goats, and pigs from which intestines are obtained, as well as at any point during the manufacturing and processing of animal casing in an



establishment, the government has banned the use of 18 antibiotics, 18 antivirals, and one anti-protozoan.

In separate notices, the ministry of commerce and industry declared that it was forbidden to use any antibacterial medicinal substance to boost output or encourage growth.

It stated that it is forbidden to treat honey bees, milch animals, egg-laying birds, cattle, goats, buffalo, sheep, and pigs from which intestines are obtained, or at any point during the establishment's production and processing of animal casing, or from which they are obtained, using any of the following antimicrobials or groups of antimicrobials and antimicrobial medicinal products.

The Government Restricts The Use Of Antibiotics In Dairy And Poultry To Combat Drug Resistance

To improve food safety and combat antimicrobial resistance, the Government of India modified the Export (Quality Control and Inspection) Act of 1963 to prohibit the use of particular antimicrobial medicinal items in the production

FSSAI Bans Use of Antibiotics in Animal Food Products



and processing of milk, milk products, eggs, and honey. The decision matches India's export standards with worldwide rules and attempts to prevent medication residues in animal-derived foods, which pose a health risk to consumers.

The revision, notified under Section 6 of the Act and based on consultation with the Export Inspection Council, adds two new paragraphs to the current order dated November 9, 2020. The first prohibits the use of any antimicrobial medical agent to stimulate growth or increase yield in milch animals. The second restricts the use of a number of antibiotics, antivirals, and antiprotozoals in the treatment of milch animals, as well as at any stage of milk production and processing.

High-priority antibiotics such as carbapenems, glycopeptides, and oxazolidinones are prohibited, as are antivirals such as favipiravir and molnupiravir, as well as the antiprotozoal nitazoxanide. These medications, many of which are designated as critically important for human medicine by the World Health Organisation, have been

related to the development of antimicrobial resistance (AMR) in livestock when used excessively.

The decision comes amid increased concern over medication residues in animal-derived foods, which can cause allergic reactions, contribute to AMR, and offer long-term health hazards, such as carcinogenic and mutagenic consequences.

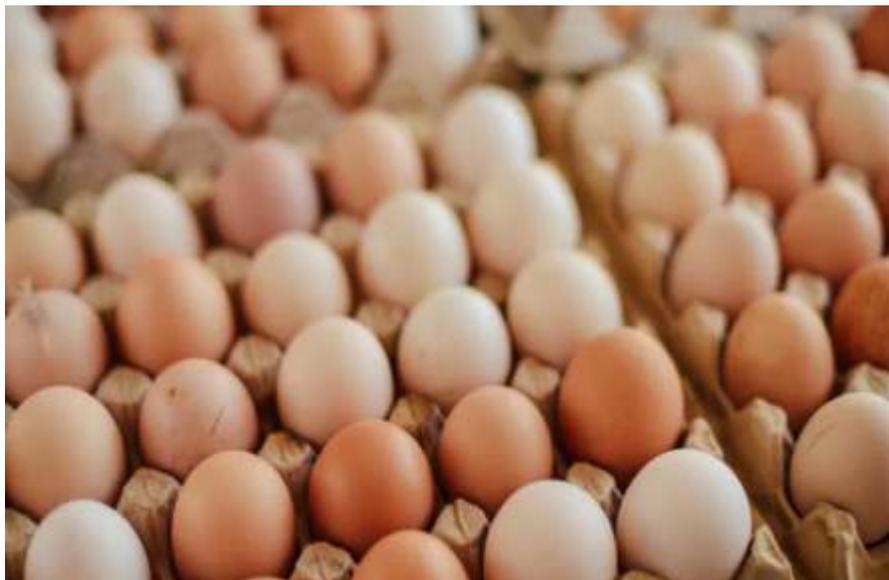
According to a Veterinary World research published by the National Institutes of Health, the widespread use of antimicrobials in veterinary practices is a major contributor to these dangers.

India, with a livestock population of over 1.3 billion, including poultry,

contributes for around 3% of worldwide antibiotic consumption. That percentage is expected to increase by 82% by 2030, according to FAOSTAT, the FAO Statistics Division, 2020.

The Poultry Business Is Set To Shrink As Prices For Eggs, Birds, And Day-Old Chicks Have Dropped

Due to the decline in the price of



eggs and grill birds, thousands of small farmers are suffering losses. Due to the decline in the price of day-old chicks, hatcheries are also losing money.

Recently, farmers in the northern area sold live grill chicken for Tk 110 per kilogramme and eggs for Tk 7.5 each. The cost of manufacture is far higher than these prices. The cost of a day-old broiler chick ranged from Tk 8 to Tk 14 during the final week of June. Hatcheries are also losing a lot of money.

Farmers are not interested in purchasing grill chicks due to the low cost of grill chicken. The price of grill chicks has decreased as a result. When the price of broilers rises, farmers will want to purchase chicks once more. Therefore, it is likely that the price of chicks will rebound following the price of broilers.

Poultry businesses that raise day-old chicks are currently losing hundreds of crores of taka. Poultry companies are suspected of forming a cartel (or "syndicate") while prices are high. But if a cartel were really in charge of both supply and prices, they would have cut back on output to keep prices from dropping that low. When there is a shortage, prices are high; when there is an excess of production, prices are low.

Given the losses they have sustained over the past two months, many farmers are unsure if they will be able to continue farming. A 38-year-old small farmer from Alimganj Centre Para in Poba, Rajshahi, Jannatul Ferdousi, told the author that while she has occasionally lost money due to disease outbreaks, the current cheap price of grill chicken is a nightmare. Due to their inability to recoup expenses, farmers are now heavily indebted.

USPOULTRY To Provide First-Of-Kind Sanitation Safety Certification Program For Poultry Industry

A unique Sanitation Safety for the Poultry business certification program for employees in all sectors of the poultry business is being made available to USPOULTRY members. The certification program's objective is to create hygienic and safe working conditions for the production of chicken products. The course, which covers sanitation safety and gives a third-party certification, was created and evaluated by a group of industry experts and Georgia Tech Safety, Health, and Environmental Services professionals.

Employees must complete a training course taught by a certified Sanitation Safety trainer in order to receive certification. The poultry company must request and

schedule the training, which can be held at the USPOULTRY headquarters or at a member's preferred site. Every participant will get training materials, take part in a training session, and finish the course with a written test. After completing the training, participants will receive a certificate of completion.

There are two types of Sanitation Safety certifications: Certified Poultry Sanitation Worker and Train the Trainer.

The Certified Poultry Sanitation Worker credential can be customised to fit the unique requirements of a business. If preferred, the course's training modules can be taught separately or in tandem. After the three years that the certification is valid, people must retake the course.

The Train the Trainer accreditation equips and authorises trainers to teach management, maintenance staff, poultry sanitation workers, and other industry experts about poultry sanitation. The trainers are given instructions on how to set up a class and instruct poultry workers on proper sanitary procedures.





EGG

Daily and Monthly

Prices of July 2025

Name Of Zone / Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
NECC SUGGESTED EGG PRICES																																
Ahmedabad	595	600	600	600	600	600	600	600	600	580	560	560	530	500	500	500	-	500	500	500	500	-	480	480	460	460	460	-	460	465	470	530.71
Ajmer	550	550	550	515	515	520	525	525	525	500	490	480	470	465	465	460	460	460	460	440	440	-	420	420	405	407	407	415	-	435	473.59	
Barwala	521	521	501	496	496	478	475	475	475	475	463	460	460	460	460	460	460	460	442	438	-	420	418	418	403	403	405	-	422	431	457.10	
Bengaluru (CC)	620	620	620	620	620	620	620	620	620	600	600	580	580	580	580	580	580	580	580	580	560	560	545	525	525	525	525	495	465	465	569.52	
Brahmapur (OD)	585	585	570	560	550	550	540	540	530	530	530	520	505	510	510	510	515	515	517	519	519	500	500	490	490	470	460	455	455	475	514.84	
Chennai (CC)	640	640	640	640	640	640	640	640	640	620	610	590	590	590	590	590	570	570	570	550	550	550	530	510	510	510	490	470	470	490	576.45	
Chittoor	633	633	633	633	633	633	633	633	633	613	603	583	583	583	583	583	563	563	563	543	543	543	523	503	503	503	483	463	-	-	576.10	
Delhi (CC)	540	540	540	540	540	520	520	520	505	505	505	495	485	480	480	480	480	480	480	480	460	452	452	438	438	423	423	425	433	445	483.35	
E.Godavari	570	570	570	570	535	535	535	535	515	515	515	515	490	493	496	496	496	500	500	503	505	505	505	475	455	455	455	455	445	455	503.68	
Hospet	570	570	570	570	570	570	570	570	570	550	550	530	530	530	530	530	530	530	530	510	510	495	475	475	475	475	445	415	415	415	519.52	
Hyderabad	570	575	575	575	560	560	560	560	540	510	510	510	510	510	510	510	510	510	510	510	480	480	450	425	425	425	425	400	405	410	500.65	
Jabalpur	595	601	601	591	580	580	570	560	550	540	530	530	530	520	510	510	500	500	500	500	490	480	465	435	421	421	421	421	425	435	510.06	
Kolkata (WB)	640	640	610	600	600	600	590	590	580	580	580	560	560	560	565	565	575	575	575	580	580	545	545	545	545	520	520	510	510	512	530	567.32
Ludhiana	521	521	521	521	495	495	495	474	474	474	474	474	461	461	461	461	461	461	461	461	438	432	432	418	418	402	402	407	410	426	460.42	
Mumbai (CC)	630	635	635	635	620	620	620	610	600	585	570	570	570	560	560	560	560	560	560	560	540	-	510	495	485	475	-	455	465	470	561.21	
Mysuru	625	625	625	625	625	625	625	625	625	610	610	590	590	590	590	590	590	590	590	590	565	565	545	525	525	525	525	490	460	460	470	574.52
Namakkal	575	575	575	575	575	575	575	575	575	555	555	535	535	535	535	535	535	535	535	515	515	500	480	480	480	480	450	420	420	425	524.68	
Pune	630	635	635	635	615	615	615	610	600	585	570	570	570	560	560	560	560	560	560	560	545	530	515	495	485	465	455	455	455	460	555.65	
Raipur	578	585	585	580	570	555	555	555	535	525	515	515	505	500	490	490	490	490	490	490	480	470	450	440	425	425	425	425	430	437	499.84	
Surat	610	615	620	625	625	625	615	610	600	585	570	520	540	520	520	520	-	520	520	520	520	-	500	480	460	460	460	-	460	460	540.89	
Vijayawada	590	590	590	590	570	570	570	570	550	540	540	525	515	515	515	515	515	520	520	520	520	510	505	475	475	475	475	475	475	475	524.68	
Vizag	585	585	585	585	560	560	560	560	540	540	540	540	540	540	540	540	540	540	540	540	540	520	485	465	465	465	465	450	450	455	527.74	
W.Godavari	570	570	570	570	535	535	535	535	515	515	515	515	490	493	496	496	496	500	500	503	505	505	505	475	455	455	455	455	445	450	503.68	
Warangal	572	577	577	577	562	562	562	562	542	512	512	512	512	512	512	512	512	512	512	512	482	482	452	427	427	427	427	402	407	412	502.65	
Prevailing Prices																																
Allahabad (CC)	595	595	595	581	576	571	571	562	548	538	533	529	524	519	514	514	514	514	510	505	500	495	490	486	486	481	476	476	462	467	476	522.68
Bhopal	590	600	600	600	590	590	570	560	550	540	530	530	520	510	510	510	510	500	490	490	460	460	460	460	450	430	430	430	430	440	508.71	
Indore (CC)	580	580	480	560	550	550	555	555	555	540	520	510	500	495	495	485	485	485	485	475	475	465	465	445	445	430	430	430	435	-	435	496.50
Kanpur (CC)	567	567	567	567	567	567	567	548	533	533	524	500	500	486	486	486	486	486	486	486	471	471	471	471	471	471	471	471	476	476	481	507.26
Luknow (CC)	595	595	595	595	595	595	595	583	567	533	548	545	538	524	517	517	517	567	567	517	517	500	500	490	490	490	490	490	483	483	500	536.71
Muzaffarpur (CC)	585	585	585	565	560	560	540	540	540	540	540	530	530	530	530	530	530	530	530	-	510	500	500	485	485	470	465	465	470	480	-	524.48
Nagpur	605	610	615	615	595	580	570	570	570	550	550	540	535	535	530	520	520	520	510	510	510	510	490	490	450	450	430	430	430	435	525.32	
Patna	585	585	585	565	560	560	540	540	540	540	540	530	530	530	530	530	530	530	530	-	510	500	500	485	485	470	465	465	470	480	-	524.48
Ranchi (CC)	590	590	590	590	590	590	580	571	562	548	548	548	543	543	524	524	524	524	534	524	514	514	505	500	500	500	500	490	490	490	490	536.45
Varanasi (CC)	567	567	567	560	560	560	560	550	540	533	524	524	517	510	500	500	500	500	500	500	483	483	483	483	473	467	467	467	460	473	476	510.35

Editorial Calendar 2025

Publishing Month: January Article Deadline : 28th, Dec. 2024 Advertising Deadline : 30th, Dec. 2024 Focus : Opportunities and Challenges	Publishing Month: February Article Deadline : 28th, Jan. 2025 Advertising Deadline : 30th, Jan. 2025 Focus : Budget	Publishing Month: March Article Deadline : 26th, Feb. 2025 Advertising Deadline : 28th, Feb. 2025 Focus : Disease Prevention	Publishing Month: April Article Deadline : 28th, March 2025 Advertising Deadline : 30th, March 2025 Focus : Summer Stress Management
Publishing Month: May Article Deadline : 28th, April 2025 Advertising Deadline : 30th, April 2025 Focus : Cold Chain	Publishing Month: June Article Deadline : 28th, May 2025 Advertising Deadline : 30th, May 2025 Focus : Nutrition	Publishing Month: July Article Deadline : 28th, June 2025 Advertising Deadline : 30th, June 2025 Focus : Biosecurity	Publishing Month: August Article Deadline : 28th, July 2025 Advertising Deadline : 30th, July 2025 Focus : Sustainability
Publishing Month: September Article Deadline : 28th, August 2025 Advertising Deadline : 30th, August 2025 Focus : Egg Production & Processing	Publishing Month: October Article Deadline : 28th, September 2025 Advertising Deadline : 30th, September 2025 Focus : Processing & Packaging	Publishing Month: November Article Deadline : 28th, October 2025 Advertising Deadline : 30th, October 2025 Focus : Winter Stress	Publishing Month: December Article Deadline : 28th, November 2025 Advertising Deadline : 30th, November 2025 Focus : Food Safety

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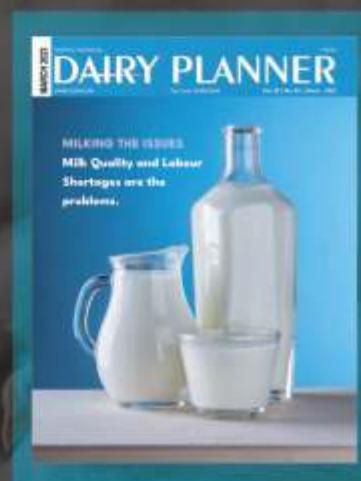
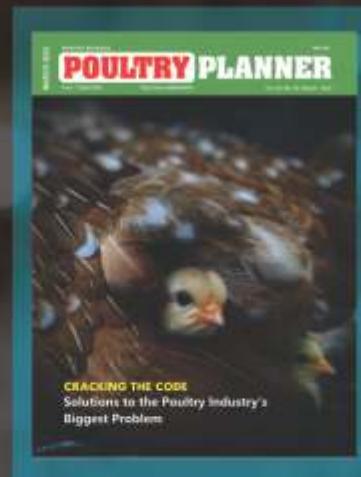
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