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# From the Editor's Desk

## The Vitality of Maintaining the Cold Chain in the Poultry Industry



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In the labyrinth of industries that constitute our global economy, few are as crucial and interconnected as the poultry industry. From farm to fork, each link in the supply chain plays a pivotal role in ensuring that consumers receive safe, nutritious, and high-quality poultry products. Among the myriad challenges faced by this industry, one stands out prominently: the maintenance of the cold chain.

The cold chain, a temperature-controlled supply chain, is the lifeline of the poultry industry. It encompasses the preservation of perishable products from production facilities to distribution centers and ultimately to consumers' tables. The significance of preserving optimal temperatures throughout this journey cannot be overstated, as deviations can lead to a cascade of detrimental effects.

First and foremost, maintaining the cold chain is paramount for food safety. Poultry products are highly perishable and prone to bacterial growth, particularly at temperatures above 40°F (4°C). Without proper refrigeration, pathogens such as Salmonella and Campylobacter can proliferate, posing severe health risks to consumers. Inadequate temperature control not only compromises food safety but also undermines consumer trust in the industry as a whole.

Beyond safety concerns, the integrity of the cold chain directly impacts the quality and freshness of poultry products. Fluctuations in temperature can accelerate spoilage, leading to undesirable changes in texture, flavor, and nutritional value. For consumers accustomed to premium-quality poultry, any deviation from freshness standards can result in dissatisfaction and loss of market share for producers.

Furthermore, maintaining the cold chain is essential for economic sustainability within the poultry industry. Temperature abuse during transportation and storage can result in significant financial losses due to product spoilage and waste. Moreover, disruptions in the cold chain can disrupt supply chains, leading to delays in product availability and increased costs for both producers and consumers.

In light of these challenges, stakeholders across the poultry industry must prioritize investments in cold chain infrastructure, technology, and training. This entails equipping production facilities, distribution centers, and transportation fleets with state-of-the-art refrigeration systems and temperature monitoring devices. Additionally, comprehensive training programs should be implemented to educate personnel on best practices for cold chain management and compliance with food safety regulations.

Government agencies also have a crucial role to play in supporting the maintenance of the cold chain. Regulatory frameworks must be robustly enforced to ensure adherence to temperature standards and hygiene protocols throughout the supply chain. Furthermore, policymakers should incentivize investments in cold chain infrastructure through grants, subsidies, and tax incentives, recognizing the vital role it plays in safeguarding public health and fostering economic growth.

In conclusion, the maintenance of the cold chain is not merely a logistical challenge but a fundamental prerequisite for the viability and sustainability of the poultry industry. By safeguarding food safety, preserving product quality, and enhancing economic efficiency, a robust cold chain infrastructure serves as the cornerstone of a resilient and thriving poultry sector. As consumers, producers, regulators, and policymakers, we must collectively prioritize and invest in the cold chain to ensure a safe, reliable, and sustainable supply of poultry products for generations to come.

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<b>H</b>	<b>Himalaya Wellness Company</b>	<b>07</b>
	<b>Huvepharma</b>	<b>15</b>
<b>I</b>	<b>Indian Herbs</b>	<b>09</b>
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<b>T</b>	<b>The Poultry Expo</b>	<b>04</b>
	<b>The Poultry Expo</b>	<b>Back Tittle</b>
<b>U</b>	<b>Uttara Impex Pvt. Ltd.</b>	<b>17</b>
	<b>Uttara Impex Pvt. Ltd.</b>	<b>31</b>
<b>V</b>	<b>Vaksindo Animal Health Pvt. Ltd.</b>	<b>11</b>
	<b>Venky's</b>	<b>Back Inside</b>
	<b>Ventri Biologicals</b>	<b>29</b>
<b>Z</b>	<b>Zenex</b>	<b>54</b>
	<b>Zeus</b>	<b>27</b>

## Features

- 06** Editorial
- 08** Advertisement Index
- 10** Content

## Press Release

- 26** NOVUS announces Rajeev Murthy as senior director & managing director of Asia beginning this month  

- 28** Dr. Eckel Enlarges Management Board  

- 30** Annual Review Meeting of AICRP on Poultry Breeding and Poultry Seed Project
- 32** GLAMAC Conducts Annual Conference at Darjeeling: A Journey of Inspiration and Innovation  

- 34** Venkateshwara B V Bio-Corp Private Limited organised Technical Seminar on "Layer Management & Nutrition with Eggxtra 5% Composite Premix" in Bangladesh  

- 36** 2024 Alltech Agri-Food Outlook Shares Global Feed Production Survey Data and Influential Trends in Agriculture  






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# Article

## 12 Significance of The Cold Chain for Meat Products

Vinod Kumar Palsaniya and Karishma Choudhary

## 14 Understanding the key role of NSPases in early broiler nutrition the early

Natalia Soares, Global Product Manager Enzymes, Huvepharma



## 16 माइकोटाक्सिकोसिस :- मुर्गी पालन उद्योग के लिए एक चिंतन का विषय

हिमानी रवि, अंकिता अवस्थी, प्रसेनजित धर, मोनिका भारद्वाज, सुभाष वर्मा, राजेश चहोता, और मनदीप शर्मा

## 20 Ensuring Poultry Safety: The Critical Role of Cold Chain Management

## 22 Combating Protein Deficiency: Poultry Protein's Vital Role in India's Nutrition Landscape



# Departments

42 News

56 Subscription Form

56 Editorial Calendar

57 Egg Prices





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# Significance of The Cold Chain for Meat Products



**Vinod Kumar Palsaniya and  
Karishma Choudhary**

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## Introduction

The term "cold chain" refers to a collection of guidelines and practices that guarantee the methodical synchronization of actions to maintain the proper temperature of items during storage and transportation. Maintaining the integrity and quality of items, such as pharmaceuticals or perishables, from manufacturing to consumption is the aim of a cold chain. An uninterrupted sequence of refrigerated production, storage, and distribution activities, along with related logistics and equipment, is known as an unbroken cold chain. This sequence maintains a desired low-temperature interval to preserve the safety and quality of perishable or sensitive products, like foods and medicines.

## The requirement of temperature for storage

Raw meat and meat products should be stored at temperatures that do not pose a health risk since they may encourage the growth of pathogenic germs and/or spoiling bacteria. Throughout the meat distribution chain, the cold chain shouldn't be broken. Furthermore, the temperature requirements for different items may vary- Vegetables, for example, require a temperature of 55°F, meat should be preserved at 28°F, dairy goods at 34°F, and ice cream at -10°F.

Microorganisms are killed by extreme heat (cooking, for example), but they are not killed by cold. Because of this, from the time the product is delivered to the consumer until it leaves the slaughterhouse, the cold chain needs to be kept intact. We also

need to factor in good hygiene. Both will make it feasible to guarantee food safety and preserve its organoleptic properties.

## Importance of cold chain in poultry

In the modern poultry industry, maintaining an efficient cold chain is crucial for preserving the quality and safety of broiler products. The cold chain encompasses the entire process of handling, storing, and transporting perishable goods at controlled temperatures, ensuring they remain fresh and free from contamination. This paper explores the impact of the cold chain on broiler production and discusses effective management strategies to optimize its performance.

## Impact of Cold Chain on Broiler Quality

- 1. Preservation of Freshness:** The cold chain helps to inhibit bacterial growth and enzymatic reactions, extending the shelf life of broiler products and preserving their freshness.
- 2. Safety Assurance:** Proper refrigeration minimizes the risk of pathogenic bacteria such as Salmonella and Campylobacter proliferating in broiler meat, reducing the likelihood of foodborne illnesses.
- 3. Maintenance of Nutritional Quality:** Cold storage prevents nutrient degradation in broiler meat, ensuring that consumers receive products with optimal nutritional value.
- 4. Marketability:** Broiler products that are maintained within the cold chain exhibit better visual appeal, texture, and taste,

enhancing their marketability and consumer acceptance.

## Challenges in Cold Chain Management

- 1. Temperature Fluctuations:** Variations in storage and transportation temperatures can compromise the integrity of the cold chain, leading to product spoilage and quality deterioration.
- 2. Equipment Malfunctions:** Mechanical failures in refrigeration units or improper calibration of temperature monitoring devices pose risks to the cold chain, necessitating regular maintenance and quality checks.
- 3. Logistical Issues:** Inadequate infrastructure, delays in transit, and improper handling practices contribute to disruptions in the cold chain, affecting the timely delivery of broiler products to markets.
- 4. Cost Considerations:** Maintaining a robust cold chain incurs significant operational costs, including energy consumption, maintenance expenses, and investments in refrigeration technology.
- 5. Cross-contamination:** Contaminating one another takes place on the product's surface throughout the evisceration, slaughter, and slaughter processes. It happens when hands, clothes, equipment, tools, and other objects come into touch with it.
- 6. Rancidity in meat:** Meat provides an ideal environment for microorganisms to break down fatty acids by oxidative changes, which produces peroxides with an off-putting taste and smell.

## Management Strategies for Cold Chain Optimization

- 1. Temperature Monitoring and Control:** Implementing

automated monitoring systems and conducting regular temperature checks at critical points along the cold chain ensure compliance with recommended storage conditions.

- 2. Training and Education:** Providing comprehensive training programs for personnel involved in cold chain management enhances their understanding of best practices and fosters adherence to standard operating procedures.
- 3. Infrastructure Investment:** Upgrading cold storage facilities, investing in reliable refrigeration equipment, and establishing backup systems mitigate the risk of cold chain disruptions and maintain product integrity.
- 4. Collaborative Partnerships:** Strengthening partnerships with suppliers, logistics providers, and regulatory agencies fosters transparency and accountability across the cold chain, facilitating effective communication and problem-solving.
- 5. Quality Assurance Protocols:** Implementing robust quality control measures, such as Hazard Analysis and Critical Control Points (HACCP), ensures compliance with food safety standards and enhances consumer confidence in broiler products.

## Conclusion

The cold chain plays a pivotal role in preserving the quality, safety, and marketability of broiler products. By addressing the challenges associated with cold chain management and implementing proactive strategies for optimization, stakeholders in the poultry industry can uphold the integrity of the cold chain and meet the evolving demands of consumers for high-quality, safe food products.

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# Understanding the key role of NSPases in early broiler nutrition The early

Natalia Soares, Global Product Manager Enzymes, Huvepharma

The early nutrition of broilers plays a key role in their lifetime productivity as in this intensive growth period the gastrointestinal tract (GIT) is under development. Alongside efficient nutrient utilisation, a healthy gut will support a robust immune system. It is widely accepted that maintenance or improvement of gut health is essential for optimum growth, better feed efficiency and overall health.

As the bird shifts from a metabolism based on lipid-rich yolk to a solid carbohydrate and protein based diet at hatch, the diet has a crucial influence on the subsequent growth and development of broiler chicks considering that the GIT of newly hatched birds will be functionally immature. Research has already demonstrated a strong positive correlation between early life weight and body weight at the end of the production cycle.

Improved performance has been reported in broilers by feeding pre-starter diets containing carbohydrates and fat during the first hours of life.

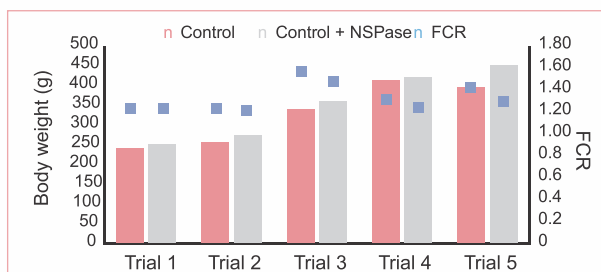
Additionally, starter diets are prepared with more focus on digestible nutrients than the total requirements and it can precondition the bird to later digest more complex substrates once the enzymatic system in the GIT becomes mature. Since highly digestible alternative substrates tend to be more expensive, the use of exogenous enzymes can be a tool to improve productivity.

Exogenous enzymes, namely non- starch polysaccharide degrading enzymes (NSPases), are nowadays an essential additive in the diet of high performing birds, being fed throughout the life cycle.

Table 1. Performance improvement expressed as % body weight improvement over control and % of FCR improvement over control in five different broiler performance trials.

Trial	Improvement over control at the end of the trial (%)	
	Body weight	FCR
1	3	2
2	3	3
3	4	1
4	5	3
5	3	2

Fig. 1. Body weight and FCR at the end of the starter phase in five different broiler performance trials. End of starter phase Trials 1-3 at 10 days and Trials 4-6 at 14 days.



## The role of NSP degrading enzymes in early development stages of broilers

To evaluate the effect of an NSP degrading enzymatic complex, Hostazym X, on the early life stage of broilers growth, a set of five equivalent zootechnical performance trials was pooled from recent Huvepharma research. The results were analysed for the correlation between starter phase performance and all life cycle performance. A high nutrient dense control diet was compared with the same diet supplemented with Hostazym X.

All trials were set as 42 day grow- out experiments using wheat, maize, soybean meal based diets for the starter phase and wheat, maize, soybean meal and rapeseed meal for the grower and finisher phases.

The trials compared two treatments, a control diet fed group and a control plus enzymatic complex (at 1500 EPU/kg) fed group. Standard performance indicators were measured.

Fig. 1 summarises the performance results at the end of the starter diet feeding phase of all trials. All trials showed results for body weight and FCR with significant differences (at  $p < 0.05$  or  $0.05 \leq p \leq 0.1$ ).

The added value and efficacy of the enzymatic complex can be clearly seen at the end of the starter phase where broilers show a significant positive performance response averaging plus 23g body weight and six FCR points less.

Following the overall performance results (full life cycle) the difference amongst treatments is up to 5% improvement in final body weight and 3% in FCR, demonstrating that a better start reflects a better/more efficient end (Table 1).

### Conclusion

NSPases, namely enzymatic complex Hostazym X, play a key role in the nutrition of high performing young birds providing optimal performance results. They help the bird to cope with nutritional challenge and stress by getting the most out of the diet for growth metabolism. This supports an efficient use of nutrients while the GIT and the endogenous enzymatic systems are still under development.

To know more, please contact Huvepharma technical team

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चौधरी सरवन कुमार हिमाचल प्रदेश कृषि विश्वविद्यालय, पालमपुर, हिमाचल प्रदेश

## परिचय

दुनिया में मुर्गी पालन एक मात्र ऐसा उद्योग है जो दुगुनी तेजी से विकसित हो रहा है। इसके उत्पादकता को बढ़ाने के लिए उच्च गुणवत्ता वाली मुर्गियों की आवश्यकता होती है और उनकी वृद्धि के लिए बहुतायत में अच्छा फीड होना अनिवार्य है। इसके साथ-साथ मुर्गियों में होने वाली विभिन्न बिमारियों और उनके कारण की भी जानकारी होना अति आवश्यक है। फीड खराब होने के कारण भिन्न तरह की बीमारियां उत्पन्न हो सकती हैं। फीड खराब होने के कई कारण हो सकते हैं। उनमें से एक महत्वपूर्ण कारण है माइकोटॉक्सिन का उत्पादन। यह एक प्रकार का जहरीला पदार्थ है जो एक फफूंदी के फीड या अनाज में उत्पन्न होने से बनता है। यह रोग कुक्कुट प्रजातियों के स्वास्थ्य और उत्पादकता को महत्वपूर्ण रूप से प्रभावित करता है। यह बीमारी विश्व स्तर पर मुर्गी व्यवसाय के लिए निरंतर खतरा बनी हुई है। मुर्गी प्लकों के बीच मड्कोटोक्सिकोसिस के प्रसार के बारे में जागरूकता बहुत कम है। रोग के विश्लेषण करने के लिए उपलब्ध आधुनिक तकनीकों का भी अभाव है जिससे इस रोग का समय पर पता लगाना कठिन हो जाता है। इस लेख में माइकोटॉक्सिकोसिस से होने वाले नुकसान और उनके रोकथाम और नियंत्रण के उपप की चर्चा की गई है।

**इस बीमारी के क्या कारण होते हैं**

इस बीमारी को मड्कोटोक्सिकोसिस

के नाम से जाना जाता है। जैसे तो भिन्न प्रकार की फफूंदी विभिन्न प्रकार की माइकोटॉक्सिन का उत्पादन करते हैं

३ प्रमुख फफूंदी और उनसे उत्पन्न होने वाले माइकोटॉक्सिन कुछ इस प्रकार हैं :-

- १) अस्पेर्जिलस – अफ्लाटॉक्सिन (बी 1, बी 2, जी 1, जी 2, एम 1, एम 2)
- २) फ्युसेरियम – जिरेलेनोन और ट्रिकोथेकेन (टी -2 विष, एचटी -2 विष)
- ३) पेनिसिलियम

यह रोग तब उत्पन्न होता है जब फीड को नमी वाली जगहों पर रखा जाता है जिसके कारण उसमें फफूंदी पैदा हो जाती है और माइकोटॉक्सिन का उत्पादन करती है जो की छोटी मात्रा में फीड के माध्यम से लम्बे समय तक खिलाया जाता है। शरीर में प्रवेश करने के कुछ समय बाद ही यह महत्वपूर्ण अंगों के काम करने की प्रतिक्रिया को प्रभावित करता है।

नमी और अमोनिया भरपूर होने के कारण फफूंदी उत्पन्न होती है और घातक माइकोटॉक्सिन का उत्पादन करती है।

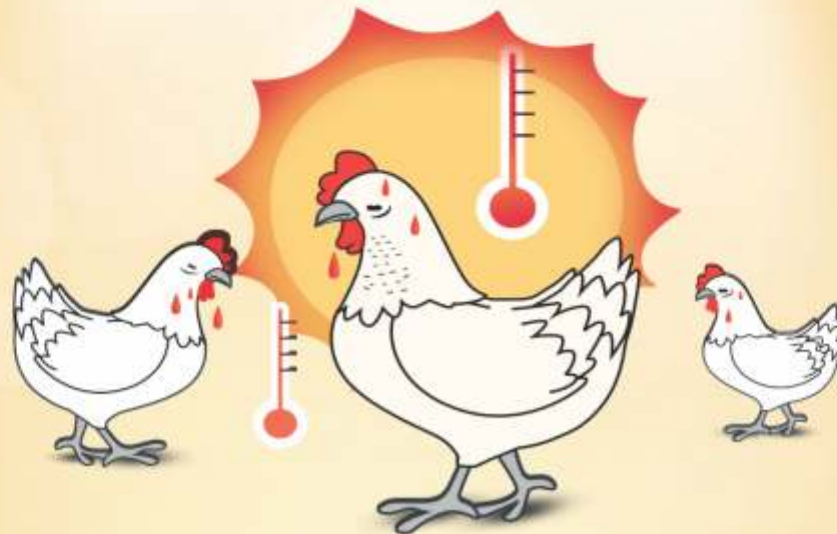
**कुछ अन्य कारण भी इस बीमारी की गंभीरता को बढ़ा सकती है :-**

- पक्षी के अंड्रूणी स्वास्थ्य और पोषण की स्थिति।
- ज्यादा उम्र वाले पक्षी जल्दी बीमारी से ग्रसित होते हैं।



# UT-Betaine

For Perfect Osmoregulation and Methyl Donor for Better Performance of Birds



Composition

**Betaine HCL**  
**98%**

## Benefits

Betaine act as osmolyte to prevent cell damage, protecting them from osmotic stress & dehydration by maintaining their water & ion balance. Reducing the negative effects of heat stress

As methyl donors, betaine sparing Methionine & Choline in birds diet to reduce feed cost

Increased absorption of nutrients & maintain gut integrity

Improved litter moisture level

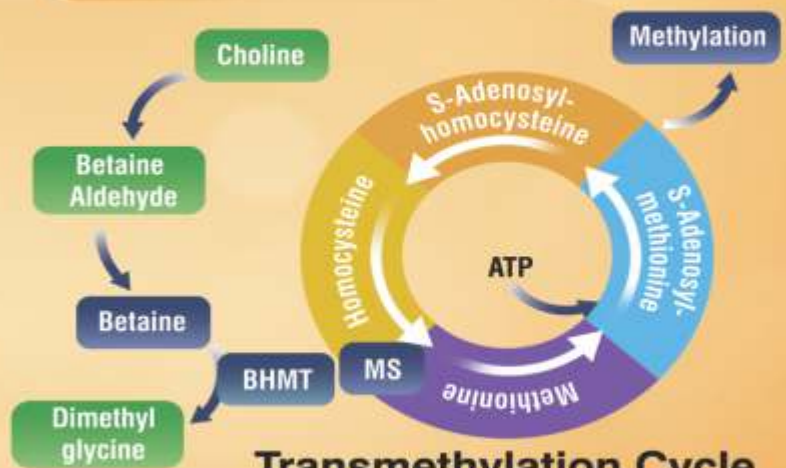
Improved resistance to coccidiosis

Improves carcass quality

## Recommended Inclusion Level (Kg/MT of Feed)

Broilers - 0.5-1 | Layers - 0.2-0.5 | Breeders - 0.5-1.2

Presentation:  
25 kg bag



- दूषित फीड के सेवन की अवधि। लम्बे समय तक इन विषाक्त

### विभिन्न माइकोटॉक्सिकोसिस के नैदानिक लक्षण

- फीड की कटाई से लेकर उसके भंडारण पर ध्यान देना चाहिए।

#### अफ्लाटॉक्सिन

- शरीर का वजन कम होना
- भूख में कमी
- तंत्रिका तंत्र में विकार
- पैरों में कमजोरी या शिथिल पंख होना
- खून के जमने में परेशानी

#### ओकराटॉक्सिन

- गुर्दे में खराबी
- पानी पीने में कमी
- अंडे के छिलके की खराब गुणवत्ता और उनका कमजोर पड़ना
- फीड का सेवन कम करना

#### ट्राइकोथिसेन्स

- मौखिक और त्वचीय घाव
- अंडे का वजन कम होना
- उपज में कमी

#### प्यूमोनिसिन

- शरीर का वजन कम होना
- मृत्यु दर में अचानक वृद्धि

पदार्थों की संपर्क में रहने से मुर्गियां ज्यादा ग्रसित होती हैं।

- फीड में भिन्न प्रकार के माइकोटॉक्सिन का होना।
- किसी अन्य बीमारी के कारण प्रतिरक्षा क्षमता में कमी आना।

**प्रभाव:— इस रोग से मुर्गियों की अवस्था पर क्या प्रभाव पड़ता है**

- खाने-पीने की कमी के कारण वजन कम हो सकता है जिससे मुर्गियों की मृत्यु होना निश्चित है।
- शरीर में प्रतिरक्षा में भी कमी हो सकती है जिसके परिणाम स्वरूप अन्य बीमारियों का आगमन हो सकता है।
- मुँह और जीभ की सतह पर छाले दिखाई देते हैं
- यह बीमारी मुख्य रूप से जिगर को प्रभावित करती है और उसके पश्चात गुर्दे की भी समस्याएं भी उत्पन्न हो सकती है।
- शरीर में कमजोरी और अंडे की उत्पादकता में भी घटौतरी हो सकती है।

#### आर्थिक नुकसान होने का एक मुख्य कारण

इस रोग से आर्थिक नुकसान होता है और वह कुछ इस प्रकार हैं:—

- अंडा उत्पादन में कमी आना।
- फीड रूपांतरण में कमी आना जिससे वजन में प्रभाव पड़ता है।
- रुग्णता और मृत्यु दर में आकस्मिक वृद्धि।
- अंडे की छिलके नाजुक होने लगते हैं और जल्दी टूट जाते हैं।
- प्रजनन क्षमता में कमी।
- रोगों के प्रति संवेदनशीलता में वृद्धि।

#### इस बीमारी को कैसे नियंत्रित किया जाए

- माइकोटॉक्सिन का पूर्ण उन्मूलन असंभव है इसलिए इसको नियंत्रित करना ही एक मात्र उपाय है।
- सबसे पहले तो फीड की उत्पादि के तरीके पर गौर करना चाहिए।

- भंडारण को हवादार बनाए ताकि फीड में नमी न होने पाए।
- मुर्गियों को फीड भी लेबोरेटरी में पूरी जाँच पड़ताल के बाद ही खिलाना चाहिए और जेहरीले फीड को तुरंत की हटा दे।
- अगर फीड गीला है तो पूर्ण रूप से सूखा कर ही मुर्गियों को खिलाये।
- अगर कोई पक्षी बीमार है तो तुरंत ही इलाज कराएं और बाकि पक्षियों से उसे अलग कर दे।

#### उपचार की विधियां

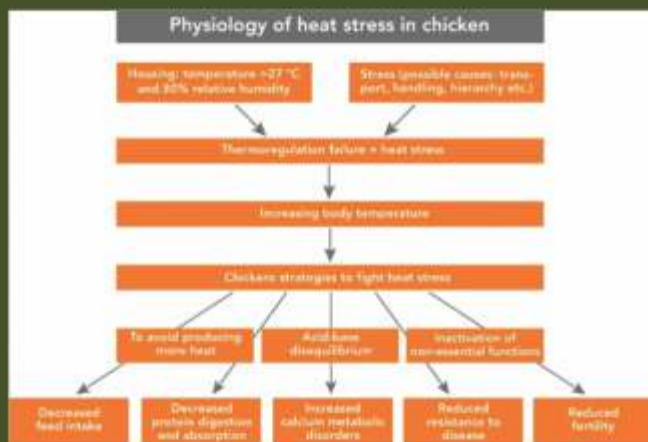
- लक्षण के अनुसार तुरंत ही पशुचिकित्सक को दिखाएं और इलाज कराएं।
- प्रतिरक्षा की कमी को पूरा करने के लिए फीड में लिवर एक्सट्रेक्ट और मल्टीविटामिन मिला कर खिलाएं।
- फीड में थोड़ी मात्रा में कोयला मिलाने से माइकोटॉक्सिन का प्रभाव कम पड़ता है।

# ARVIS<sup>®</sup>

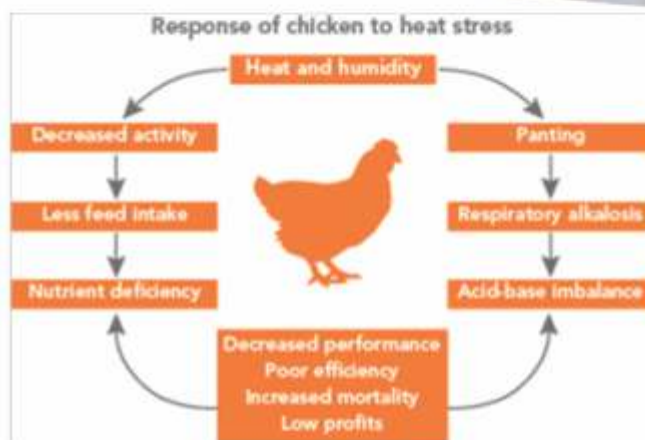
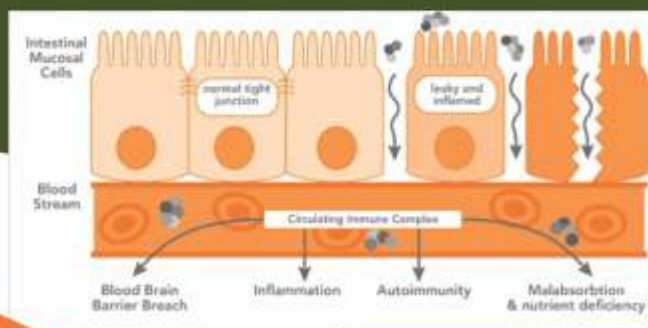
FOR PREVENTING AND AMELIORATING CONDITIONS INVOLVING DIFFERENT TYPES OF STRESS

Heat stress occurs when ambient temperature exceeds the upper critical temperature, and bird needs to make extra efforts to release excess heat from the body, but this also causes loss of water, acids and minerals, leading to alkalosis, disturbed electrolyte balance, and dehydration. During severe heat stress, feed intake usually declines in poultry.

ARVIS: Help birds effectively handle heat stress and other types of stress.



In case of chronic heat stress, the integrity of the epithelial cells of the gut wall is threatened. The functionality of the close junctions decreases and this leads to the so-called 'leaky gut syndrome': The risk of inflammation is then imminent, because toxins and pathogens have more easy access to blood. Also, digestion and absorption of nutrients is hampered when the gut wall is damaged.



## KEY BENEFITS

Efficiently controls stress associated with various painful conditions like de-beaking and vaccination

## MODE OF ACTION

Physiologic methyl radical donor involved in enzymatic trans-methylation reactions and present in all living organisms. Arvis also possesses anti-inflammatory activity and has been used in treatment of acute and chronic inflammatory conditions.

## COMPOSITION

s-AMe, Vitamin K3, Chromium Polypicolinate and Betaine.

## INCLUSION LEVELS

0.5 g per liter of water 500 g/MT of feed

## PRESENTATION

5 Kg and 25 Kg poly-coated paper bags

## SHELF LIFE

3 years from the date of manufacture



# Ensuring Poultry Safety: The Critical Role of Cold Chain Management

Cold chain management is an essential component of the food supply chain, particularly within poultry processing. Temperature-sensitive perishable goods rely on cold chain management for the maintenance of their quality, safety, and shelf life. Cold chain management is spread over all phases of the cold chain, and for poultry, this process begins from the moment the birds are slaughtered and continues through to products in process, in transit, in storage, and in display.

Cold chain management is integral to maintaining temperature ranges and air quality including carbon dioxide, humidity, and oxygen levels. Any disruption or failure within the process during transit, processing, storage, and display may result in product spoilage, loss, and financial implications.

India, with its rapidly growing population and increasing demand for protein-rich foods, has seen a significant rise in poultry consumption. However, ensuring that poultry products are safe, fresh, and of high quality necessitates an efficient cold chain system. Despite advancements, maintaining a robust cold chain in India presents numerous challenges ranging from inadequate infrastructure and erratic power supply to logistical issues and regulatory bottlenecks.

In this article we explore the cold chain management process, its necessity, the key challenges faced in this sector and the government support to overcome these challenges.

The cold chain management process includes the storage, packaging, tracking, transportation, customs clearance, product management, and delivery of products safely and securely. It relies heavily on technology to monitor and maintain the temperature, logistics, movement, delivery, and security of temperature-sensitive products and goods.

- **Storage:** products such as insulated containers, freezers, refrigerants, cold rooms chillers are key to effective cold storage. Cold chain management starts with cold chain storage equipment and facilities.
- **Packaging:** when products leave

storage facilities, cold packaging is vital to maintaining and monitoring temperature and security, keeping your products cold, improve transportation efficiencies, and prevent damage, waste, and loss.

- **Tracking:** data loggers and temperature indicators give companies, shippers, and their customers real-time temperature and GPS monitoring and tracking. This information is key to maintaining the cold chain, ensuring product quality and integrity.
- **Transportation:** the global supply chain means temperature-sensitive goods and products are moved around the world in a range of ways. Specialized cold chain vehicles such as refrigerated vehicles and reefer containers keep the cold supply chain moving across waterways, in the air, and along global/local roads and highways.
- **Customs clearance:** customs paperwork is a vital step in the cold supply chain, ensuring products can be transported and delivered quickly and efficiently. A failure to comply with customs clearance requirements can result in delays – causing product loss, risks to product quality, and additional expenses for storage, transport, and delivery.
- **Product management:** warehouse best practices with autonomous mobile robots and forklifts mean your products are moved and handled securely and safely within the cold chain.
- **Delivery:** ultimately delivering temperature-sensitive products and goods to your B2B and B2C customers depends on a finely tuned and streamlined delivery process. The cold chain management process includes documentation review, internal handling best practices, risk management, and securing compliant warehouse, storage, and display systems.

Cold chain in poultry processing is crucial for ensuring product safety, preserving

quality and freshness, extending shelf life, ensuring regulatory compliance, enhancing economic efficiency, and minimizing food waste. Technological advancements like real-time temperature monitoring and automated climate control systems further enhance the cold chain's effectiveness. Additionally, it contributes to sustainability by minimizing food waste and reducing environmental impact.

- **Ensuring product safety:** Poultry is highly susceptible to bacterial contamination, notably from pathogens like Salmonella and Campylobacter. These bacteria thrive at warmer temperatures, making the cold chain an essential barrier to their proliferation. By maintaining a consistent low temperature, the cold chain significantly reduces the risk of bacterial growth, thereby protecting consumers from foodborne illnesses.
- **Preserving quality and freshness:** Freshness is a key indicator of quality in poultry products and cold chain plays a vital role in preserving the sensory attributes of poultry, such as texture, taste, and color. Once poultry is processed, it is rapidly cooled to inhibit enzymatic activities and microbial growth that could degrade the product. This rapid chilling, often referred to as the "chill chain," ensures that the poultry reaches consumers in the best possible condition, enhancing its marketability and consumer satisfaction.
- **Extending shelf life:** Maintaining a consistent cold chain can significantly extend the shelf life of poultry products. By slowing down the natural degradation processes, the cold chain allows for longer storage periods without compromising safety or quality. This extension is crucial for retailers and consumers alike, as it reduces waste and ensures that products remain viable for a longer duration.
- **Regulatory compliance:** Adherence to the cold chain is not just a best practice but often a legal requirement. Regulatory bodies impose stringent

guidelines on the handling and transportation of poultry. These regulations mandate specific temperature ranges that must be maintained throughout the supply chain to ensure compliance with food safety standards. Failure to adhere to these regulations can result in significant penalties and the potential recall of products, both of which are costly for businesses.

- **Economic efficiency:** Although maintaining a cold chain involves significant investment in infrastructure, technology, and energy, it ultimately contributes to economic efficiency. By reducing spoilage and waste, companies can maximize their output and profitability. Furthermore, an efficient cold chain can optimize logistics, allowing for better inventory management and timely delivery of products, which enhances overall operational efficiency.
- **Technological advancements:** Advancements in technology are continually enhancing the efficacy of the cold chain in poultry processing. Innovations such as real-time temperature monitoring, automated climate control systems, and improved insulation materials are making it easier to maintain consistent temperatures throughout the supply chain. These technologies not only ensure compliance with safety standards but also provide valuable data for optimizing operations and reducing costs.
- **Improving efficiency:** Moving goods and products across the country and waterways is not a simple process. It's costly, time-consuming, and can be inefficient. Because cold chain management uses integrated smart IoT-enabled tracking and monitoring, companies can streamline the transport, delivery, and storage of their products – helping to improve efficiencies and reduce costs.
- **Sustainability considerations:** Sustainability is becoming an increasingly important aspect of food processing and distribution. The cold chain contributes to sustainability by minimizing food waste, which is a significant issue in global food systems. By ensuring that poultry products remain safe and fresh for longer periods, the cold chain helps to reduce the environmental impact associated

with the disposal of spoiled goods.

Inadequate infrastructure, power supply issues, logistical challenges, and regulatory issues in India's poultry supply chain contribute to poor cold chain management, compromising quality and increasing the risk of temperature breaches and spoilage.

- **Inadequate infrastructure:** A significant gap exists in the number of cold storage facilities, particularly in rural areas where much of the poultry farming takes place. Existing facilities are often outdated and lack the capacity to handle the growing volume of poultry products. The transport sector faces a shortage of refrigerated vehicles, leading to frequent temperature excursions that compromise poultry quality.
- **Power supply issues:** Frequent power outages and voltage fluctuations are common in many parts of India, disrupting the continuous temperature control essential for cold storage and transportation. Reliance on diesel generators and other backup power sources increases operational costs, making cold chain maintenance economically challenging.
- **Logistical challenges:** The poultry supply chain is highly fragmented, involving numerous small-scale farmers, intermediaries, and processors, which complicates the coordination necessary for maintaining a seamless cold chain. Poor road infrastructure and traffic congestion cause delays in transportation, increasing the risk of spoilage.
- **Regulatory and policy issues:** There is a lack of standardized protocols and regulations for cold chain operations, leading to inconsistent practices across different regions and operators. Lack of training for personnel involved in cold chain management leads to poor handling practices and increases the risk of temperature breaches.

The Indian government is implementing various initiatives to improve cold chain infrastructure, power supply, logistics, and transportation. Schemes like PMKSY, DDUGJY, and FSSAI are promoting the use of renewable energy, enhancing logistics, and establishing standardized protocols.

- **Infrastructure development:** The government has launched schemes like the Pradhan Mantri Kisan Sampada Yojana (PMKSY), which includes a

dedicated component for the development of cold chain infrastructure. This scheme provides financial assistance for the establishment of integrated cold chain projects. The establishment of Mega Food Parks aims to create modern infrastructure for food processing, including state-of-the-art cold storage facilities.

- **Power supply improvements:** Programs such as the Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) focus on improving the reliability of power supply in rural areas, ensuring more stable electricity for cold storage facilities. The government is promoting the use of renewable energy sources like solar power for cold chain operations, providing subsidies and incentives for installations.
- **Enhancing logistics and transportation:** The development of dedicated freight corridors aims to improve the efficiency of transportation, reducing transit times and maintaining the integrity of the cold chain. The government offers subsidies for the purchase of refrigerated vehicles, encouraging logistics companies to expand their fleet and improve the distribution network.
- **Regulatory and training initiatives:** The Food Safety and Standards Authority of India (FSSAI) is working on setting up standardized protocols for cold chain operations, ensuring uniform practices across the industry. Various training programs and workshops are being conducted to educate farmers, processors, and logistics personnel on best practices in cold chain management.

In summary, the cold chain is an indispensable element of poultry processing, crucial for ensuring food safety, preserving quality, extending shelf life, complying with regulations, and achieving economic efficiency. As technology continues to advance, the cold chain will become even more integral to the poultry industry, offering enhanced capabilities for maintaining product integrity and sustainability. For consumers, this translates into safer, fresher, and more reliable poultry products, underscoring the critical importance of the cold chain in modern food supply systems.



## Combating Protein Deficiency: Poultry Protein's Vital Role in India's Nutrition Landscape



In a concerted effort to address the pressing issue of protein deficiency among the Indian populace, the Poultry Federation of India (PFI) with support from USA Poultry and Eggs Export Council (USAPEEC) recently hosted a session held on 18th May 2024 in New Delhi, which convened leading industry experts to underscore the indispensable role of poultry protein in addressing India's nutritional challenges. With participation from renowned industry experts, this served as a platform to advocate for

enhanced protein intake, particularly through poultry products like chicken, duck, turkey, and eggs.

The Poultry Federation of India (PFI) and USA Poultry and Egg Export Council (USAPEEC) recently forged a collaborative partnership to promote poultry proteins which signals a significant step forward in promoting awareness and consumption of poultry protein as a pivotal component of daily diets.

Protein deficiency remains a critical concern in India, as



highlighted by the Indian Council of Medical Research (ICMR). Despite established recommendations emphasizing the importance of adequate protein consumption for optimal health, the nation continues to grapple with subpar dietary protein intake, significantly below recommended levels. According to a recent survey by the Indian Market Research Bureau (IMRB), a staggering 73% of urban affluent individuals are protein deficient, with a vast majority unaware of their daily protein requirements or suitable protein sources.

Mr. Ranpal Dhanda – President, Poultry Federation of India, Mr. Ricky Thaper - Treasurer, Poultry Federation of India, Ms. Pratibha Dixit - Nutritionist/Dietician, Artemis Hospital, Dr. Ajit Ranade – Vice President, World Veterinary Poultry Association and Mr. Shiven Khanna – USAPEEC were key speakers.

Mr. Ranpal Dhanda, President of the Poultry Federation of India, addressed protein deficiency in



India. He stated, "We're glad to collaborate with USAPEEC to raise awareness about the health benefits of poultry products. Through the combined knowledge, our objective is to amplify understanding regarding the nutritional benefits of poultry products and elevate the standards of health and wellness."

Mr. Ricky Thaper, Treasurer, Poultry Federation of India added that Chicken meat and eggs are perceived as healthier alternatives to red meat, driving up the demand. Poultry products are often more affordable than other protein sources, making them accessible to a broader segment of population. Mr. Thaper further stated that in the post Covid19 pandemic phase the demand for the protein rich food like poultry meat and eggs have increased sharply. The growing awareness regarding health and wellness is further driving the demand for a protein-rich diet.

During the Session on Poultry Protein, Dr. Pratibha Dixit,



emphasized the imperative of raising awareness about protein's significance in daily nutrition. She stressed the need for educating individuals on appropriate protein intake levels and the diverse sources of protein available in the diet. Poultry products emerged as standout examples of complete and bioavailable proteins, offering a comprehensive nutritional profile essential for overall health.

Dr. Jeetendra Verma, President, World Veterinary Poultry Association (India) explained the goodness of chicken meat. He said that Chicken meat is a high-quality protein containing all nine essential amino acids in right proportions. It's a Lean Protein with high nutrient density. Means it provides essential vitamins and minerals also including B complex vitamins, selenium, phosphorus and niacin. Chicken protein also helps in muscle management and growth, hence it is very popular and essential for athletes and individuals looking for building the muscle mass.





Further elucidating the nutritional merits of poultry protein, Dr. Ajit Ranade, Vice President of the World Veterinary Poultry Association, emphasized its role as a complete protein source. Highlighting the goodness of healthy proteins, fats, and micronutrients inherent in poultry products, he underscored their efficacy in bolstering immunity and overall well-being.

The session provided attendees with an opportunity to delve deeper into the nuances of protein consumption and its implications for public health. Discussions revolved around strategies to enhance awareness, promote dietary diversity, and expand opportunities for poultry products.

The collaborative efforts between

PFI and USAPEEC, signify a multifaceted approach encompassing education, research and development and nutritional awareness. By collaborating their expertise, this initiative aims to catalyse a paradigm shift in addressing India's protein deficiency challenge, positioning poultry protein as a cornerstone of a balanced and nourishing diet.

In conclusion, the session served as a pivotal moment in

galvanizing stakeholders towards combatting protein deficiency. Poultry protein holds immense promise in fortifying India's nutritional landscape.







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**NOVUS** announces

**Rajeev Murthy** as senior director & managing director of Asia beginning this month. Murthy will shape and steer the intelligent nutrition company's strategy in this vital market.

"Rajeev comes to NOVUS with more than 25 years of industry experience," says Sr. Vice President and Chief Commercial Officer Ed Galo. "Along with his positive track record for driving commercial success, employee engagement and talent development, we are confident in his ability to elevate our presence and enhance our strategic initiatives across Asia."

Originally from Bangalore, India, Murthy says luck brought him to the animal agriculture industry, but he's made it his life's career "for the difference one can make in improving access to healthy and safe protein."

When it comes to supporting poultry, swine, and dairy

producers in Asia, Murthy says customer profitability is key.

"For poultry, driving profitable growth while being mindful of changing customer needs where sustainability and antibiotic use are concerned is important," he says. "For swine, we need to investigate ways to return to a profitable operation in a world that is still impacted by challenges resulting from African Swine Fever. With dairy, we can show how to drive efficiency in the operation."

As part of NOVUS' goals to deliver solutions closer to the customer, Murthy will be based out of the company's office in Bangkok, Thailand.

Before joining NOVUS, Murthy held regional leadership roles at dsm-firmenich in its Animal Nutrition & Health business unit, and Eli Lilly & Company in the Elanco Animal Health division. He also served as CEO of the feed business for Godrej Agrovet Ltd., an Indian livestock and agribusiness company.

NOVUS is the intelligent nutrition company providing solutions for the global animal agriculture industry. The company's portfolio includes bis-chelated organic trace minerals, enzymes, eubiotics, and methionine solutions along with a network of experts worldwide providing guidance on management best practices.

For information on how NOVUS supports producers, nutritionists, and feed mills in Asia, visit [novusint.com](http://novusint.com).

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## Dr. Eckel Enlarges Management Board

Dr Viktor Eckel is the new Managing Director for products and innovation

Contact

**Andrea Dietrich**

PR & Communication Manager

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Dr. Eckel Animal Nutrition is adding to its management board. Dr Viktor Eckel has joined founder Dr Antje Eckel on the management board as Managing Director with main responsibility for products and innovation. This strategic decision marks a significant step towards securing the company's future.

For 30 years, the family company has been all about innovative feed additives for sustainable animal nutrition. With a second generation at the management table, the company is now in a great position to meet the current challenges of a growing international market, according to CEO Antje Eckel.

Viktor Eckel is setting out his priorities clearly: sustainability, resilience and resource efficiency. "When it was founded 30 years ago, Dr. Eckel was among the first companies backing plant-based alternatives. We recognised at an early stage how important they are for promoting animal health and well-being and pursued a more sustainable approach from the outset. This commitment remains at the core of our philosophy today." Viktor Eckel believes that this is the key for feed manufacturers and producers in Germany and worldwide to achieve high-resistance, resource-efficient and profitable production. "Offering our customers the best solutions and services for this now and in the future is an amazing, exciting role that I and the rest of the team are very much looking forward to."

Viktor Eckel has already been playing a decisive role in the development of the brand and the positioning of the family business for the future since 2020. As a biochemist with a doctorate in microbiology, he has broad expertise in feed fermentation and physiology, putting him in an excellent position to continue developing the Dr. Eckel Animal Nutrition portfolio and progress the market for feed additives.

### About Dr. Eckel

Dr. Eckel Animal Nutrition is all about innovative feed additives made in Germany. The value-orientated family business was founded by Dr Antje Eckel in Niederrissen / Germany in 1994, where it is still firmly established. The company has meanwhile gained international success. Indeed, Dr. Eckel is one of the world's foremost companies in the sector

with a specific focus on animal welfare, developing products that make animal nutrition more resource-efficient, climate-friendly and healthy. This is how Dr. Eckel contributes to sustainable global nutrition.

Dr. Eckel Animal Nutrition represents excellence, innovation and responsibility towards people, animals and the environment. The products combine innovation and quality, which is what sets Dr. Eckel apart. Customers value the solutions for profitable animal nutrition. These promote animal welfare and enable customers to achieve sustainable, long-term success. To this end, the multinational team of experts conducts research and works with specialists from around 20 different countries. This is but one of the reasons why Dr. Eckel was identified as a hidden champion by the Forschungszentrum Mittelstand (FZM), a research institute for the German Mittelstand at the University of Trier.

Every year, Dr. Eckel invests more than 10 per cent of its revenue in innovation projects for customers, partners and employees. These consist of new products, consolidating digital infrastructure and sustainability projects such as replacing the current company fleet with electric vehicles, among others. This commitment is paying off, as evidenced by various awards, including Leading Employer, TOP 100 innovator, 'Top Arbeitgeber im Mittelstand' (Top 'Mittelstand' Employer) by FOCUS magazine and the 'Innovative through Research' seal of approval.

### Projections

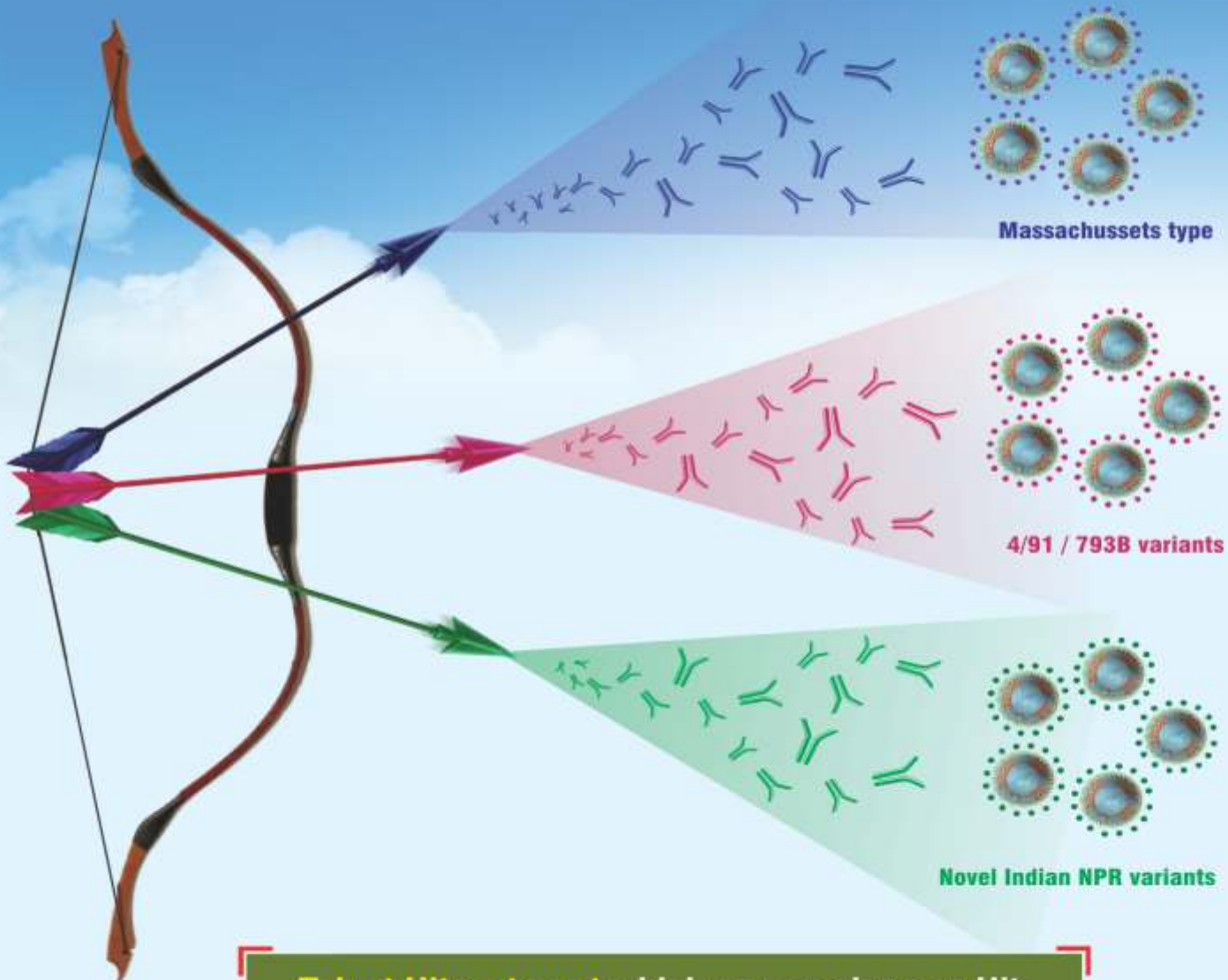
This press release may include projections based on current assumptions and forecasts made by the management of Dr. Eckel Animal Nutrition GmbH & Co. KG. Various risks—both known and unknown—uncertainties and other factors may cause the actual results, financial situation, development or performance of Dr. Eckel Animal Nutrition GmbH & Co. KG to differ significantly from the estimates provided here. Such factors include those described by Dr. Eckel Animal Nutrition GmbH & Co. KG in published reports. Dr. Eckel Animal Nutrition GmbH & Co. KG shall accept no liability whatsoever for updating such projections and adjusting them to future events or developments.

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# Annual Review Meeting of AICRP on Poultry Breeding and Poultry Seed Project



The annual review meeting of All India Coordinated Research Project on Poultry Breeding and Poultry Seed Project for the year 2022-23 was organised at ICAR Research Complex for North Eastern Hill Region, Nagaland Centre, Jharnapani, Medziphema, Nagaland on 2nd & 3rd May 2024.

Dr. Raghavendra Bhatta, Deputy Director General (Animal Science) ICAR praised the AICRP for its significant contribution to the poultry sector's development over the past 50 years. He also emphasized the need to increase backyard poultry's contribution to total production.

Dr. G.K. Gaur, Assistant Director General (AP&B), ICAR accentuated the need to conserve the

indigenous chicken breeds and large-scale dissemination of superior backyard poultry. He further emphasized developing entrepreneurs and second-line breeders in rural poultry.

Dr. R.N. Chatterjee, Director, ICAR-Directorate of Poultry Research, Hyderabad highlighted the genesis of the Project and its salient achievements made during the last 50 years.

Dr. Girish Patil, Director, NRC Mithun praised the ICAR-DPR,

Hyderabad and AICRP on Poultry Breeding for its significant contribution to the livelihoods of the NEH Region.

Dr. U. Rajkumar, In-charge, AICRP on Poultry Breeding, ICAR-DPR, Hyderabad presented the action taken report and the progress report of the project during the year 2022-23.

Dr. H. Kalita, Head of the Regional Centre, ICAR Nagaland Centre highlighted the impact of the project in North East in general and in Nagaland in particular.

The PIs presented the progress of the centres, which were reviewed by the Deputy Director General, Assistant Director General, and



Director of ICAR-DPR, Hyderabad, offering constructive suggestions for improvement.

The centre charge of 12 AICRP on Poultry Breeding and 12 Poultry Seed Project Centres covering different states of the country and the scientists from ICAR-RC for NEH Region, Nagaland Centre and NRC-Mithun, participated in the Review Meeting.



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# GLAMAC Conducts Annual Conference at Darjeeling: A Journey of Inspiration and Innovation



In the heart of the Himalayas, where the sky meets the earth in a breathtaking display of grandeur, Glamac International Pvt. Ltd. recently convened its annual conference amidst the enchanting backdrop of Darjeeling. From the 5th to the 9th of April 2024, the entire Aqua and Poultry team, comprising members from diverse regions spanning India and Nepal, gathered at the Central Heritage Hotel for an unforgettable experience of camaraderie, learning, and celebration.

Darjeeling, with its towering peaks and verdant valleys, served as an idyllic setting for annual gathering. This quaint town, renowned for its iconic toy train and world-famous

tea gardens, provided a serene and inspiring environment for reflection and collaboration.

The conference kicked off with a warm welcome from the Founder and Managing Director, Mr. Abir Mukherjee, whose insightful opening remarks set the tone for an engaging and productive event. Mr. Mukherjee's emphasis on the core principles of teamwork, cooperation, and holistic growth resonated deeply with all attendees, fostering a sense of unity and purpose among the participants.

Joining the team as the distinguished guest of honour was Mr. Sahil Deepak Salvi, Advocate at the Mumbai High Court. Mr. Salvi's presence added a touch of legal expertise and perspective to discussions, enriching dialogue with insights into regulatory frameworks and legal considerations pertinent to the industry.

Director Meghana Mukherjee unveiled a comprehensive digital roadmap for the company's future, charting a course for innovation and expansion in the coming year. Her visionary strategy underscores Glamac's commitment to staying ahead of the curve and driving sustainable growth in a rapidly evolving market landscape.

The financial aspect of operations was expertly addressed by Senior Finance Manager, Mr. Sujit Jadhav, whose meticulous analysis and strategic planning laid the groundwork for fiscal success in the year ahead. Mr. Jadhav's presentation of targets, achievements, and budgetary allocations provided invaluable clarity and direction for the company's financial trajectory.

Technical seminars led by Dr. Sumon Nag Chowdhury, AGM-Technical & Marketing and the Product Managers Dr. Rahul





the dedicated team members, with well-deserved promotions and awards announced by Mr. Abir Mukherjee. This gesture of appreciation underscored Glamac's unwavering commitment to fostering talent and recognizing excellence within ranks.

The conference concluded on a high note with a vibrant gala and DJ night, where laughter and camaraderie filled the air as we celebrated our achievements and shared aspirations for the future. As the team bid farewell to the scenic vistas of Darjeeling, they carry with them a renewed sense of purpose and unity, ready to embrace the challenges and opportunities that lie ahead on journey of growth and success.

Mogale & Dr. Rajesh Reddy delved into the latest advancements and best practices in poultry and aqua segments. Their in-depth presentations and interactive sessions empowered the team with cutting-edge knowledge and tools to enhance product quality and efficiency. The unique attraction of the event was a live business session by Mr. Vinod Mishra, AGM-Sales (North & South) & Mr. Amit Debnath, Zonal Manager- Sales (Eastern India, Nepal & Bangladesh), moderated by Dr. Sumon Nag Chowdhury and participated wholeheartedly by the entire attendees.

A highlight of the conference was the recognition and celebration of



# Venkateshwara B V Bio-Corp Private Limited organised Technical Seminar on “Layer Management & Nutrition with Eggxtra 5% Composite Premix” in Bangladesh



Venkateshwara BV Bio-Corp Pvt Ltd India and Nature Care Manufacturing Industry Ltd Bangladesh organized Two Technical seminars for commercial Layer Farmers on Wednesday 22nd April, 2024 at Dhamrai and Thursday 23rd April 2024 at Mawna Dhaka Bangladesh. This technical seminar was attended by layer farmers of Dhamrai, Mawna and surrounding area. Mr Joyanta Kumar Deb, (Managing Director, Nature Care Manufacturing Industry Ltd) Dr Md. Emranul Haq Mondal Shapon (Consultant Poultry & Dairy Feed Formulation) were Chief Guests of seminar.

Dr Sanjay Deshpande, Venkateshwara BV Bio-Corp Pvt Ltd was spoken for the seminar and explained in detail about the “Commercial Layers Management” in all aspects and Importance of balanced nutrition to improve productivity in commercial layers with optimization of production cost. Venkys 5% Eggxtra Composite Premix provide very easy solution to produce the balanced feed for commercial layers as per the requirement of birds. During his presentation, he advised to be watchful about quality parameters to be considered while selecting the different feed ingredients. The excerpts from his presentation can be summarized as below.

- Importance of brooding management as a foundation for

preparing better pullets.

- Importance of body weight monitoring in rearing period and its impact on laying productivity.
- Benefits of good uniformity for good egg production and consistency as well.
- Early Laying Nutrition to maximize peak production.
- Benefits of Phase feeding – to reduce the overall egg production cost and to provide the nutrients as per requirement of the birds age, egg production, egg weight, egg shell quality etc.
- Importance of Water Management and its impact on gut health.
- Maintaining the egg shell quality during post peak production period.
- Proper summer management



practices to minimize the heat stress and its impact on egg production and mortality

- 5% Eggxtra Composite Premix is an innovative Premix helping to produce balanced feed in an easy and simple way. It also helps to avoid the errors occurring during weighing, batching and mixing processes of feed production.
- 5% Eggxtra Composite Premix is capable of optimizing the cost with highest efficiency at farm level.

Dr Sanjay Deshpande answered the queries of the attendees related to the subject and other technical queries regarding Farm Management and Summer Precautions.

The Technical Seminar was attended by around 50 Layer farmers surrounding the Dhaka Bangladesh area.

Mr Md Mahbub Alam , Manager, Nature Care proposed vote of thanks to all. The local Nature Care and Venkys Team, Dr Faiz Khan Rakib, Technical Manager (sales) organised this technical seminar.



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# 2024 Alltech Agri-Food Outlook Shares Global Feed Production Survey Data and Influential Trends in Agriculture



Data collected from 13th annual global feed survey estimates world feed production remains steady, with a slight decrease of 0.2% to 1.29 billion metric tons

Lower demand attributed in part to more efficient use of feed; poultry feed shows most significant growth



## Alltech® Agri-Food Outlook | 2024

### The 2024 Alltech Agri-Food Outlook revealed global feed production survey data and trends.

[LEXINGTON, Ky.] – Global animal feed production remained steady in 2023 at 1.29 billion metric tons (BMT), a slight decrease of 2.6 million metric tons (MMT) — or 0.2% — from 2022's estimates, according to the 2024 Agri-Food Outlook, released today by Alltech. The

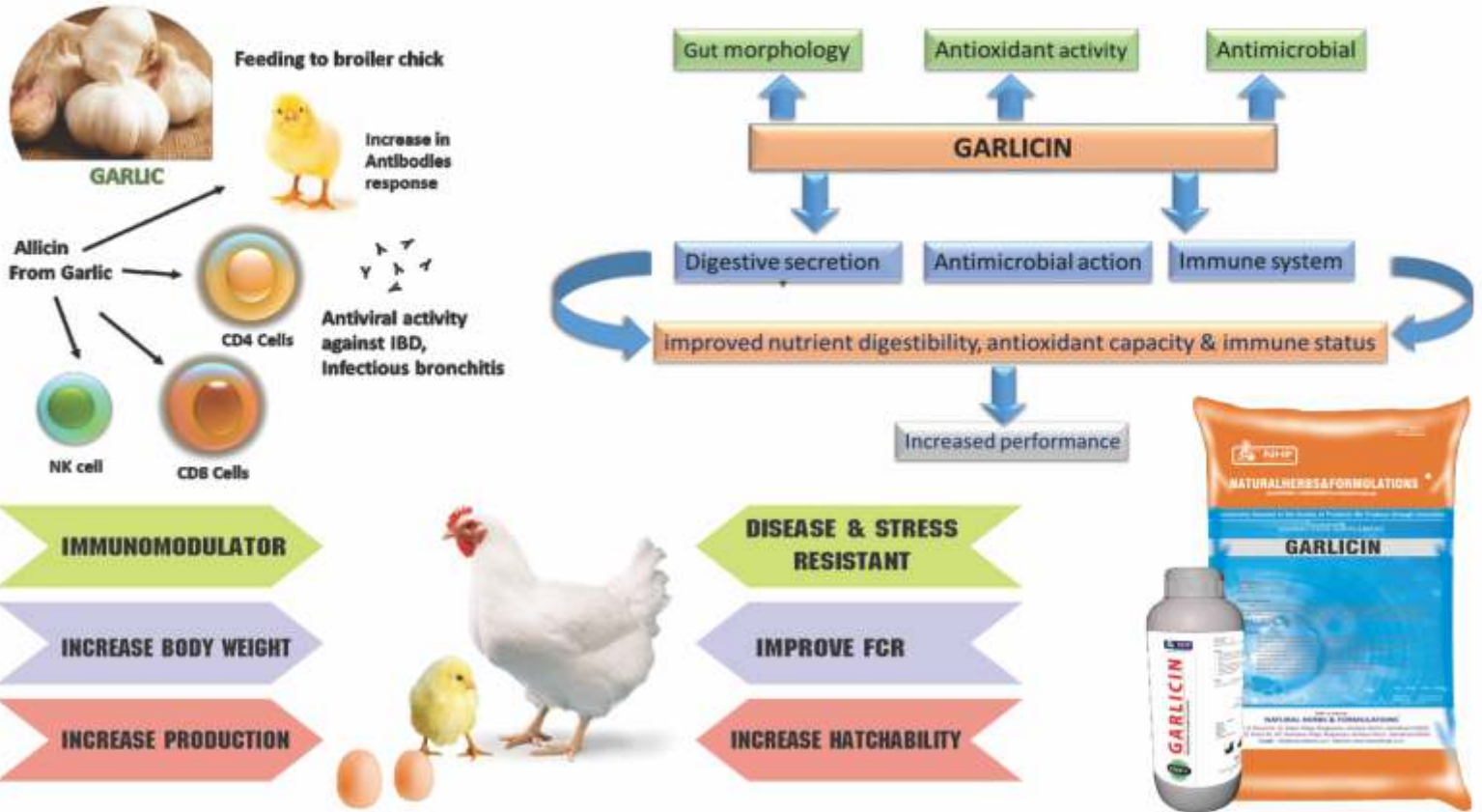
annual survey, now in its 13th year, includes data from 142 countries and more than 27,000 feed mills.

The overall lower demand for feed was due, in part, to the more efficient use of feed made possible by intensive production systems that focus on using animal nutrition, farm management and other technologies to lower feed intake while producing the same

amount of protein, or more. A slowdown in the overall production of animal protein, in response to tight margins experienced by many feed and animal protein companies, also contributed to lower feed demand. Changing consumption patterns caused by inflation and dietary trends, higher production costs and geopolitical tensions also influenced feed production in 2023.

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### Top 10 countries:

The top 10 feed-producing countries are China (262.71 MMT, +0.76%), the U.S. (238.09 MMT, 1.13%), Brazil (83.32 MMT, +1.84%), India (52.83 MMT, +13.43%), Mexico (40.42 MMT, +0.02%), Russia (35.46 MMT, +3.83%), Spain (27.53 MMT, -11.88%), Vietnam (24.15 MMT, -9.63%), Japan (23.94 MMT, -1.15%) and Türkiye (23.37 MMT, -11.48%). Together, the top 10 countries produced 63.1% of the world's feed production (same as in 2022), and almost half of the world's global feed production is concentrated in four countries: China, the U.S., Brazil and India.

### Notable species results and outlook

- Poultry experienced an increase in broiler feed production (385.04 MMT, +13.10 MMT, +3.5%) and remained steady with a slight increase for layers (170.88 MMT, +0.01 MMT, 0%).
- **Broiler** feed now accounts for 29.9% of the total feed tonnage in the world thanks to a 3.5% increase in overall tonnage in 2023. While this growth was not uniform across all regions, the poultry sector is poised to keep holding strong in 2024 thanks to a combination of regional successes and global market dynamics. Some of the biggest factors that will contribute to the resilience of the broiler sector include reduced costs for inputs, such as feed and energy, and increases in

margins and profitability.

- For **layers**, there are industry-wide efforts to optimize feed efficiency and to keep pace with changing dietary trends and new purchasing power. Some markets around the globe were significantly impacted by macroeconomic challenges and disease outbreaks, which can disrupt production cycles. Still, the general outlook for the layer industry remains positive thanks to its resilience in the face of difficult circumstances, when other protein sectors often struggle to adapt.
- The poultry sector is poised for continued strength, driven by a blend of regional successes and global market dynamics. The broiler forecast remains optimistic thanks to lower input costs, increased industrial margins and shifting consumer behaviors. For layers, challenges persist, but there are pockets of resilience and growth.
- The global **pig** feed production sector faced many challenges in 2023, which led to an overall decrease in pig feed production of 1.23% (320.80 MMT, -4.01 MMT).
- Latin America stood out as the only region that achieved an increase in pig feed production in 2023, while Europe, Asia-Pacific and North America — which have traditionally been the top pig feed-producing

regions in the world — all faced challenges. African swine fever (ASF) continues to wreak havoc on pig production in China and Southeast Asia, where repopulation efforts are slowly proceeding.

- The trends highlight the complex relationship between economic factors, supply dynamics and disease management in the global pig feed industry. Addressing these challenges will be crucial for sustaining animal agriculture and ensuring food security.
- **Dairy** feed tonnage decreased by 2.3% (126.23 MMT, -2.28%), primarily due to the high cost of feed combined with low milk prices, which led farmers to make strategic adjustments that included reducing their cow numbers and/or relying more on non-commercial feed sources.
- In Europe, dairy producers will continue to grapple with stricter environmental policies in the years ahead, and they will need to find new ways to continue growing.
- Asia-Pacific managed to buck the downward trend and emerged as the only region that increased its dairy feed tonnage in 2023. This growth was fueled by a continued increase in the consumption of milk products there, as well as an expansion of feed production in co-operatives.

- This shift reflects the delicate balance between economic factors and the need to sustain dairy production. Lower feed costs and higher milk prices would help right the ship.
- **Beef** feed production decreased by 4.36% (117.49 MMT, -5.35 MMT) globally — the most pronounced downward change among all species sectors last year. Changes in cattle cycles in the United States and stricter sustainability policies in Europe had major impacts, with the Asia-Pacific beef sector notably surpassing Europe's in 2023.
- The substantial decline in North America was the result of lingering droughts and high production costs, among other issues.
- While the European and North American beef industries are expected to continue declining in 2024, growth is expected in China, Brazil and Australia — highlighting the complex dynamics and landscape of beef feed production around the world.
- The **aquaculture** sector experienced a decline of 4.4% (52.09 MMT, -2.42 MMT).
- This decline was driven in part by a significant drop in China's supply of aqua feed due to lower fish prices, which had a far-reaching impact.
- Latin America grew by 0.27 MMT (3.87%). Despite adverse weather conditions in that region, the demand for aqua products is still strong in Latin America, which helped aqua producers there remain resilient.
- The global **pet** feed industry continues to grow, albeit at a slower pace of 0.74% (34.96 MMT, +0.26 MMT) in 2023. Demand for high-quality pet products and services remains high from pet owners who want only the best for their animal companions.
- The Latin American and North American markets were the primary drivers of this growth, with the pet food sector in North America surpassing Europe's this year.
- Europe was the only market experiencing a decline in pet food production in 2023. Supply-chain disruptions and inflationary pressures were the key factors contributing to this decrease.
- The equine feed industry experienced a decrease of 3.9% (7.98 MMT, -0.32 MMT) in 2023.
- The top challenges in the equine sector include high labor and material prices.
- The top technologies impacting the sector are biosecurity, microchipping, genetics and nutritional solutions.
- Survey respondents said the biggest opportunities for nutritional solutions are gut health management and feed efficiency.
- Equine feed is expected to decrease both in price and in volume during the coming year.

### Notable regional results

- **North America** saw a decrease of 2.8 MMT (259.26 MMT, -1.1%), with beef feed tonnage down significantly. The pig and dairy sectors also slipped slightly, but the broiler, layer and pet sectors more than made up the difference. Feed tonnage in the broiler sector was up nearly 2.9%.
- **Latin America** experienced growth in 2023 by 2.46 MMT (200.67 MMT, +1.24%). Despite high production costs, geopolitical tensions and changing consumer behavior due to economic reasons, the region continues to lead global growth, mainly because of its export-driven aquaculture, poultry and pork markets.
- **Europe** continued its downward trend in feed production, with a decrease of 10.07 MMT (253.19 MMT, -3.82%) due to issues that included the invasion in Ukraine and the spread of animal diseases such as African swine fever (ASF) and avian influenza (AI).
- **Asia-Pacific** led feed production growth in 2023, with an increase of 6.54 MMT (475.33 MMT, +1.4%). Feed production growth in the region's ruminant sectors

offset a setback in the aqua sector. The region is home to several of the top 10 feed-producing countries, including China, India, Vietnam and Japan.

- **Africa** experienced continued but slower growth with an increase of 1.95%, nearly 1 MMT to total 51.42 MMT.
- The **Middle East** saw a slight decrease of 0.12 MMT (35.93 MMT, -0.32%).

- **Oceania** had the third-highest growth, 3.71% or 0.39 MMT to total 10.78 MMT.

Alltech works together with feed mills and industry and government entities around the world to compile data and insights to provide an assessment of feed production each year. Compound feed production and prices were collected by Alltech's global sales team and in partnership

with local feed associations in the first quarter of 2024. These figures are estimates and are intended to serve as an information resource for industry stakeholders.

To access more data and insights from the 2024 Alltech Agri-Food Outlook, including an interactive global map, visit [alltech.com/agri-food-outlook](https://alltech.com/agri-food-outlook).

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## About Alltech

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

We are a global leader in the agriculture industry. Our team produces specialty ingredients, premix supplements, feed and biologicals, backed by science and an unparalleled platform of services.

Strengthened by more than 40 years of scientific research, we carry forward a legacy of innovation and a unique culture that views challenges through an entrepreneurial lens. As a private, family-owned company, we adapt quickly to our customers' needs and focus on advanced innovation.

We believe agriculture has the greatest potential to shape the future of our planet. Our more than 5,000 talented team members worldwide share our purpose of **Working Together for a Planet of Plenty™**. Together, we can provide nutrition for all, revitalize local economies and replenish the planet's natural resources.

Headquartered just outside of Lexington, Kentucky, USA, Alltech serves customers in more than 120 countries, has five bioscience centers, and operates more than 80 manufacturing facilities across the globe.

For more information, visit [alltech.com](https://alltech.com), or join the conversation on Facebook, X and LinkedIn.





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- Potassium Chloride
- Magnesium Sulphate
- Zinc Sulphate

### NUTRIENTS

- Vitamin C
- Vitamin E
- Selenium
- L-Arginine

### BIOACTIVE COMPOUNDS

- Withania somnifera
- Emblica officinalis

## BENEFITS

- Improves immunity and vaccine response.
- Reduces the mortality caused by various stress conditions like heat stress in summer.
- Reduces wet litter conditions caused by excessive water intake during heat stress in the summer.
- Improves feed intake, body weight, feed conversion ratio, and carcass quality in broiler birds.
- Improves fertility and semen quality in breeders.
- Enhances egg production, egg mass and egg quality.

## INDICATIONS

- For optimising the production performance of the birds in all seasons.
- Stress conditions of various origins like debeaking, Shifting and vaccination.
- Stress of managerial or environmental origin.
- During depressed growth and performance.
- Immunosuppression of various origins.
- As a supportive aid during disease outbreaks.

Reduced nutrient uptake

Depressed growth & development

Compromised immunity

Increased disease incidences

Impaired productivity



## USAGE

COMPAC-EC can be used in feed or water.

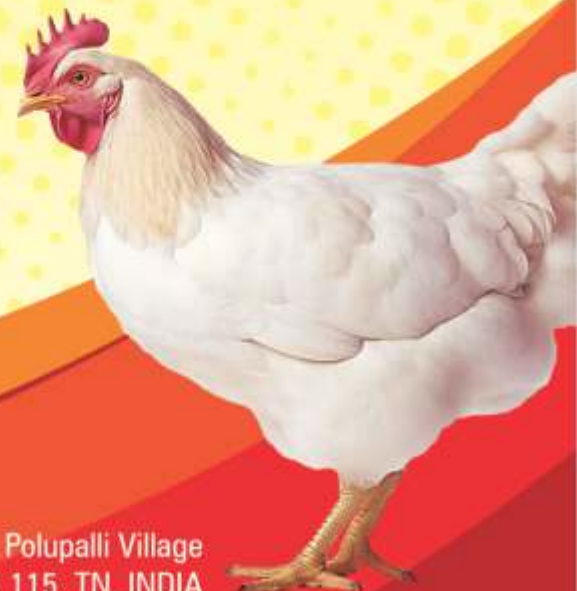
**In feed** : 250 to 500g/MT

**In drinking water** : 1 g/L

Or as recommended by poultry health specialist.

## PACK SIZE

Available in 25 kg (5 kg \* 5)



For Further Details

  
**AL Lifesciences**

Plot No.107, SIDCO Industrial Estate, Polupalli Village  
Billanakuppam Post, Krishnagiri - 635 115. TN, INDIA

Mobile : +91 98949 35777, 73392 22832, E-mail : allifsci@gmail.com

## All Kerala Poultry Federation Calls for End to Debate on Rising Chicken Prices



All Kerala Poultry Federation has urged stakeholders to cease the 'needless debate' over increased grill chicken prices. S.K. Naseer, the Federation's general secretary, alleged that the media was creating a "unnecessary row" about increased chicken prices. He said that the challenges were known to all parties.

He said that during the summer months, numerous chicken farm owners in south India refused to take delivery of chicks due to the intense heat. In certain areas, water scarcity makes chicken farming challenging. Furthermore, several farmers have complained about high death rates among chicks raised for meat. According to reports, the death rate on certain farms might reach 35%. This suggests that a farmer with 1,000 birds suffers significant loss.

Combined with the high death rate and farmers' unwillingness to keep chicken farms functioning during the summer months, chicken prices rise. The increase in price was caused by a lack of supply and was a regular market phenomena.

Despite the greater price, chicken remains more accessible to ordinary people than other meat products such as mutton and

buffalo meat, fish, and, in certain cases, vegetables, he noted. Chicken is priced at roughly ₹250 per kilogramme, while live birds cost around ₹160.

The association also said that poultry producers suffered losses a month ago due to market surplus. Chicken prices fall as air temperatures fall and more farmers begin to raise the birds. Under these conditions, stakeholders should collaborate to benefit the firm, he said.

## Bird Flu Outbreak in U.S. Dairy Cattle for First Time Raises Concerns for Dairy Industry and Public Health

Livestock at multiple dairy farms across the U.S. have tested positive for bird flu, also known as highly pathogenic avian influenza (HPAI), in an outbreak that is likely to spread to at least five states. The U.S. Department of Agriculture's Animal and Plant Health Inspection Service confirmed that cows in Texas, Kansas, and Michigan had been sickened by the virus, and there were presumptive positive test results for additional herds in New Mexico and Idaho. This is the first time the disease has been found in dairy cattle, according to the American Veterinary Medical Association.

On Monday, the Texas Department of State Health Services announced that a person who was exposed to dairy cattle presumed to be infected with bird flu had also caught the virus. It is only the second time a human in the U.S. has contracted HPAI A, or H5N1, according to the Centers for

Disease Control and Prevention. A person in contact with infected poultry was sickened in Colorado in 2022. Texas issued a public health alert on Monday, asking healthcare providers in the state to be on the lookout for people with symptoms of bird flu who may have been exposed to an infected person or animal.

Bird flu infects the respiratory and gastrointestinal tracts of birds and is often fatal to avian populations. It can spread from wild birds to commercial poultry, backyard flocks, terrestrial and marine mammals, and humans.

Government officials say the risk to the public amid the current outbreak remains low. Most past human infections have occurred after people had "unprotected exposures to sick or dead infected poultry," according to the CDC.

Officials say the strain of the virus detected in Michigan is similar to the one found in Texas and Kansas, which was shown through initial testing not to include any changes that would make it more transmissible to humans. The rash of bird flu infections should not dramatically impact consumers of dairy products, federal and state officials say.

## European Union Closer to Approving Merck Animal Health's INNOVAX® -ND-H5 Vaccine for Current Avian Influenza Strains

The European Medicines Agency's Committee for Veterinary Medicinal Products (CVMP) has issued a



positive opinion for the INNOVAX®-ND-H5 vaccine, which is potentially the first centrally registered vaccine in the European Union against the currently circulating Avian Influenza virus strains of clade 2.3.4.4b. This vaccine is a single-dose product administered in ovo or subcutaneously at one day of age to reduce mortality, clinical signs, and virus excretion due to infection with the highly pathogenic Avian Influenza (HPAI) virus of the H5 type. It induces active immunity against Marek's disease and Newcastle disease and can safely be administered in combination with NOBILIS RISMAVAC®.

As avian influenza continues to spread around Europe and the globe, Merck Animal Health is proud that the INNOVAX-ND-H5 vaccine is one step closer to being the first vaccine registered in the European Union against the circulating avian influenza virus strains of clade 2.3.4.4b. This would represent another tool for governments to consider in ongoing efforts to combat the spread of avian influenza, which could include other additional vaccines we currently have in development.

The vaccine was developed using Merck Animal Health's HVT (herpesvirus of turkeys) vector platform technology, which has been used to generate recombinant vaccines for avian diseases such as Newcastle disease (ND) and infectious bursal disease (IBD). INNOVAX-ND-H5 forms part of our

holistic Avian influenza solution strategy aiming to clinically protect poultry and minimize or ideally eliminate avian influenza virus shed over the whole life cycle of the birds.

According to the World Organization for Animal Health (WOAH), avian influenza is a highly contagious viral disease that affects both domestic and wild birds. The disease is caused by viruses divided into multiple subtypes, whose genetic characteristics can rapidly evolve. Conventional control measures of biosecurity, stamping out, and movement restrictions can be insufficient and unsustainable, and vaccination should be considered as a complementary disease control tool. Based on the CVMP's recommendation, the EC is expected to issue a decision for marketing authorization in the European Union (EU) in mid-2024.

## **Onego Bio's Sustainable Egg Alternative Gains Momentum Amidst Shifting Market Trends**

Higher egg pricing in 2023 gave alternative protein firms the chance to demonstrate their ability to compete with conventional egg producers.

A year later, prices have levelled out, but the rush to develop more sustainable egg products persists. One location witnessing a lot of activity is Onego Bio, a Finnish food biotech business that employs the fungus *Trichoderma reesei* and precise fermentation to generate Bioalbumen, an animal-free egg white replacement.

Maija Itkonen, co-founder and CEO of Onego Bio, established the firm in 2022 with precision fermentation specialist Christopher Landowski from VTT (Technical Research Centre of Finland).

The business has developed a fungal fermentation technology approach that allows it to generate 120 grammes per litre in 250,000-liter fermentation tanks. At its current capacity, Onego Bio is on the verge of competing with conventional egg protein production methods.

Onego Bio says that Bioalbumen is "bioidentical" to ovalbumin, the main protein in chicken egg white. It also includes all necessary amino





acids and is strong in protein (90 grammes per 100 grammes of egg white). Furthermore, the business can make it with a 90% lower environmental impact than eggs from birds.

The firm creates Bioalbumen with a clean, neutral flavour that may be used to substitute eggs in a wide range of dishes, baked products, snacks, and sauces. Onego Bio intends to offer Bioalbumen to firms that will subsequently produce the food goods.

The startup will first debut in North America. Itkonen anticipates that Onego Bio will acquire self-affirmed GRAS (Generally Recognised as Safe) status for Bioalbumen this year, as well as a letter of no objections from the US Food and Drug Administration in 2025. Following that, it plans to expand throughout Europe, South America, and Asia.

In anticipation for this, Onego Bio recently raised \$40 million in Series A investment to bring Bioalbumen to market and expand production capabilities. The funds will be used to expand the U.S. commercial team and cooperate with co-manufacturers while finalising its own plant. The business is approaching completion of a single Onego full-scale production plant with a fermentation capacity of 2 million litres, which would essentially replace an egg farm with 6 million laying hens.

NordicNinja, a Japanese venture capital company, spearheaded the investment, which also included equity investors Tesi and EIT Food, current investors Agronomics,

Maki.vc, Holdix, and Turret, as well as a group of strategic partners.

The investment also includes \$10 million in non-dilutive capital from Business Finland, a public organisation under the Finnish government that promotes innovation to accelerate systemic change and assist tackle important global concerns. Itkonen describes Onego Bio's Series A fundraising as "one of the largest A-rounds in the Nordics," bringing the company's total capital to \$56 million.

## Egg Innovations Leads the Charge in Ethical Egg Production with In-Ovo Sexing

Egg Innovations, a leading leader in animal welfare within the egg industry, has committed to implementing in-ovo sexing technology to eliminate male chick culling. This technology is only available in Europe today and will be used by Egg Innovations to label their products "free of chick culling." The company's Founder and CEO, John Brunnquell, emphasizes the importance of humane care in their mission and plans to use their regenerative farming Helpful Hens™ brand to



introduce this ethical commitment to egg consumers nationwide in 2025.

Innovate Animal Ag CEO Robert Yaman is excited about the potential business proposition of selling eggs produced without culling in the U.S. market. This will allow specialty egg producers to create a new higher-margin category of more ethical eggs that will be better for the chicks, producers, and consumers. This is a significant step towards eliminating chick culling in the U.S. egg industry.

Nancy Roulston, Senior Director of Corporate Policy and Animal Science at ASPCA Farm Animal Welfare, believes that with the commercial availability of in-ovo sexing technology, the routine culling of male chicks will become obsolete in egg production. Egg Innovations is the pioneer in humane care for the laying hen industry and the first egg producer to bring certified regeneratively farmed free range and pasture-raised eggs to a commercial scale. They have been named the 2024 Ethical Farming Company of the Year and Most Sustainable Egg Farming Business 2023 – USA.

With over 100 family farms and thousands of acres of pastureland dedicated to egg-laying hens, Egg Innovations provides premium eggs under the Blue Sky Family Farms and Helpful Hens brands, which are American Humane Certified™, Certified Humane®, and recognized by the ASPCA®'s Shop With Your Heart Program. Innovate Animal Ag is a nonprofit think tank that promotes technology as a practical way to improve animal health and welfare while restoring consumer trust in animal agriculture.

## World Organisation for Animal Health Warns of Increased Risk of Human Infection from Bird Flu



The spread of bird flu to a rising number of species, as well as its expanding geographic reach, has increased the danger of human infection, according to the director of the World Organisation for Animal Health (WOAH), who spoke on Thursday.

Monique Eloit's views came after the US government revealed incidences of the illness in dairy cows in various states and a human in Texas, which she said would only be a major issue if there was a transmission between cows, which US officials are currently looking into.

Avian influenza, sometimes known as bird flu, has resulted in the slaughter of hundreds of millions of chickens worldwide in recent years, with the virus mostly transmitted by migratory wild birds.

Although the frequency of outbreaks has decreased this season, the virus has expanded to new areas, including South America

and Antarctica, and has killed a greater number of animals, decimating rare species colonies.

Bird flu mostly impacted foxes, but it also infected dozens of other animals such as cats, tigers, seals, dolphins, and bears.

"Over the previous several months, we've received a wide range of

animals. In an interview with Reuters, the director of the Paris-based charity expressed concern about the spread to other species.

"Ultimately, we find ourselves with more and more species and more animals which are contaminated, therefore necessarily a higher viral load with a risk of contamination of humans," she said.

Some bird flu outbreaks have resulted in severe or fatal illnesses among individuals who have had direct contact with wild birds or poultry, but no persistent human-to-human transmission has been reported. According to specialists, the danger of contracting the illness is quite minimal for most individuals who have not come into contact with affected animals.

Animal and human influenza viruses change, boosting the possibility that one may evolve into one that can be transferred across animals, including humans.

The European Food Safety Agency (EFSA) warned on Wednesday of a large-scale bird flu pandemic if the virus becomes transmissible between humans, given humans have no antibodies to the infection.

## DSM-Firmenich and Novonesis Obtain EU Clearance for ProAct 360: Poultry Nutrition with Cutting-Edge Enzyme Technology

Nutrition business dsm-firmenich and its alliance partner Novonesis have acquired EU regulatory clearance for ProAct 360, a chicken feed protease. After receiving clearance, ProAct 360 will be offered to feed and poultry producers for use in all fattening poultry and hens raised for laying and breeding.

ProAct 360 was originally released in Latin America in June 2021 and in the United States in November 2022. The partners characterise it as the only second-generation protease designed particularly for the feed business, representing cutting-edge enzyme technology that helps the poultry sector in terms of feed efficiency, cost, and sustainability.

According to a recent Rabobank analysis, the global poultry industry will improve after a dismal second half of 2023, but geopolitical tensions, which cause distribution issues, will persist.

To stay successful in a competitive market, European poultry farmers must deal with a variety of additional elements such as shifting



ingredient costs, genetic evolution, intestinal health concerns, welfare standards, and sustainability needs.

According to dsm-firmenich and Novonesis, effectively managing protein uptake is critical to overcoming these problems. According to the partners, the EU approval of ProAct 360 would provide major advantages to chicken producers in the area.

ProAct 360 breaks down protein quicker across a wide variety of feed components, increases digestibility of all amino acids, and destroys anti-nutritional factors more effectively, resulting in increased response consistency and a higher ROI.

The product also allows for the formulation of lower-protein diets with a lower proportion of soybean meal by improving protein absorption in the small intestine, lowering the environmental impact of poultry production while contributing to improved intestinal health and animal welfare.

ProAct 360 also includes a suite of value-added digital services, such as raw material analysis and a

sustainability calculator, to help poultry companies get deeper insights and make more educated decisions.

Similarly, dsm-firmenich is collaborating with agricultural cooperative Agrifirm to develop a poultry farming data platform that will promote more responsible and transparent production practices. Sustell's life cycle assessment (LCA) methodology, combined with Agrifirm's Poultry Next, a data platform for poultry production performance insights, will provide a unique solution for transparent and responsible poultry production.

The Sustell platform is a user-friendly SaaS solution for accurately calculating feed and farm environmental footprints. Sustell leverages real-time data for LCAs, which is regularly updated and modified to suit the changing demands of animal protein producers and the broader industry.

This pilot allows farmers to transform feed and farm data into sustainability insights that not only reduce the environmental footprint of animal protein production but

also help farmers identify efficiency gains that lead to increased profitability. This opens the door to agricultural consulting services, which not only promote transparency but also provide new market prospects for the whole value chain.

## Plukon Food Group Expands Portfolio with Acquisition of Algas SP Sp. z o.o.



Plukon Food Group (Plukon) has struck an agreement in principle with the shareholders of Algas SP Sp. z o.o. (Algas) to buy all of its slaughtering and processing operations.

The Szatan family runs Algas, a second-generation family company in the southern Polish city of Katowice that includes an abattoir and a processing factory. The firm began poultry processing operations in 1997 and has since established itself as a major local player in southern Poland's broiler slaughtering and poultry processing sectors. Algas's turnover in 2023 was around EUR 35 million.

The purchase of Algas provides a significant opportunity for Plukon and the Szatan family to engage in future expansion of their business in Poland. Integrating Algas into the Plukon Food Group opens up additional prospects and expands

the company's ability to deliver high-quality fresh and frozen chicken products to retail and foodservice clients in Poland and other European countries.

The Szatan family will remain active in the abattoir and processing plant's commercial activities. Furthermore, the Szatan family's broiler farms will continue to provide broilers to the Algas slaughterhouse.

Kees Kraijenoord, CEO Plukon, said, "This strategic acquisition of Algas strengthens our position in Poland and demonstrates our commitment to growth and leadership in the European poultry market." We are thrilled to welcome Algas and the Szatan family into our company and to realise synergies from our combined assets and expertise."

Szczepan Szatan, spokesman for the Szatan family and member of the Algas board. "This relationship with Plukon is a watershed moment for our family company. We are pleased about the prospect of using Plukon's resources and experience to drive our development. The Szatan family is fully dedicated to the company's future growth and anticipates a productive relationship with Plukon."

The deal is subject to the standard conditions, including approval by the appropriate competition authorities.

## Sunfed Meats, Plant-Based Meat Startup, Closes After Nearly a Decade in Operation

Sunfed Meats, an Auckland-based



plant-based meat startup, is closing after nearly a decade in operation. The company's products were no longer available in Australia after inventory ran out in January, and its remaining stock in New Zealand is set to dry up in the next two months. Sunfed Meats founder Shama Sukul Lee confirmed that the brand's products were no longer available in Australia after inventory ran out in January.

Lee founded Sunfed Meats in 2015 as one of Asia-Pacific's first plant-based meat startups. The company's portfolio focused on clean labels with a base of pea protein, faba bean protein, extra virgin olive oil, and yeast extract. The company's focus was on creating products that offered the good things about meat, such as nutrient density, low-carb, and allergen-free.

The company had four phases of growth: R&D, market validation, productisation, and breaking even. In 2016, the company received NZ\$1.2M from several VCs during its market validation stage, leading to another \$10M capital injection, \$5M of which was from Australian VC firm Blackbird Ventures. The investment allowed Sunfed Meats to set up a hygienic food facility, novel manufacturing lines, and an FMCG supply chain, as well as develop and launch new products.

The company expanded to Boar Free Bacon, Bull Free Beef, and Fish Free Tuna, and the company's success saw it turn over NZ\$4M in revenue and enter the Australian market. However, just as it was looking to move into its profitability phase, things took a turn with the pandemic. Lee described it as "Covid hell" and explained that Sunfed Meats went into "chronic business survival mode" just to keep production going.

With the Covid pandemic, new capital had become harder as markets tightened up and priorities shifted. Sunfed's existing VC investors were no longer interested in supporting the business. Lee explained that investors had "written Sunfed off," explaining that manufacturing and FMCG have a lot more complexity and moving parts, and are hence a longer-term play. Eventually, Sunfed was not able to become profitable, and Lee had to make the decision to shut down the company due to unfavourable market conditions. It is currently unclear how many jobs are affected.

The plant-based meat sector has had a tough couple of years globally, with investment and sales declining, and startups like New Wave Foods, Ordinary Seafood, and nowadays ceasing operations.

Within the Asia-Pacific region, while Australia and New Zealand overtook Singapore as the most well-funded alternative protein region in the first half of 2023, this only totalled \$20M, an 87% decrease from the previous year. Brands like Australia's v2food are seeing revenue growth (at 6% per year), and between 2022 and 2023, the number of meat analogues in the country's supermarkets grew by 14%.

## Neogen® Unveils Farm Fluid MAX: A Robust Disinfectant for Livestock Production



Neogen® Corporation announced the introduction of Neogen® Farm Fluid MAX in the United Kingdom, which will shortly be accessible in additional European countries, subject to worldwide registrations and notifications. This dual-action disinfectant is intended for use in difficult agricultural circumstances as part of a Neogen Pathogen Programme.

Neogen Farm Fluid MAX is an expansion of the well-known Farm Fluid product series, specifically developed to be used as part of coccidiosis management methods. It has been shown to challenge and destroy oocysts, disrupting the protozoan cycle and inactivating up to 100% of sporulated and non-

sporulated oocysts. The disinfectant was shown to be effective against numerous field strains of Eimeria oocysts, including E. tenella, E. maxima, and E. acervulina, at a 2% dilution.

"Farm Fluid MAX is a robust and powerful solution, demonstrating our commitment to providing the highest-quality products for our customers around the world," said Andy Hughes, Neogen's Senior Director of Animal Safety, EMEA.

"We have formulated this disinfectant with chlorocresol (CMK), a second biocide, and other supportive ingredients, including a solvent for increased solubility and a surfactant, making it the ideal solution for combating difficult farm environments."

Neogen Farm Fluid MAX may be used in a range of applications, including general disinfection of indoor and outdoor animal housing, as well as wheel and boot dips, with low deterioration from direct sunlight.

For greatest effectiveness, apply Neogen Farm Fluid MAX to pre-cleaned, dry surfaces\*. For best results, use the disinfectant as part of a Neogen Pathogen Programme, which targets viruses, mycoplasma, bacteria, and protozoa in livestock production. Neogen Farm Fluid MAX is often recommended as the third stage in the programme, after washing all surfaces with Farm-Foam™ EVO and applying Neogen Viroxide Super™ disinfection.

### About Neogen

Neogen Corporation is dedicated to driving a better future for global food security by improving human and animal well-being. Using science and technology, Neogen has created complete solutions for the Food Safety, Livestock, and Pet Health & Wellness industries. Neogen, a global leader in these

disciplines, has a presence in over 140 countries and a committed network of scientists and technical specialists focused on providing optimised goods and technology to its clients.

## Cornell Virology Experts Sequence Bird Flu Virus Found in Texas Cows



Cornell virology experts are sequencing the bird flu virus that struck cows in the Texas panhandle last week, after work at Cornell and two other veterinary diagnostic laboratories found the highly pathogenic avian influenza (HPAI) virus in cattle samples. This sequencing may help scientists understand why the virus jumped to cows and how future outbreaks may be prevented. HPAI is known for its ability to infect various animal species, with fatalities among birds where it attacks the gastrointestinal tract and the nervous system. Since 2022, the HPAI outbreak has killed millions of commercial poultry and wild birds, and the virus has been detected in many wild carnivores such as foxes that feed on carcasses of dead birds and often suffer the same fate.

Currently, there is no evidence that these mammalian species can transmit the virus to other animals, but its detection in ruminants is new. The USDA recently reported



HPAI in a juvenile goat, but there were no previous reports of infection in cattle. When assistant professor of practice Elisha Frye, D.V.M. '10, first got the call about a disease outbreak of unknown origin among dairy herds in Texas, she advised the caller to send samples to the AHDC for immediate testing.

Several types of samples were sent to the AHDC, where Diel's team conducted exploratory next generation sequencing (NGS) that detects viruses in a wide variety of species and samples, casting a wide net that gives scientists the ability to look for virtually anything. Within five days of receiving the samples, they were able to identify HPAI in association with this outbreak in dairy cows.

The New York State Veterinary Diagnostic Laboratory (AHDC) supports the state's animal agriculture and promotes the health of animals and humans by testing hundreds of thousands of samples a year. With its subject matter expertise, advanced testing capabilities, and membership in the National Animal Health Laboratory Network, the AHDC is well-suited to respond to such outbreaks.

## **Scottish Government Proposes Phase-Out of Enhanced Cages for Laying Hens**

The Scottish Government intends to phase out the usage of enhanced cages for laying hens. The Edinburgh-based council has launched a consultation on the ideas, seeking feedback from the poultry sector.



The objective is to prohibit new cages in 2033, followed by a full ban on raising chickens in enhanced cages starting in 2034.

In 2012, the UK outlawed battery or barren cages. Since then, enhanced cages have given birds greater space to nest, roost, scratch, and rest, according to the Scottish government, which is now in charge of agricultural policy in this region of the nation. As of February 2024, Scotland has more than 1.1 million chickens caged in cages. However, a 2020 study found that 88% of the British people believe cages in farming to be inhumane, with 77% supporting a full ban on cage usage in farming.

Agriculture Minister Jim Fairlie said, "We want to improve the welfare of laying hens so that confinement does not have a negative impact on their normal behaviours."

Significant progress has already been achieved in understanding the significance of animal welfare, both in government legislation and in the public's buying preferences. If adopted, the prohibition would be another example of Scotland leading the way in improving animal care by being the first UK country to prohibit the practice."

"The European Union has

proposed legislation to restrict the use of cages for all farmed animals, with Luxembourg and Austria already abolishing them and others phasing them out. In the next weeks, we will also seek evidence on the usage of cages in the gamebird and quail egg and meat sectors, with the intention of advising on the phasing out of cages in those sectors in the future. I would urge everyone interested in this topic to get involved and help influence how we preserve the wellbeing of laying hens.

The British Egg Industry Council believes that the prohibition would result in job losses and reduced exports. CEO Gary Ford said, "In the UK, approximately a quarter of eggs consumed are laid by hens kept in enriched colony cage systems, meeting demand for affordable, nutritious, high-quality food and providing a vital option for a large segment of the population, particularly during the ongoing cost of living crisis." In the case of a cage ban, shops and foodservice providers would have to import caged eggs from outside the UK, perhaps with much poorer welfare standards."

## Study Highlights Role of Natural Feed Additives in Combating Antimicrobial Resistance

Antimicrobial resistance is a growing concern for public health, and the use of antimicrobials in livestock feed has been a major contributor to the emergence and spread of antimicrobial resistance to many drugs. The poultry industry is evolving towards antibiotic-free production to meet market demands and decelerate the spread. Penn State researchers are helping to identify and better understand alternative approaches to antibiotic-free products in the diet of broiler chickens.

A Penn State research team led by Erika Ganda, assistant professor of food animal microbiomes, conducted a study on natural feed additives that are promising alternatives to substitute for antimicrobial growth promoters. The team found that supplementing the diet of young chicks with a probiotic over 21 days significantly boosted the abundance of beneficial intestinal microorganisms.

Research like this is urgently needed to help producers make decisions at the farm. However, the use of these feed additives in broiler production is still in its early stages, and more studies to evaluate the health outcomes, mechanisms, and consequences for antimicrobial resistance prevalence will be necessary to better understand the role of feeding antimicrobial growth promoters alternatives on the gastrointestinal tract of broilers.

The research involved 320 one-day-old chicks raised for 21 days in 32 randomly allocated cages. Treatments consisted of four experimental diets: a standard diet, a standard diet mixed with the antibiotic bacitracin methylene disalicylate, an essential oils blend of oregano oil, rosemary and red pepper, or the probiotic *Bacillus subtilis*.

The researchers individually weighed all broiler chickens on day one and then at the end of each dietary phase on day 10 and day 21. The feed consumed per pen was monitored at the end of each growth phase. The team collected excreta samples daily during the entire experimental period and analyzed DNA to identify bacteria present.

Across all time points, supplementing chicken diets with

the probiotic or the antibiotic significantly changed the relative abundance of bacterial strains compared to the standard diet. However, there were no microorganisms affected by essential oils compared to the standard diet.

The benefits of essential oils in this context deserve more research. The U.S. Department of Agriculture's National Institute of Food and Agriculture and the Penn State College of Agricultural Sciences Strategic Networks and Initiatives Program supported this research.

## Two Decades of CLOSTAT™: Kemin Marks Milestone with Anniversary Event in Manila

Kemin Industries, a global ingredient manufacturer, celebrates two decades of CLOSTAT™, its flagship probiotic product for managing intestinal health in poultry and livestock. The company's products and services aim to improve the quality of life for 80 percent of the world's population. To mark the occasion, the Kemin Animal Nutrition and Health - Asia Pacific business unit held an anniversary dinner on Tuesday, April 16, in Manila, Philippines. The event coincided with the 8th International Conference on Poultry Intestinal Health (ICPIH), which took place in the country's capital city from April 17 to 19.

Kemin's probiotic solution has pioneered the development of a healthy microbiome to boost intestinal resilience, address gut health issues, and increase animal production. CLOSTAT provides a





practical and complete solution for promoting the formation of a balanced gut microbiota, improving immune function, and reducing antibiotic use—all while protecting animal health, welfare, growth, and performance.

Since its debut in 2004, CLOSTAT has been utilised by poultry farmers in over 50 nations to improve feed efficiency, growth rate, and profitability. CLOSTAT has also received other industry accolades, including the Animal Pharm Best New Product Award in 2005, the World Poultry Innovation Award in 2006, and the Asian Agribiz Product of the Year Award in 2018.

Following the success of CLOSTAT, Kemin released ENTEROSURE™ in 2022 to meet the evolving demands of animal farmers. ENTEROSURE builds on the scientifically established efficiency of CLOSTAT's *Bacillus* PB6 against *Clostridium perfringens* by controlling the development of *Escherichia coli* and other Enterobacteriaceae, including *Salmonella*. ENTEROSURE's patented combination of probiotic *Bacillus* strains provides a complete solution for controlling gut health concerns and increasing animal output.

"We are extremely proud of the impact of CLOSTAT over the past 20 years," said Dr Chris Nelson, President and CEO of Kemin Industries. "Our signature probiotic-support ingredient exemplifies Kemin's dedication to innovation and quality, as well as our aim of improving people's lives.

We are delighted to share this success with our dedicated clients, partners, and friends at ICPIH, and we look forward to continuing to deliver the finest solutions for poultry intestinal health."

### **About Kemin Industries**

Kemin Industries is a worldwide ingredient company committed to improving the quality of life for 80 percent of the world's population via its products and services. The firm provides approximately 500 unique ingredients for the human and animal health and nutrition, pet food, aquaculture, nutraceutical, food technologies, agricultural technologies, textile, biofuel, and animal vaccination sectors.

Kemin has spent over half a century applying applied science to solve industrial difficulties and provide product solutions to clients in over 120 countries. Kemin's dedication to the quality, safety, and effectiveness of food, feed, and health-related products ensures that ingredients are available to feed an expanding population.

Kemin, founded in 1961, is a privately held, family-owned and run firm with over 3,000 worldwide workers with activities in 90 countries, including production sites in Belgium, Brazil, China, Egypt, India, Italy, San Marino, Singapore, South Africa, and the US.

## **ADM's XTRACT 6930 Feed Supplement Proven to Reduce Carbon Footprint in Poultry Production**

ADM conducted a full Life Cycle Assessment (LCA) on XTRACT 6930,

a plant extract-based feed supplement for monogastric animals. LCA is a process for evaluating and quantifying the possible environmental consequences of a product or service throughout its supply chain. Notably, ADM has gathered LCA data for XTRACT 6930 usage in grill operations throughout four worldwide regions: Asia, Latin America, Europe, and North America.

These findings imply that XTRACT 6930 is an effective tool for reducing the environmental impact of the grill meat business. The use of ADM's feed additive has resulted in a carbon footprint reduction of at least 1.9 percent for live broilers and at least 2.8 percent for broiler meat production. In other words, spending one kilogram CO<sub>2</sub> eq. on XTRACT saves 75 kg CO<sub>2</sub> eq. in live broiler farming and 100 kg CO<sub>2</sub> eq. in broiler meat processing. Furthermore, XTRACT 6930 has a small impact on the environmental footprint of grill feed. Results vary by area.

Poultry is a major source of animal protein around the globe. It is worth noting that chicken consumption generates 6.6 percent of dietary greenhouse gas emissions, which is similar to pork (6.5 percent), milk (5.1 percent), and cheese (7.2 percent) consumption in the typical US diet<sup>1</sup>. Thus, minimizing the environmental effect of the worldwide grill meat market may have far-reaching consequences.

XTRACT 6930 uses a mixture of microencapsulated active compounds found in aromatic herbs and spices, all of which have been shown to have physiological benefits on chickens. A detailed performance investigation of its use and outcomes in broilers reveals

that the feed additive promotes increased carcass yield, weight, and breast weight, as well as higher feed conversion rates.

ADM's LCA study was carried out in partnership with Blonk Consultants, in accordance with ISO 14040 and ISO 14044 standards, as well as European Union (EU) and Food and Agriculture Organisation (FAO) sectoral recommendations. A panel of three independent, third-party reviewers then reviewed the correctness of the LCA and the validity of the findings. The panel performed a comprehensive evaluation and meta-analysis of 22 research on XTRACT 6930, which included both peer-reviewed and unpublished business data.

Additional LCAs of ADM's animal nutrition products are being conducted to determine their possible environmental impact on animal protein output.

### About ADM

ADM harnesses the power of nature to improve people's quality of life. We are a leading worldwide human and animal nutrition firm that provides answers for the present while also looking forward. Our scientists are forging new ground in health and well-being by developing ground-breaking products to help people live better lifestyles. We're a cutting-edge inventor paving the way for a new era of plant-based consumer and industrial solutions that will replace petroleum-based goods. We are a leading agricultural supply chain manager and processor, ensuring food security by combining local needs with global capabilities. And we're a sustainability pioneer, working across whole value chains to help decarbonise our business and protect the environment. We provide clients with an advantage in tackling today's and tomorrow's

nutritional and sustainability concerns, from the germ of an idea to the final solution. Learn more at [www.adm.com](http://www.adm.com).

## World Veterinary Day 2024: Shining Light on the Unseen Challenges and Dedication of Veterinarians

A recent survey conducted by Boehringer Ingelheim, a pharmaceutical company, has revealed that only 49% of veterinarians feel that their profession is appreciated. The survey, which included 1056 companion animal, livestock, and equine veterinarians from the United States, Japan, United Kingdom, France, Brazil, and Germany, aimed to explore how veterinarians feel valued and understood by animal owners.

The findings of the survey showed that perceived levels of appreciation for the veterinary profession were relatively consistent across different types of veterinary teams. Only 48% of pet-focused veterinarians, 55% of livestock veterinarians, and 42% of equine veterinarians reported feeling appreciated in their profession. This is despite 75% of the respondents feeling personally appreciated by their clients.

The survey also revealed that clients may not have a full understanding of the challenges and sacrifices that veterinarians make in their work. Nearly half of the participants felt underappreciated by clients when it came to understanding the resilience to stress and emotional

**WORLD  
VETERINARY  
DAY 2024**



**Veterinarians  
are essential health workers**  
27th April 2024

exhaustion required from the job. Additionally, many veterinarians reported feeling underappreciated for working despite feeling physically exhausted and for sacrificing their work-life balance to help animals.

The survey respondents were also asked to highlight key aspects of their profession that they wish people knew more about. The most common responses from pet-focused veterinarians were their compassion and dedication to animal welfare, as well as the difficulties of the role. Livestock and equine veterinarians emphasized the importance, competence, and value of their profession.

In response to these findings, Boehringer Ingelheim, along with the World Small Animal Veterinary Association and the World Association for Buiatrics, among other organizations, are working together to support veterinarians. Their goal is to showcase the compassion and dedication of veterinary professionals while shedding light on the often-unseen complex and difficult aspects of their work.

The World Veterinary Association has also recognized the need to raise awareness of the essential role that veterinarians play in maintaining and improving the health and well-being of animals and society as a whole. They believe it is imperative to highlight the care and effort that veterinarians put into forging a healthy and happy society.

By celebrating the essential behind-the-scenes work that veterinarians do, the hope is that they will feel seen and appreciated, which will help retain their passion for animal care. The organizations involved in this initiative aim to raise awareness of the realities of veterinary work and the dedication required to be a veterinarian.

Ultimately, the goal is to ensure that veterinarians feel valued and understood by both their clients and society as a whole. This recognition is crucial in order to retain veterinarians in the profession and to inspire future generations to pursue a career in veterinary medicine.

## **Zoetis Sells Medicated Feed Additive Business to Phibro Animal Health for \$350 Million**

Zoetis Inc. and Phibro Animal Health Corporation announced today that they have reached a definitive agreement under which Phibro Animal Health will buy Zoetis' medicated feed additive (MFA) product portfolio, certain water soluble products, and related

assets for \$350 million, subject to customary closing adjustments. The acquisition is expected to be finalised in the second part of calendar year 2024.

Zoetis and Phibro Animal Health have extensive experience creating animal health products. The acquired product portfolio, which earned more than \$400 million in sales in 2023, consists of around 37 product lines spread throughout 80 countries. The pact also involves six production facilities: four in the United States, one in Italy, and one in China. More than 300 Zoetis employees who support production, distribution, and commercial operations are scheduled to join Phibro Animal Health.

This acquisition demonstrates Zoetis' stringent capital allocation approach, which prioritises investments in animal health, productivity, and sustainability. With this agreement, Zoetis will be able to direct its cattle efforts into other areas like as immunisation, biologics, and genetic research.

"We remain committed to providing innovative solutions to our livestock customers," said Kristin Peck, CEO of Zoetis. "We believe that the long-term value of the transferred portfolio will be fully realised with Phibro Animal Health which will continue to

expand its reach given their strong relationships with customers worldwide."

Zoetis' extensive range of MFA and water soluble solutions for cattle, swine and poultry will supplement and broaden Phibro Animal Health's species and product portfolios, allowing clients to fulfil the highest animal care requirements while reducing illness and increasing nutrition. Phibro Animal Health's revenues in the prior year would have been about \$1.4 billion, including the purchase. The portfolio is projected to improve Phibro Animal Health's profitability and EBITDA margin while increasing Adjusted Earnings Per Share. The acquisition is intended to be financed mostly via debt, and Phibro Animal Health has secured financing commitments from a number of important relationship banks. Phibro Animal Health anticipates net leverage of 3.5-4.0x Debt / Adjusted EBITDA at the closure, and less than 3.0x at the end of its fiscal year on June 30, 2027.

"Over a long period of time, Zoetis has built a valuable, high-quality, and reliable source of medicated feed additives around the globe," stated Jack C. Bendheim, Chairman, President, and CEO of Phibro Animal Health. "This transaction will strengthen, diversify, and widen our worldwide portfolio, allowing us to continue delivering value to our clients and shareholders. We anticipate that our cash creation will enable us to continue investing in our rapidly expanding companies, Nutritional Specialties, Companion Animals, and Vaccines. I am certain that we have the ability to unite and strengthen this firm. I am excited to collaborate with the Zoetis team and to welcome new colleagues to Phibro Animal Health to support this portfolio."





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\*1 FCR point represent third/last decimal point of 1000

\*Majority of field trials were conducted at same farm with multiple sheds in integrations across various geographical locations and at different time of the year. Some of the integrators were generous in sharing complete production indices while others communicated the summary of the trial results. In the field trials, Improval™ MS was compared with antibiotic/probiotic/antibiotic + probiotic/probiotic + prebiotic control. Detailed reports available on request.

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# Editorial Calendar 2024

Publishing Month: <b>January</b> Article Deadline : <b>28<sup>th</sup>, Dec. 2023</b> Advertising Deadline : <b>30<sup>th</sup>, Dec. 2023</b> Focus : <b>Opportunities and Challenges</b>	Publishing Month: <b>February</b> Article Deadline : <b>28<sup>th</sup>, Jan. 2024</b> Advertising Deadline : <b>30<sup>th</sup>, Jan. 2024</b> Focus : <b>Budget</b>	Publishing Month: <b>March</b> Article Deadline : <b>26<sup>th</sup>, Feb. 2024</b> Advertising Deadline : <b>28<sup>th</sup>, Feb. 2024</b> Focus : <b>Disease Prevention</b>	Publishing Month: <b>April</b> Article Deadline : <b>28<sup>th</sup>, March 2024</b> Advertising Deadline : <b>30<sup>th</sup>, March 2024</b> Focus : <b>Summer Stress Management</b>
Publishing Month: <b>May</b> Article Deadline : <b>28<sup>th</sup>, April 2024</b> Advertising Deadline : <b>30<sup>th</sup>, April 2024</b> Focus : <b>Cold Chain</b>	Publishing Month: <b>June</b> Article Deadline : <b>28<sup>th</sup>, May 2024</b> Advertising Deadline : <b>30<sup>th</sup>, May 2024</b> Focus : <b>Nutrition</b>	Publishing Month: <b>July</b> Article Deadline : <b>28<sup>th</sup>, June 2024</b> Advertising Deadline : <b>30<sup>th</sup>, June 2024</b> Focus : <b>Biosecurity</b>	Publishing Month: <b>August</b> Article Deadline : <b>28<sup>th</sup>, July 2024</b> Advertising Deadline : <b>30<sup>th</sup>, July 2024</b> Focus : <b>Sustainability</b>
Publishing Month: <b>September</b> Article Deadline : <b>28<sup>th</sup>, August 2024</b> Advertising Deadline : <b>30<sup>th</sup>, August 2024</b> Focus : <b>Egg Production &amp; Processing</b>	Publishing Month: <b>October</b> Article Deadline : <b>28<sup>th</sup>, September 2024</b> Advertising Deadline : <b>30<sup>th</sup>, September 2024</b> Focus : <b>Processing &amp; Packaging</b>	Publishing Month: <b>November</b> Article Deadline : <b>28<sup>th</sup>, October 2024</b> Advertising Deadline : <b>30<sup>th</sup>, October 2024</b> Focus : <b>Winter Stress</b>	Publishing Month: <b>December</b> Article Deadline : <b>28<sup>th</sup>, November 2024</b> Advertising Deadline : <b>30<sup>th</sup>, November 2024</b> Focus : <b>Food Safety</b>

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