Livestock & Feed Trends

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CLFMA OF INDIA's 59th AGM & 67th National Symposium 2026









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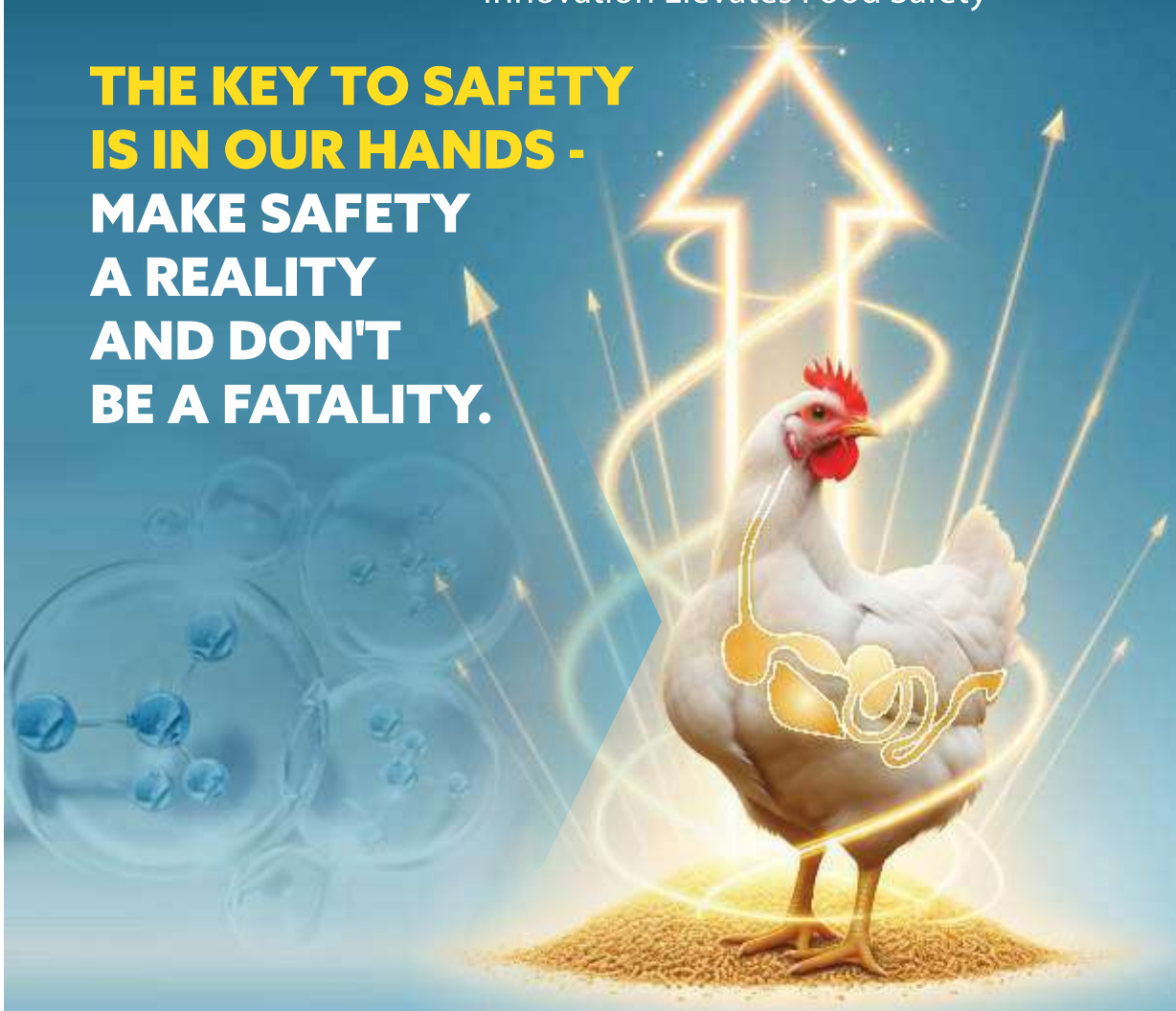
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From the Chairman's Desk.....

Dear Friends,

Warm greetings to you all!

It gives me immense pleasure to share the remarkable success of the 59th Annual General Meeting (AGM) and 67th National Symposium 2026 of CLFMA of India, held on 11th and 12th September 2026 at The Leela, Mumbai, under the theme **"Animal Agriculture – The Backbone of Sustainable Development."**

The two-day event witnessed enthusiastic participation from CLFMA members, policymakers, government officials, representatives from the Consulate General, ambassadors, industry leaders, researchers, farmers, and other key stakeholders. The overwhelming support and active involvement of our members made the event a resounding success, reflecting the strength, unity, and collective commitment of our fraternity towards the continued growth and advancement of India's animal agriculture sector.

A Resounding Success and Meaningful Deliberations:

The Symposium provided a valuable platform to deliberate on critical priorities shaping the future of animal agriculture, including feed security, productivity, animal health, innovation, technology, market linkages and sustainable growth. The presence and valuable insights of senior government officials enriched the discussions and reinforced the importance of stronger government-industry collaboration.

The event featured addresses by me as Chairman of CLFMA of India, Shri. Tarun Shridhar, IAS (Retd.), Mr.Naresh Pal Gangwar, Secretary AHD, Department of Animal Husbandry and Dairying, and Dr. B. Muthukumarasamy, Joint Secretary (NLM). The deliberations underscored the need for improved feed availability, enhanced farmer capabilities, technological advancement and a more integrated value chain to ensure the sustainable growth of India's animal agriculture sector.

Nurturing the Next Generation: CLFMA Students Programme:

A particularly proud milestone was the second-ever CLFMA Students Programme in the Association's history. Building on the success of its inaugural edition, we were delighted to organise the programme once again, creating a unique platform to inspire, engage and connect young talent with the real-world challenges and opportunities in animal agriculture. Recognising their creativity, dedication and innovative thinking, CLFMA conferred Gold, Silver and



Bronze Awards, along with cash prizes, on the selected students. This initiative reflects our commitment to nurturing young researchers and professionals who will shape the future of our industry.

Recognising Excellence and Advancing Industry Knowledge:

The Symposium also featured the prestigious CLFMA Awards, recognising outstanding contributions across the Poultry, Dairy and Aqua sectors. The CLFMA Souvenir 2026 and the Survey Report 2026–2030 were also launched, further strengthening our efforts to promote knowledge sharing, industry research and informed decision-making.

The second day featured insightful keynote presentations and panel discussions on feed and raw materials, innovation, international trade, the pet food industry, Artificial Intelligence, global food security and the topic **"One Nation, One Voice."** These discussions emphasised the importance of coordinated industry advocacy, innovation and sustained engagement among all stakeholders. The programme concluded with a valedictory session that reaffirmed our collective commitment to building a stronger, more competitive and sustainable animal agriculture ecosystem in India.

We extend our sincere gratitude to the Department of Animal Husbandry and Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India, for its gracious support through the provision of its Logo for the Symposium. We also express our heartfelt appreciation to

all participants, speakers, moderators, panellists, awardees and members whose contributions made this event memorable. As a gesture of appreciation, CLFMA of India sent thank-you letters to all participants, speakers, moderators and panellists on 29th September, 2026.

Sharing Our Progress and Looking Ahead:

A comprehensive report on the 67th National Symposium 2026 will be compiled and shared with all stakeholders, including relevant government officials, to document the key deliberations, insights and outcomes of the event. A detailed overview of CLFMA's recent initiatives has also been included in the **CLFMA Activity Updates** section for your kind reference.

These milestones reaffirm our collective resolve to engage meaningfully, embrace innovation and advocate for policies and initiatives that advance the interests of India's livestock, poultry, dairy and aquaculture sectors. As we move forward, I warmly invite your valuable suggestions, ideas and feedback to help **CLFMA** grow stronger, more effective and more resilient. Your continued support and active participation remain the driving forces behind our progress and strengthen our role as a united voice for the animal agriculture industry.

Let us continue to work together towards a sustainable, progressive and thriving future for our industry and our nation.

With warm regards and sincere appreciation,

For **CLFMA OF INDIA,**



Mr. Divya Kumar Gulati
Chairman

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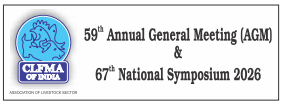
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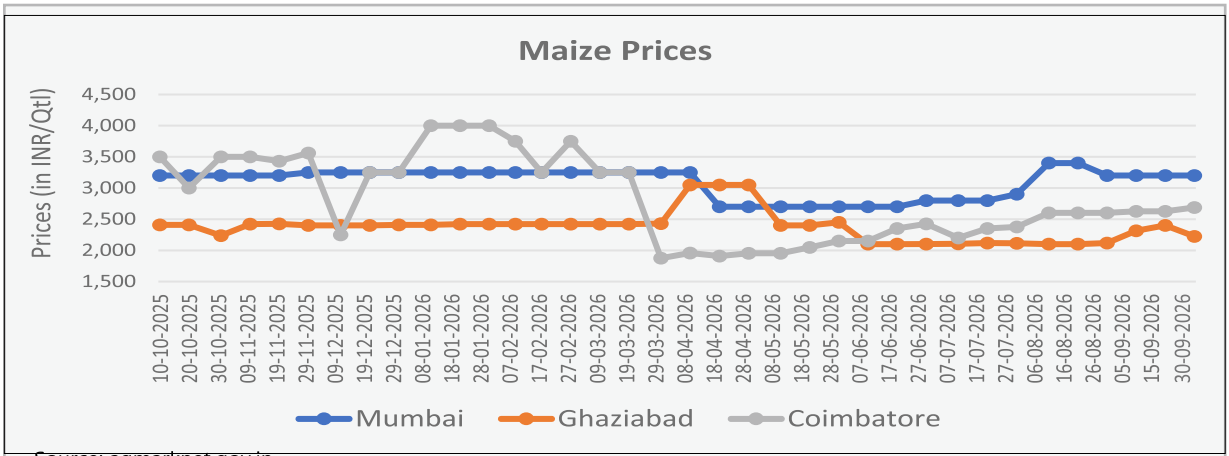
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Commodity Updates

1. Domesĕc Prices

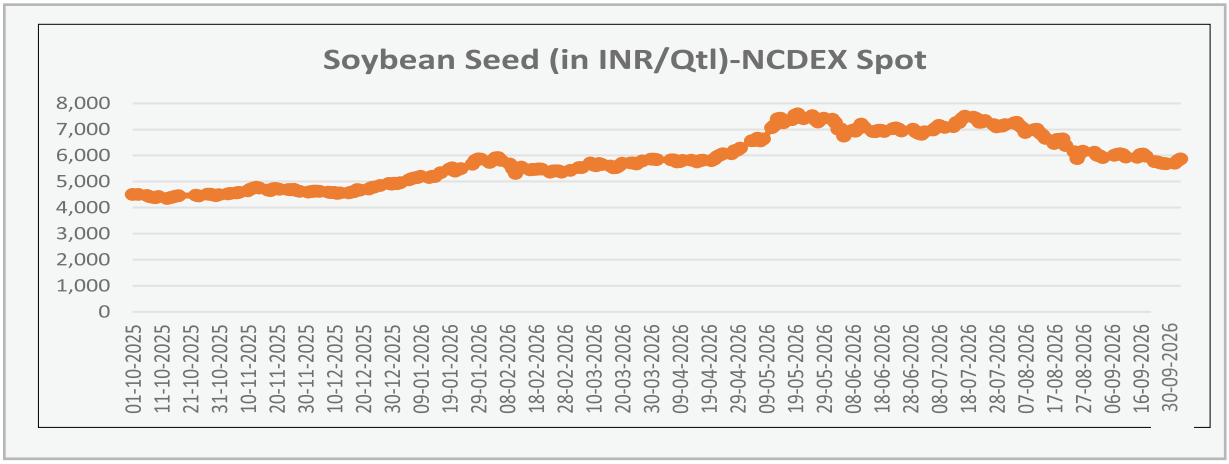
I. Maize



Source: agmarknet.gov.in

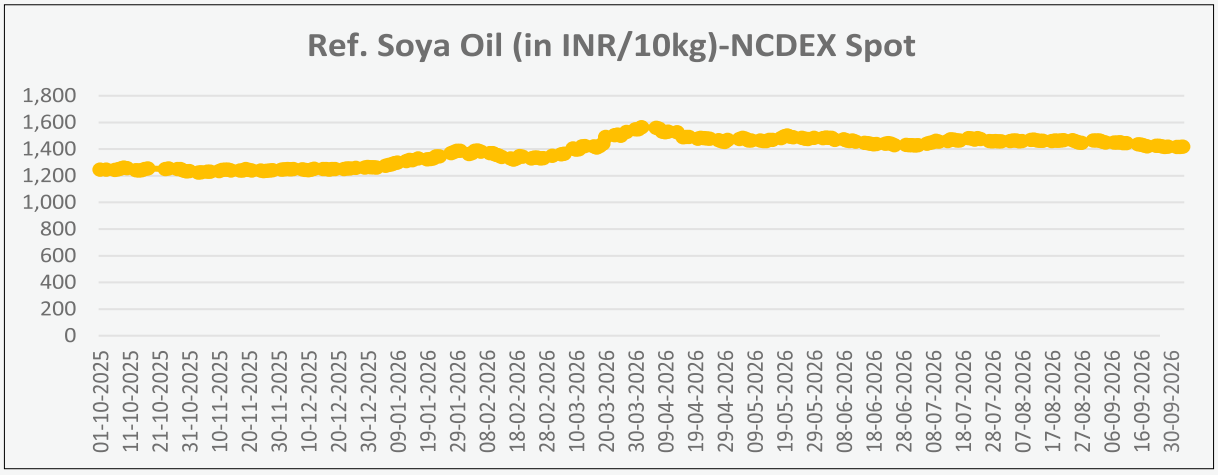
Maize Prices (INR/Quintal)		
City	**30/09/2026**	**31/08/2026**
Mumbai	3,200	3,200
Ghaziabad	2,225	2,100
Coimbatore	2,690	2,600

II. Soybean

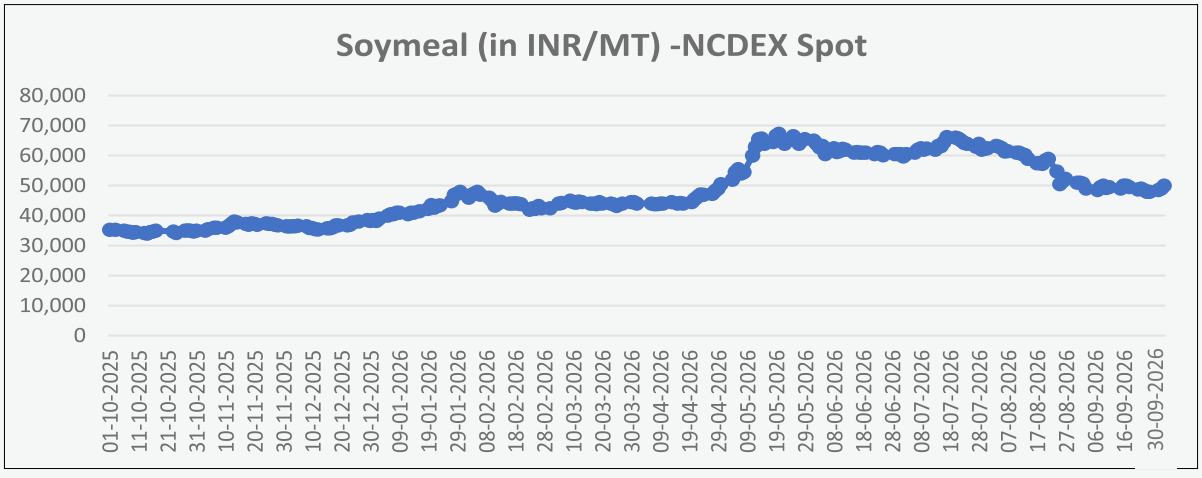


Soybean Complex Prices-NCDEX Spot		
Commodity (Unit)	**30/09/2026**	**31/08/2026**
Soybean Seed (in INR/Qtl)	5,868	6,122
Ref. Soya Oil (in INR/10kg)	1,418	1,465
Soymeal (in INR/MT)	50,000	51,000

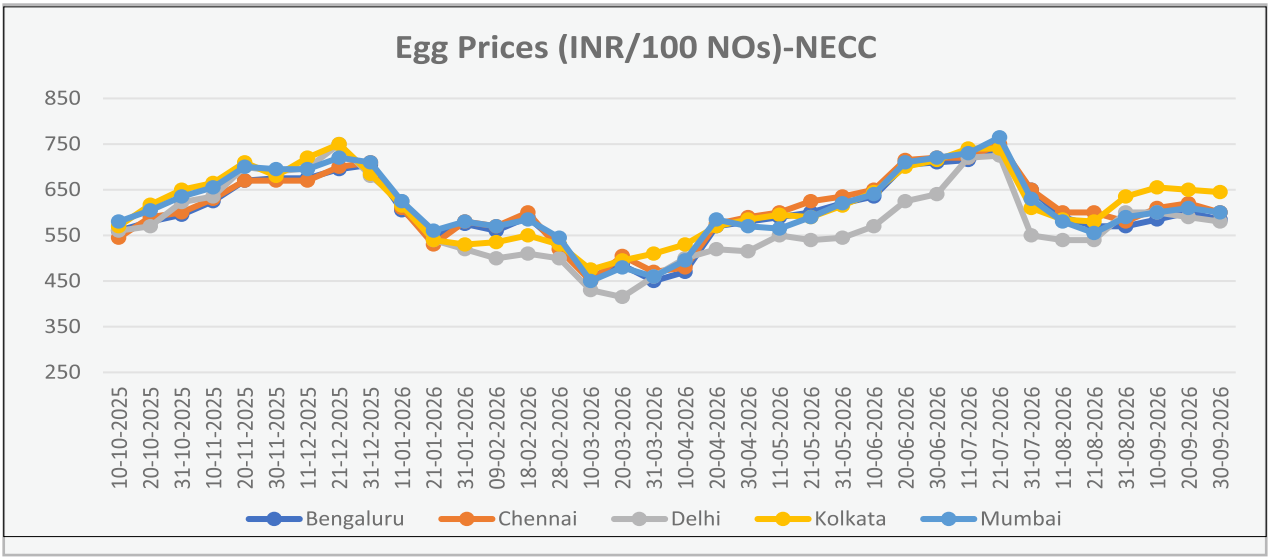
Ref Soya Oil



Soymeal



III. Egg Rates



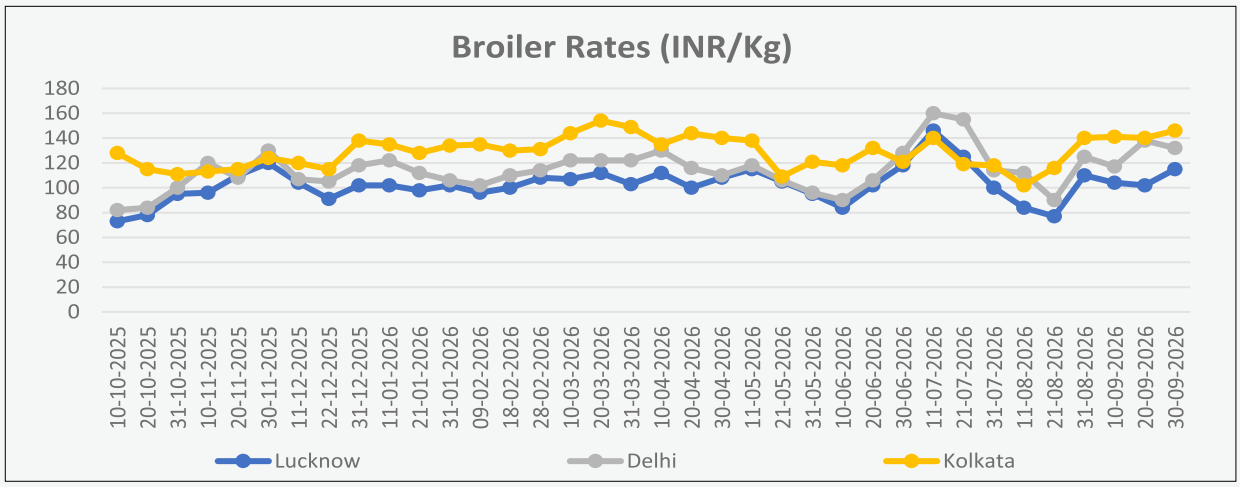
EGG PRICES (INR/100 NOs)		
Name of Zone	**30/09/2026**	**31/08/2026**
NECC Prices		
Ahmedabad	580	590
Ajmer	540	515
Barwala	555	561
Bengaluru (CC)	585	570
Brahmapur (OD)	597	585
Chennai (CC)	600	580
Chittoor	593	573
Delhi (CC)	580	600
E.Godavari	565	555
Hospet	525	510
Hyderabad	540	530
Jabalpur	535	560
Kolkata (WB)	645	635
Ludhiana	561	560
Mumbai (CC)	600	590
Mysuru	600	575
Namakkal	540	520
Pune	590	570
Raipur	540	535
Surat	580	585
Vijayawada	585	575
Vizag	570	555
W.Godavari	565	555
Warangal	542	552

III. Egg Rates

EGG PRICES (INR/100 NOs)		
Name of Zone	**30/09/2026**	**31/08/2026**
Prevailing Prices		
Allahabad (CC)	595	605
Bhopal	550	570
Indore (CC)	555	560
Kanpur (CC)	581	600
Lucknow (CC)	600	600
Muzaffurpur (CC)	600	615
Nagpur	570	560
Patna	600	615
Ranchi (CC)	619	609
Varanasi (CC)	600	600

Source: NECC

IV. Broiler Rates



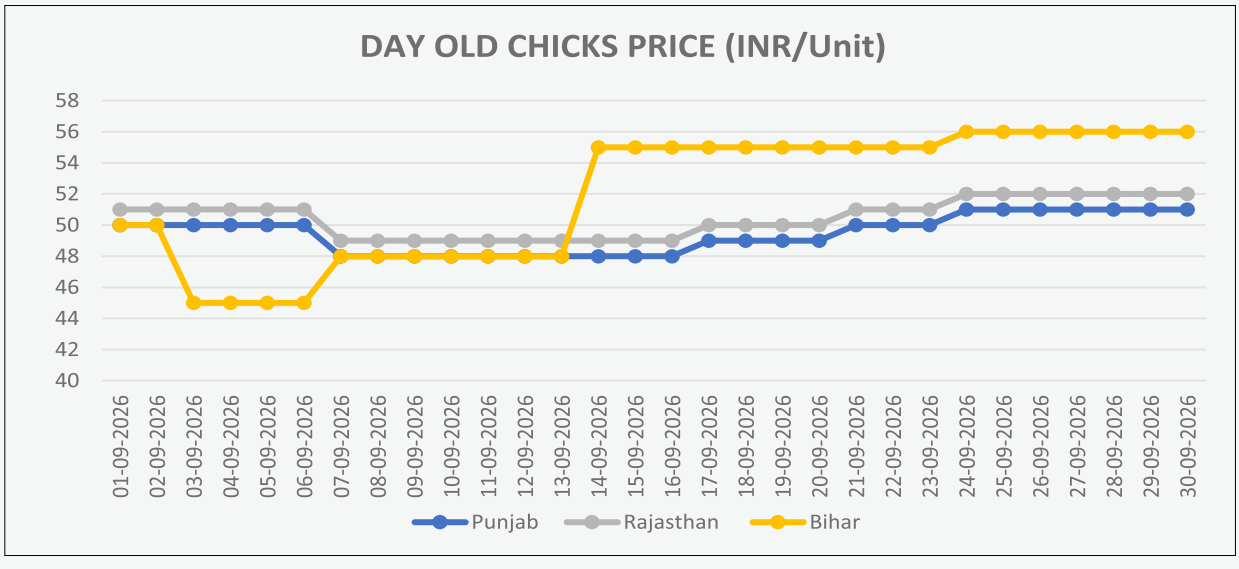
BROILER RATES (INR/Kg)		
Location	**30/09/2026**	**31/08/2026**
Delhi	132	125
Punjab	122	132
Raipur	115	80
Pune	135	98
Bengaluru	114	80
Hyderabad	137	117
Guwahati	110	110
Kolkata	146	140
Bihar	124	117
Madhya Pradesh	130	108
Lucknow	115	110

Source: SRP (Wholesale Rates)

V. Day old Chicks Price

DAY OLD CHICKS PRICE (INR/Unit)		
State	**30/09/2026**	**31/08/2026**
Punjab	51	50
Dehradun	53	50
Haryana	51	50
Himachal Pradesh	52	51
Rajasthan	52	51
Jammu	52	52
Andhra Pradesh	53	52
Uttar Pradesh	56	50
Madhya Pradesh	56	53
Telangana	53	52
Bihar	56	50
Jharkhand	56	50
Gujarat	56	53

Source: Poultry India TV/ SRP



VI. Fish Prices

Fish Prices Average Price (INR/Quintal)		
Fish Type	**30/09/2026**	**31/08/2026**
Bata Putti	7,500	8,000
Black Dom	15,000	13,000
Chilwa	12,000	11,000
Halwa	26,500	25,000
Hilsa	60,000	55,000
Katla (Small)	10,500	9,000
Malli (Big)	21,500	20,500
Malli (Small)	15,000	15,000
Pangass	10,000	9,000
Katla (Big)	16,000	14,500
Singhra (Big)	34,000	30,000
Singhra (Small)	15,000	20,000
Surmali (Small)	45,000	35,000
Surmai (Big)	51,000	40,000
Sol	39,500	35,000
Soli	19,500	19,500
Rahu (Andhra)	12,000	10,500
Zinga (Zambo-A)	50,000	55,000
Zinga (Zambo-B)	51,000	45,000
Zinga (Zambo-C)	35,000	35,000

Source: agmarknet.gov.in
The Prices are of Delhi (Gazipur Mandi)

2. Global Commodity Prices

Commodity (Unit)	PRICE (30/09/2026)
Milk (USD/CWT)	14.89
Rapeseed (Euro/Ton)	536.75
Soybean Meal (USD/Ton)	354.60
Soybean Oil (USD/lb)	0.68
Live Cattle (USD/Lbs)	2.19
Poultry (USD/Kgs)*	1.60
Eggs US (USD/Dozen)	0.47

Source: tradingeconomics; markets.businessinsider

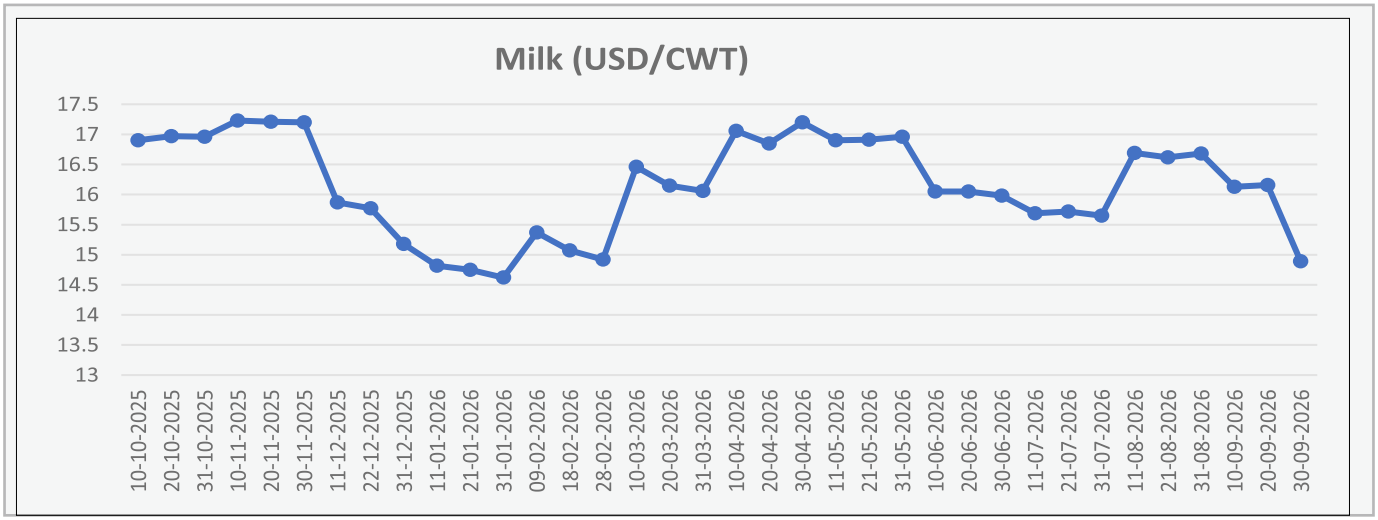
USD: United States Dollar

CWT: Short Hundredweight

Lbs: Pounds

1 BRL (Brazilian Real) = 0.19 USD

*-Poultry price refers to the cost of the chicken in the wholesale market of São Paulo, Brazil. The price is converted from BRL to USD using above conversion rate.





High Quality Learning Hub
https://gateway.on24.com/wcc/eh/3184865/msd-animal-health-poultry-learning-hub.

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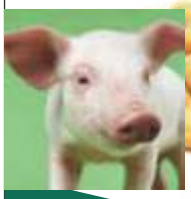
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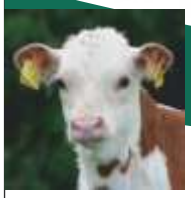
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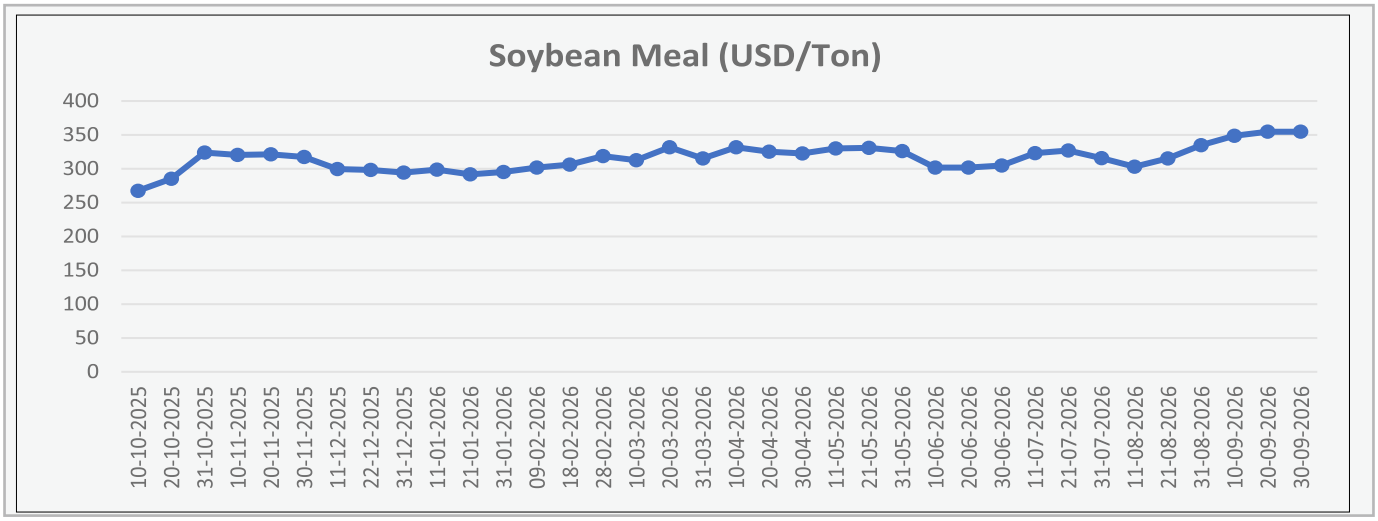


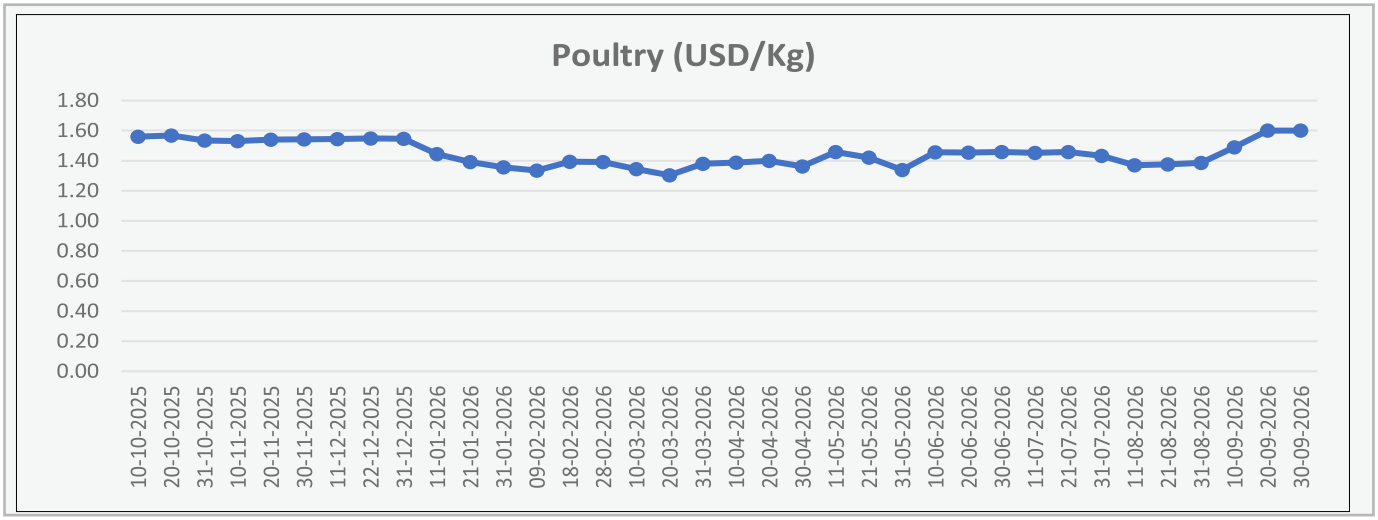
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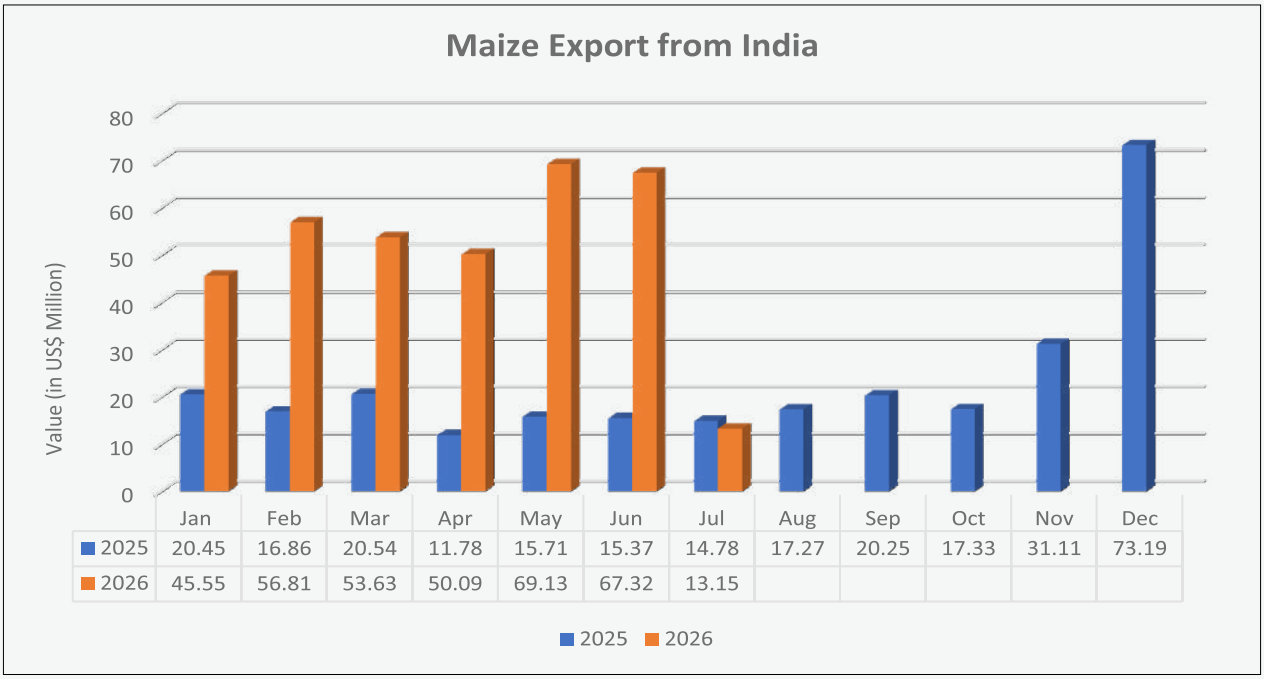
2. Global Commodity Prices





3. Trade Details

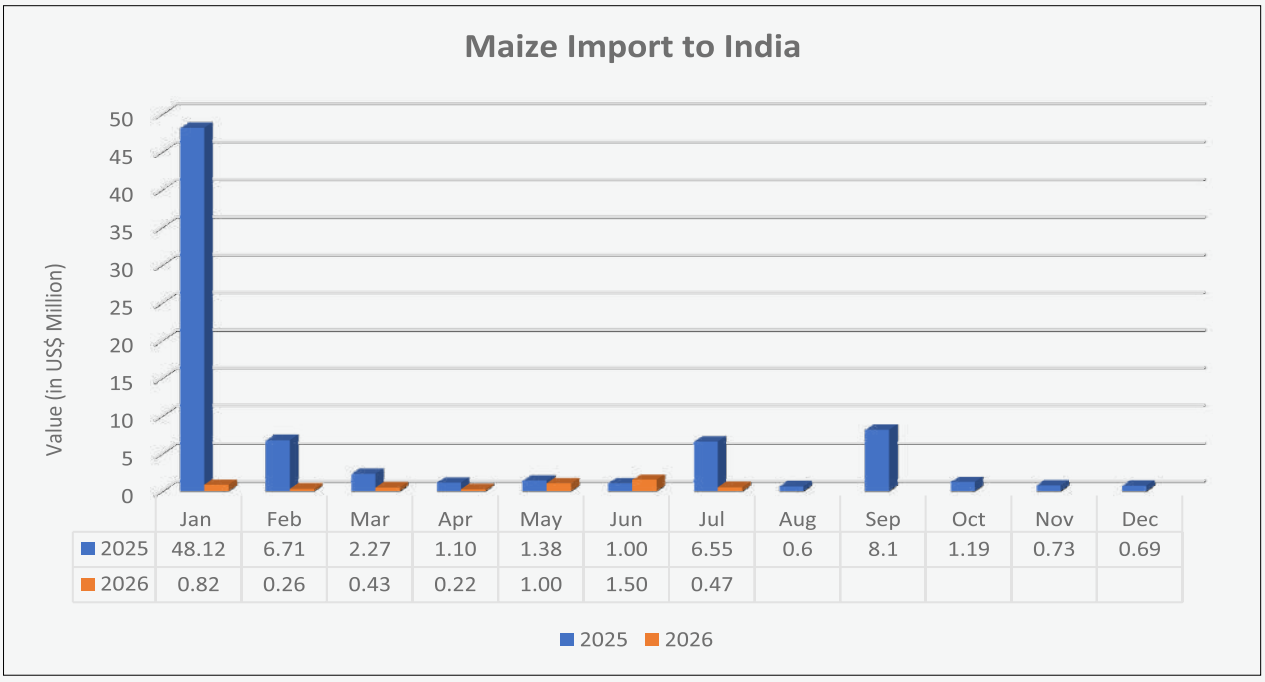
India: Maize Export



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2025	20.45	16.86	20.54	11.78	15.71	15.37	14.78	17.27	20.25	17.33	31.11	73.19
2026	45.55	56.81	53.63	50.09	69.13	67.32	13.15					

Source: Ministry of Commerce and Industry, **HS Code-1005**

India: Maize Import

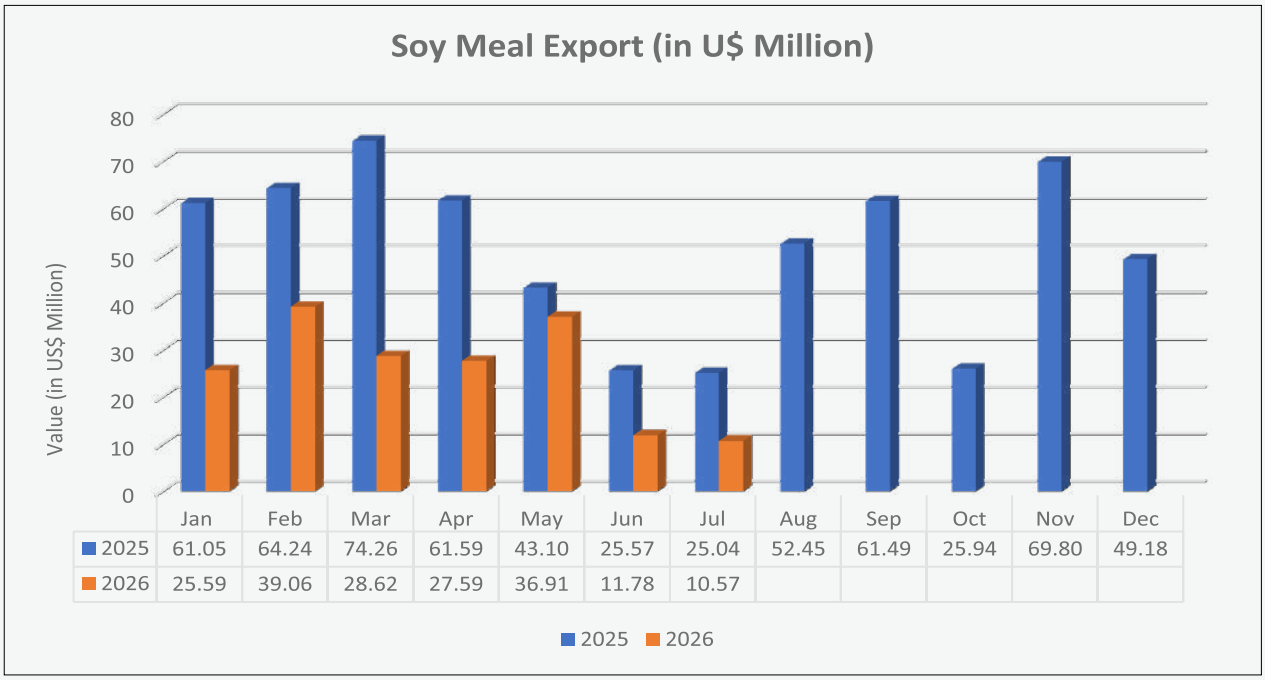


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2025	48.12	6.71	2.27	1.10	1.38	1.00	6.55	0.6	8.1	1.19	0.73	0.69
2026	0.82	0.26	0.43	0.22	1.00	1.50	0.47					

Source: Ministry of Commerce and Industry, **HS Code-1005**

Note: This Data is sourced from the Ministry of Commerce and Industry, which was last updated in July.

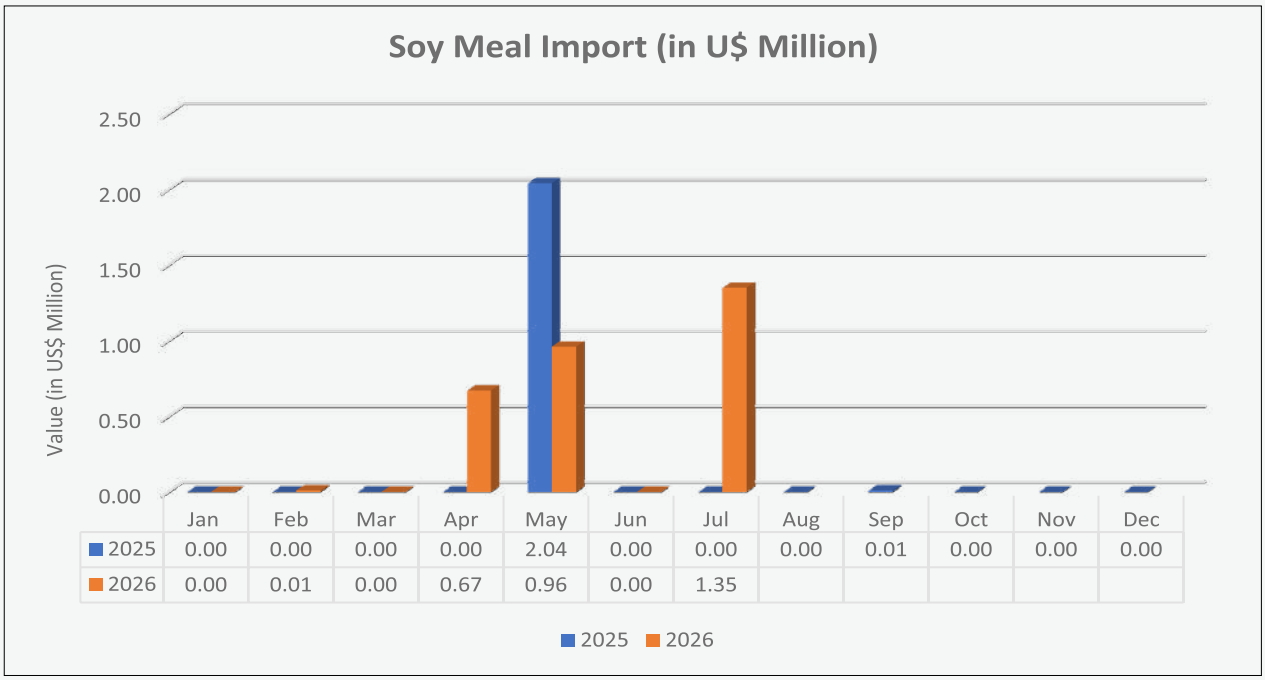
India: Soy Meal Export



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2025	61.05	64.24	74.26	61.59	43.10	25.57	25.04	52.45	61.49	25.94	69.80	49.18
2026	25.59	39.06	28.62	27.59	36.91	11.78	10.57					

Source: Ministry of Commerce and Industry, **HS Code-23040030**

India: Soy Meal Import



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2025	0.00	0.00	0.00	0.00	2.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00
2026	0.00	0.01	0.00	0.67	0.96	0.00	1.35					

Source: Ministry of Commerce and Industry, **HS Code-23040030**

Note: This Data is sourced from the Ministry of Commerce and Industry, which was last updated in July.

5. Market Drivers

Maize	
Market Drivers	**Monthly Outlook**
Growing Demand for Poultry and Livestock Feed	Bullish
Rising demand for Ethanol in Auto-fuels	Bullish
Increasing Demand as a Wheat Substitute due to Wheat Export Ban	Bullish
Increasing Food Inflation	Bearish
Commercialization of Genetic Modified Maize Crop	Bullish
Increasing demand for Coarse Cereals	Bullish

Poultry	
Market Drivers	**Monthly Outlook**
Rapid Growth in Consumer Demand for Livestock Products	Bullish
Rising Demand for White Feather Broilers	Bullish
Increasing Broiler Chicken Price Increases Due to Higher Feed Cost	Bearish
Increasing Food and Feed Inflation	Bearish
Enhancement of Backyard Poultry Farming	Bullish
Increasing the Demand of Organic Poultry Farming	Bullish

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Sourced by: IMARC Group

CLFMA of India Partners with GADVASU in Ludhiana to Undertake Scientific Study on Moisture Content in Chicken Sausages

- Research collaboration to generate India-specific scientific evidence supporting product quality, food safety and evidence-based industry standards.

Ludhiana, 10th July 2026: The Compound Livestock Feed Manufacturers Association (CLFMA) of India has signed a Memorandum of Understanding (MoU) with **Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana,** to undertake a comprehensive scientific research project titled "**Comprehensive Evaluation of Moisture Content on the Technical Stability and Sensory Acceptability of Chicken Sausages in India."** The research initiative aims to generate scientific evidence on the impact of moisture content on the quality, safety, nutritional integrity, technical stability and consumer acceptability of chicken sausages, supporting evidence-based recommendations for the processed poultry industry in India.

As part of the collaboration, CLFMA of India will provide a research grant of ₹5 lakh to GADVASU for the execution of the six-month project. The study will be carried out under the leadership of **Dr Nitin Mehta, Professor-cum-Head, Department of Livestock Products Technology, GADVASU**, with technical oversight from the university's research team.

Speaking on the collaboration, **Divya Kumar Gulati, Chairman, CLFMA of India**, said, "The Indian poultry processing industry is witnessing rapid growth, driven by changing consumer preferences and increasing demand for safe, nutritious, and convenient protein products. As the industry evolves, standards and regulations must be backed by robust scientific evidence. Through this partnership with GADVASU, CLFMA aims to support research that will generate credible data on moisture content in chicken sausages, helping to strengthen technical understanding while ensuring product quality, consumer confidence, and industry competitiveness."

Rakesh Swami, Group President-Corporate Affairs, Godrej Industries Group and Management Committee Member, CLFMA of India says, "At Godrej Industries Group, we believe lasting progress is driven by collaboration between industry, government and academia. This partnership reflects both CLFMA's commitment to science-based standards and Godrej Agrovet's focus on strengthening India's animal protein value chain. Research-led frameworks such as these will help enhance quality, safety and consumer confidence, while reinforcing chicken's role as a nutritious and affordable source of protein for millions of Indians".

The study has been designed in three phases. The first phase will establish baseline compositional data of broiler chicken meat collected from different geographical regions across India. The second phase will compare chicken sausage formulations prepared at different moisture levels by evaluating parameters such as moisture, protein, fat, texture, colour, microbial safety, cooking characteristics, and sensory attributes. The final phase will integrate these findings to develop evidence-based recommendations on the optimal moisture content that balances nutritional quality, processing efficiency, product stability, and consumer acceptance. A consumer survey will also be undertaken to evaluate the market acceptability of the different product formulations.

Dr. Swarn Singh Randhawa, Director Research of GADVASU, Ludhiana added that industrial collaboration with university is paving new ways to address challenges in scientific manner which will help the consumer at large.

Commenting on the collaboration, **Dr. J.P.S. Gill, Vice-Chancellor, GADVASU, Ludhiana** said, "Scientific research plays a vital role in supporting evidence-based food standards and strengthening consumer trust. Through this collaboration with CLFMA of India, GADVASU will undertake a comprehensive evaluation using advanced techniques to generate

reliable scientific data. The outcomes of this study will contribute to strengthening the knowledge base for India's poultry processing sector while supporting innovation, quality assurance, and informed policy decisions".

The collaboration reflects the shared commitment of CLFMA of India and GADVASU to advancing scientific research that promotes innovation, supports sustainable growth in the poultry processing sector and contributes to the continued development of India's animal agriculture ecosystem.





CLFMA of India and PDFA Bring Together Dairy Farmers and Feed Industry Leaders to Advance Sustainable Dairy and Livestock Nutrition

Ludhiana, 11 July 2026: The **Compound Livestock Feed Manufacturers Association (CLFMA) of India**, in collaboration with the **Progressive Dairy Farmers Association (PDFA)**, organised a **Dairy Farmers Meet** in Ludhiana to discuss the latest trends, scientific advancements and innovative solutions for modern dairy farming. The event served as a collaborative platform for dairy farmers, academicians, industry leaders, veterinarians and livestock nutrition experts to exchange knowledge, share practical insights and deliberate on solutions to enhance dairy productivity, animal health and sustainable farming practices.

The morning session, held at **Guru Angad Dev Veterinary & Animal Sciences University (GADVASU)**, was dedicated to empowering dairy farmers with practical and science-backed knowledge to improve herd health, productivity and farm profitability.

The programme commenced with a welcome address by the Progressive Dairy Farmers Association, followed by an inaugural address by **Mr. Divya Kumar Gulati, Chairman, CLFMA of India**, who emphasized the importance of scientific feeding practices, continuous farmer education and stronger industry-academia partnerships in enhancing the competitiveness of India's dairy sector.

One of the key technical sessions featured **Dr. Harish Dharne**, Berg and Schmidt India Pvt. Ltd., who delivered an insightful presentation on effective management of transition cows and highlighted the critical role of choline in improving metabolic health, reducing transition-related disorders and enhancing milk production.

The knowledge sessions continued with **Dr. Mukesh**, who shared practical strategies on managing dry cows and preparing them for the next lactation cycle, emphasizing the importance of nutrition, health management and timely interventions. The academic segment was further strengthened by **Dr. Hujaz Tariq** from Guru Angad Dev Veterinary & Animal Sciences University, who addressed participants on scientific dairy management practices and the latest advancements in livestock production.

The morning programme concluded with addresses by **Mr. Divya Kumar Gulati, Chairman, CLFMA of India**, and **Mr. Daljeet Singh, President, Progressive Dairy Farmers Association**, who reaffirmed the need for greater collaboration among farmers, researchers and industry stakeholders to enhance productivity, improve animal welfare and ensure long-term sustainability of the dairy ecosystem.

Addressing the gathering, **Mr. Divya Kumar Gulati, Chairman, CLFMA of India**, said:

"India's dairy sector has immense potential to become even more productive and globally competitive, provided scientific feeding practices and modern livestock management become integral to every dairy farm. Knowledge sharing initiatives such as these play a vital role in bridging the gap between research and the field. At CLFMA of India, we remain committed to supporting farmers through science-led nutrition, industry collaboration and continuous capacity building that ultimately improves animal health, farm profitability and food security."

The evening session, hosted at Radisson Blu Hotel, Ludhiana, shifted the focus towards feed manufacturing, ingredient innovation and market intelligence, bringing together feed millers and industry executives for discussions on emerging opportunities and current industry challenges.

The session commenced with a welcome address by **Mr. Munish Sharma, General Manager, PDS**, followed by a presentation from **Chris Markey, Regional Director – Southeast Asia & Oceania, US Grains and BioProducts Council**, on *"DDGS as an Alternative Feed Ingredient."* The session explored the growing relevance of Distillers Dried Grains with Solubles (DDGS) as a cost-effective and nutritionally valuable ingredient that can contribute to more sustainable feed formulations.

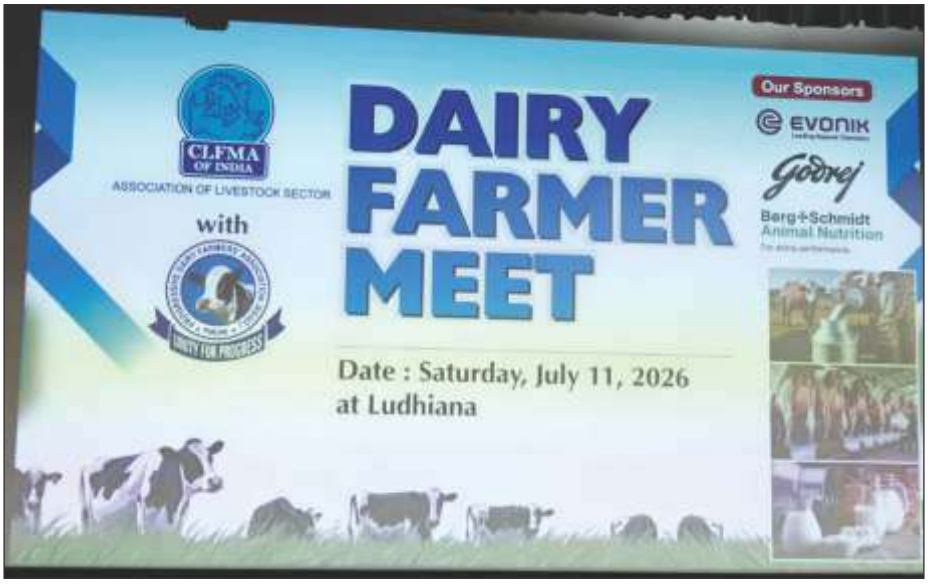
The programme further featured **Mr. S. V. Bhave, Managing Director, Berg and Schmidt India Pvt. Ltd.**, who provided an overview of the *Current*

Scenario in Oils & Oilcakes, discussing market dynamics, raw material availability and evolving sourcing trends impacting the livestock feed sector.

A key highlight of the evening was an engaging panel discussion on **"Present Challenges in Feed Industry,"** moderated by **Mr. S. V. Bhave**. The discussion brought together distinguished industry leaders including **Mr. Divya Kumar Gulati, Chairman, CLFMA of India**, **Mr. Daljeet Singh, President, PDFA**, **Mr. Ashok Gupta, President, AFMA**, and **Dr. R.S. Grewal, Director of Extension Education, GADVASU**. The panel deliberated on raw material availability, feed affordability, adoption of scientific nutrition, quality standards, emerging technologies and the importance of collaboration across the livestock value chain to ensure sustainable growth.

Mr. Daljeet Singh, President, Progressive Dairy Farmers Association (PDFA), said, *"For dairy farmers, access to practical knowledge is just as important as access to quality inputs. Today's discussions reinforced that better transition cow management, balanced nutrition and timely adoption of scientific practices can significantly improve milk yield, animal health and farm profitability. We are grateful to CLFMA of India and all the experts who shared valuable, field-oriented insights that our farmers can readily implement. Such collaborative initiatives strengthen the connection between research, industry and the farming community, ultimately making our dairy sector more resilient and future-ready."*

The event concluded with an interactive networking session, enabling meaningful engagement among dairy farmers, feed manufacturers, researchers, veterinarians and industry experts, further strengthening partnerships aimed at advancing India's dairy and livestock sectors.




















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Karnataka exported Rs 5,371 crore worth seafood in 2025-26

Karnataka recorded one of the sharpest increases in seafood exports in the country during 2025-26, with export value jumping 56.1% to Rs 5,371.85 crore from Rs 3,440.57 crore in 2024-25, significantly outpacing the national growth rate of 18.4%. Karnataka also improved its ranking among seafood-exporting states, climbing from sixth in 2024-25 to fifth in 2025-26, according to data tabled in the Lok Sabha recently. India's seafood exports touched an all-time high of Rs 73,890.46 crore in 2025-26, up from Rs 62,408.45 crore in the previous financial year. Export volume also rose by 16.1%, increasing from 16.98 lakh tonne to 19.72 lakh tonne. Among the southern states, Andhra Pradesh retained its position as the country's largest seafood exporter, with exports rising 11.9% to Rs 23,765.11 crore. Kerala registered exports worth Rs 8,466.77 crore, a growth of 22%, while Tamil Nadu recorded Rs 7,660.48 crore, up 8.9% over the previous year. Telangana, though a relatively small exporter, posted exports worth Rs 715.02 crore, an increase of 16.2%. Karnataka also recorded the highest percentage growth among the major southern seafood-exporting states. Export volume increased to 3,37,239 tonne in 2025-26 from 2,42,143 tonne in 2024-25, a sharp rise of 39.3%. Karnataka's exports had earlier surged from 1,20,427 tonne worth Rs 1,962.19 crore in 2021-22 to 3,12,347 tonne valued at Rs 4,737.23 crore in 2022-23, before witnessing a marginal dip in quantity to 3,01,183 tonne in 2023-24, although export value remained almost unchanged at Rs 4,785.05 crore.

AP outpaces national average in marine fisheries growth

Marine fish and shrimp production in Andhra Pradesh has grown at a significantly faster pace than the national average over the past three decades, but the State's shrimp sector also faces considerably higher production instability, according to a recent study published in the Asian Journal of Agricultural Extension, Economics & Sociology. The study, titled 'Analysis of Growth and Instability in Marine Fisheries Production: Evidence from India and Andhra Pradesh,' was authored by researchers B Malleswari, A Amarender Reddy, S Rajeswari, Sk Nafeez Umar, and P Bala Hussain Reddy. It analysed marine fisheries production trends from 1995-96 to 2024-25 using the Compound Annual Growth Rate (CAGR) and Cuddy-Della Valle Instability Index (CDVI). The researchers found that marine fish production in Andhra Pradesh registered an annual growth rate of 5.51%, substantially higher than the national average of 1.23% during the study period. Marine shrimp production in the State grew even faster at 8.20% annually, while at the national level shrimp production did not record significant growth. According to the study, the State's performance has been driven by its 1,027-km coastline, expanding fishing infrastructure, technological advancements, increasing mechanisation, supportive aquaculture policies and robust export demand. The introduction of Penaeus vannamei shrimp farming has also played a significant role in boosting production. However, the study cautions that rapid growth has been accompanied by greater production volatility. Marine shrimp production recorded the highest instability, with a CDVI of 23.36% in AP compared to 13.25% nationally. Marine fish production showed higher variability in the State, recording an instability index of 11.71%, against 5.81% for India. The researchers attributed the fluctuations in shrimp production primarily to disease outbreaks, environmental changes, climatic variability and international market fluctuations, while marine fish production continues to face challenges arising from overexploitation of fishery resources, seasonal changes and ecological degradation. Andhra Pradesh alone contributes nearly 41% of the country's fisheries production and the sector accounts for 7.4% of the State's Gross State Domestic Product (GSDP). The analysis also found that while marine fisheries recorded moderate growth during the early and middle phases of the study period, production growth slowed in recent years, particularly in marine capture fisheries, reflecting structural constraints and increasing pressure on marine resources.

India's poultry sector revenue likely to rise nearly 7 pc in FY27: Report

India's poultry industry is expected to see revenues rise by 6-7 per cent in FY27 and an improvement in profitability of about 50 to 100 basis points over previous year, a report said on July 14. The report from CareEdge Ratings said the poultry industry witnessed stabilisation in operating performance during FY26, supported by healthy production growth, resilient demand across retail, institutional, and food-service channels, and improved supply-demand dynamics. "India continues to be among the world's largest producers of eggs and poultry meat, supported by rising protein consumption, urbanisation, improving affordability, and changing dietary preferences," the report said. "Focus on improving feed conversion ratio (FCR), better farm management practices, and increased operational efficiency is expected to support productivity and enhance competitiveness across the organised poultry industry," the report noted. The ratings agency forecasted egg and meat production to maintain healthy momentum in FY27, supported by rising protein consumption, urbanisation and capacity additions by organised players. The evolving processed poultry segment, supported by the expansion of organised retail, quick-service restaurants (QSRs), cold-chain infrastructure, and export opportunities, is expected to provide additional avenues for long-term growth and value addition. Adoption of advanced breeding, precision nutrition, automation and improved farm management are expected to enhance productivity and feed conversion ratios, the report said. Organised players, which account for roughly 60-65 per cent of the industry, saw huge improvement in profitability in FY26 through integrated operations, better feed procurement and stronger pricing discipline. During FY26, the industry saw a sharp correction in maize prices, supported by higher domestic production and improved supply conditions.

Tripura eyes livestock-sector expansion with five-year plan for milk, meat and egg self-sufficiency

Tripura is preparing an ambitious five-year strategy to boost livestock production, achieve self-sufficiency in milk, meat and eggs, and create new livelihood opportunities in rural areas, Animal Resources Development Department (ARDD) Minister Sudhangshu Das said in the Assembly on August 28. Replying to questions on the department's future roadmap, Das said the government was focusing on strengthening livestock farming as a key driver of the rural economy while creating employment opportunities for unemployed youth and empowering women. He said Tripura has already made significant progress in the livestock sector. In terms of per-capita availability, the state is currently the second-largest milk-producing state in the Northeast, while it has achieved self-sufficiency in meat production and ranks second in the region in per-capita meat availability. To further strengthen the dairy sector, the government is promoting artificial insemination, better nutrition for newborn calves, improved veterinary care and disease-control measures. The introduction of improved dairy breeds, livestock insurance and modernisation of milk-processing infrastructure are also part of the five-year plan. The meat sector will receive further attention through artificial insemination programmes for pigs and distribution of pigs and goats under various government schemes. According to Das, insurance and other financial-security measures are being introduced for livestock farmers. A World Bank-supported project is also underway, while veterinary services are being expanded to reach farmers at their doorstep. The government is also working on dedicated measures to increase the production of safe and hygienic meat. In the poultry sector, Tripura has emerged as the leading state in the Northeast in per-capita egg availability, the minister said. To raise production further, improved breeds of poultry and ducks are being distributed, government farms are being upgraded and brooder houses are being constructed. The government is also facilitating bank-linked financial assistance to encourage the establishment of large commercial poultry farms. Disease prevention and treatment systems are being strengthened to support the sector.

White Revolution 2.0 Forms 24,000 Dairy Co-operatives; targets 75000

India's cooperative-led White Revolution 2.0 is making steady progress towards transforming the country's dairy sector, with 24,097 new Dairy Cooperative Societies (DCSs) formed and 31,394 existing societies strengthened so far under the initiative. According to the Ministry of Cooperation, financial assistance of Rs 66.95 crore has also been released under the revised National Programme for Dairy Development (NPDD) of the Department of Animal Husbandry and Dairying (DAHD) to support implementation of the programme. The Ministry said White Revolution 2.0 seeks to establish 75,000 new Dairy Cooperative Societies in uncovered panchayats and villages over a five-year period while strengthening 46,422 existing societies through improved milk procurement systems, modern dairy infrastructure, financial assistance and technical support. The initiative is aimed at creating a stronger and more inclusive dairy cooperative network that directly benefits millions of milk producers across the country. Launched jointly by the Ministry of Cooperation and the Department of Animal Husbandry and Dairying, White Revolution 2.0 is designed to increase milk procurement by dairy cooperatives by 50 per cent over the next five years. The programme focuses on expanding cooperative coverage in underserved areas, creating employment opportunities, improving market access and promoting women's participation in the organised dairy sector.

NDDB mobilised Rs 1,500 crore to set up 25 Milk Producer Organisations

The National Dairy Development Board (NDDB) mobilised around Rs 1,500 crore to establish 25 Milk Producer Organisations (MPOs) across the country, with women members contributing nearly Rs 326 crore, a senior official said on August 04, 2026. Addressing the CII Women in Agri & Food Leadership Forum, NDDB Dairy Services Managing Director CP Devanand said 18 of the 25 MPOs are fully women-owned, with 23 women serving as chairpersons and 217 women among the 256 directors. "We have 23 women chairpersons and out of the total 256 directors, around 217 are women. Apart from the Rs 1,500 crore that we could mobilize, roughly around Rs 326 crore was the contribution from the women members," he said. He said the organisations were established over the past 12 years with support from Tata Trusts, the National Rural Livestock Mission, State Rural Livestock Missions, JICA and the World Bank. Devanand said women are increasingly taking leadership roles in the dairy sector by owning enterprises, managing organisations and controlling cash flows, marking a significant shift from their traditional role as contributors. He noted that India produces about 25 per cent of the world's milk, with women accounting for nearly 70 per cent of the dairy workforce. NDDB's cooperative network has around 1.72 crore members, of whom 30-35 per cent are women, while nearly 53,000 dairy cooperative societies are managed entirely by women. The MPO model, introduced by NDDB in 2014, was designed to strengthen dairy value chains in areas where cooperative coverage is limited by combining the farmer-centric approach of cooperatives with the flexibility of a company structure. According to Devanand, more than Rs 60,000 crore has been transferred to farmers through the producer organisation network over the past 10-12 years, including around Rs 8,000 crore through direct bank transfers in the last year. He said women dairy farmers currently earn around Rs 13,000-14,000 per month after expenses, while the programme has also facilitated credit mobilisation of about Rs 110 crore. Devanand said NDDB is also promoting women-led enterprises in areas such as handicrafts, food processing and handloom products, and plans to launch a women-owned brand later this year. He added that around 75,000 biogas plants have been installed at farmers' homes to generate additional income and reduce LPG consumption. Looking ahead, he said NDDB aims to raise women's average monthly dairy income to Rs 1 lakh over the next decade by expanding infrastructure, strengthening governance and encouraging greater rural entrepreneurship.

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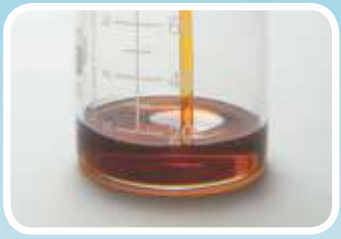
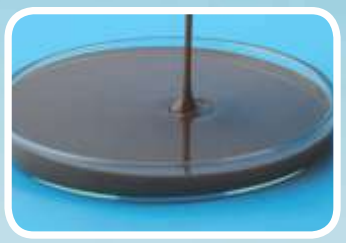
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CLFMA ACTIVITY UPDATES

CLFMA Meeting with Shri. Piyush Goyal, Hon'ble Minister of Commerce and Industry, Government of India; Prof. S. P. Singh Baghel, Hon'ble Minister of State for Fisheries, Animal Husbandry and Dairying and Ministry of Panchayati Raj, Government of India; Shri. Rajit Punhani, IAS, CEO, FSSAI; and Ms. Puja Rustagi, Director (Trade/IC/Dairy), Government of India, on 10th July 2026:









On 10th July 2026, Mr. Divya Kumar Gulati, Chairman, CLFMA of India, and Mr. Suresh Deora, Immediate Past Chairman, along with Col. Vinay Kumar, met with Shri. Piyush Goyal, Hon'ble Minister of Commerce and Industry, Government of India; Prof. S. P. Singh Baghel, Hon'ble Minister of State for Fisheries, Animal Husbandry and Dairying and Ministry of Panchayati Raj, Government of India; Shri Rajit Punhani, IAS, CEO, FSSAI; and Ms. Puja Rustagi, Director (Trade/IC/Dairy), Government of India. During the meetings, they extended invitations to the dignitaries to attend CLFMA's 67th National Symposium 2026.

Press Releases:

The press releases titled "CLFMA of India Partners with GADVASU in Ludhiana to Undertake Scientific Study on Moisture Content in Chicken Sausages", dated 10th July 2026, and "CLFMA of India and PDFA Bring Together Dairy Farmers and Feed Industry Leaders to Advance Sustainable Dairy and Livestock Nutrition", dated 11th July 2026, are provided on Page Nos. 23 to 29

CLFMA Representation dated 13th July, 2026 on the Emerging Shortage of Soybean Meal (Soy DOC) and Its Impact on the Poultry Sector:

Recognizing the growing concern over the availability of soybean meal (Soy DOC), a critical protein source for poultry feed, CLFMA of India submitted a representation to Shri. Bhupender Yadav, Hon'ble Union Minister of Environment, Forest and Climate Change, Government of India. The Association highlighted the serious implications of the emerging shortage for India's poultry sector and enclosed a detailed assessment of the annual soybean meal requirements of the livestock sector, along with future demand projections, to support timely policy intervention.

Contribution to Poultry India 2026 Souvenir dated 18th July 2026:

At the invitation of Poultry India, CLFMA of India submitted a special message for publication in the Souvenir Book of the 18th Poultry India Expo 2026, reaffirming its continued support for one of India's leading poultry industry platforms.

Stakeholder Consultation Meeting on the Availability of Fish Meal held on 5th August 2026:

Mr. Nissar Mohammed, Hon. Secretary, CLFMA of India, attended a stakeholder consultation meeting convened by the Department of Fisheries, Government of India, on 5th August, 2026 at 3:00 p.m. via video conference. The meeting was chaired by the Joint Secretary (IF&MF),

Department of Fisheries, Government of India, to discuss issues concerning the availability of fish meal.

During the meeting, Mr. Nissar Mohammed, CLFMA Hon. Secretary highlighted the growing challenges faced by the Fish Meal industry and the difficulties being experienced with regard to the availability of Fish Meal. He emphasized the need for appropriate policy interventions and suggested that the existing policies be reviewed to address the concerns of the industry.

He further stated that the Fish Meal industry has not received adequate attention and requested the Department to consider the issue on priority and take necessary measures to support the industry and ensure the availability of Fish Meal.

The Secretary, Department of Fisheries, acknowledged the concerns raised and assured the participants that the Department would examine the matter and take appropriate steps in this regard.

59th Annual General Meeting and 67th National Symposium 2026

The Symposium Report of CLFMA of India's 59th Annual General Meeting and 67th National Symposium 2026 is provided on Page Nos 37 to 101

As a gesture of appreciation, CLFMA of India sent Thank-you letters to all participants, speakers, moderators and panellists on 29th September, 2026.

CLFMA of India's 59th Annual General Meeting 2026

The Compound Livestock Feed Manufacturers Association of India (CLFMA of India) commenced its proceedings with the 59th Annual General Meeting (AGM), followed by the 67th National Symposium, 2026. The event, held on 11th and 12th September, 2026 at The Leela Mumbai, was anchored around the theme ***"Animal Agriculture – The Backbone of Sustainable Development",*** under the Chairmanship of Mr. Divya Kumar Gulati.

The meeting opened with a review of CLFMA of India's key activities and achievements during the year, including two learning visits to the United States covering maize and soybean farms, feedlots, processing facilities and port infrastructure. The visits provided members with insights into large-scale agricultural production, mechanisation, grain handling and integrated procurement and storage systems relevant to India's animal agriculture sector.

This was followed by a review of the Association's media, digital and other activities during the year. Following the appointment of a dedicated PR agency, CLFMA of India secured 268 media coverages across more than 15 editions and publications, while its digital presence grew by 242%, adding around 35,000 followers across social media platforms. The Association also recorded 3.29 million Facebook page views during June and July and 3.13 million in August. Its activities during the year included 32 government engagements, policy representations, conferences, seminars, knowledge forums and the student programme. CLFMA Treasurer, Mr. R. Ramkutty reported that annual symposium sponsorships, delegation and registration fees increased remarkably.

The meeting then proceeded with the approval of the Minutes of the Extraordinary General Body Meeting held on 25th August 2026, the Annual Report for the financial year 2025–2026 by Mr. Nissar F. Mohammed, CLFMA Hon. Secretary and the Audited Statement of Accounts and Audit Report for the year ending 31st March, 2026 by Mr. R. Ramkutty, CLFMA Treasurer. CA Mr. Rohan Dedhia from M/s. Naveen Dhedia and Company was appointed to continue as CLFMA's Auditor for the financial year 2026–2027, with a 5% increase in remuneration from ₹90,000. The meeting concluded with discussions on other matters of significance, taken up with the permission of the Chair. The Vote of Thanks extended by CLFMA Hon. Secretary Mr. Nissar F. Mohammed.



67th National Symposium 2026 'Animal Agriculture – The Backbone of Sustainable Development'

REPORT: CLFMA of India organised the two-day Symposium and has compiled this report capturing the deliberations and key outcomes of the event.

Presented by: Mr. Divya Kumar Gulati, Chairman, CLFMA of India

CLFMA OF INDIA – ASSOCIATION OF LIVESTOCK SECTOR conducted its 59th Annual General Meeting and 67th National Symposium, 2026 on 11th and 12th September 2026 at The Leela Mumbai. The event brought together policymakers, industry leaders, researchers, farmers and stakeholders from across the animal agriculture ecosystem for two days of deliberations on the future of the sector.

The symposium was held under the theme *"Animal Agriculture – The Backbone of Sustainable Development,"* with discussions centred on strengthening feed security, improving livestock productivity, building veterinary capacity and enhancing farmer resilience. The deliberations also examined the need for stronger value chains, greater adoption of technology and innovation, and coordinated action between industry, government, research institutions and the farming community.

A key focus of the symposium was the need to strengthen the fundamentals supporting animal agriculture. Discussions covered feed and raw material availability, particularly maize and soybean, veterinary capacity, genetics and animal health, farmer capabilities, market linkages and the adoption of Artificial Intelligence and other technologies. The programme also featured a dedicated 'One Nation, One Voice' panel, bringing together national industry associations to deliberate on greater alignment within the sector and a coordinated approach to policy advocacy. The symposium also recognised contributions to the sector through the CLFMA Awards, CLFMA Life Time Achievement Award and CLFMA Student Awards.

The event further featured the launch of the CLFMA Souvenir 2026 and Survey Report 2026–2030, providing sector insights and supporting knowledge-sharing across the animal agriculture ecosystem. The session-wise deliberations covered key priorities and emerging opportunities across livestock, poultry, dairy and aquaculture, with contributions from industry and government representatives. The discussions and key outcomes have been systematically compiled and presented in this report to support informed dialogue and future initiatives for the sustainable development of India's animal agriculture sector.

Day 1 Symposium Proceedings:

The Inaugural Session of the CLFMA of India's 67th National Symposium 2026 commenced with the traditional lamp-lighting ceremony at The Leela Mumbai on 11th September 2026. The session brought together senior government officials, industry representatives and key stakeholders from the animal agriculture sector for deliberations on the theme *"Animal Agriculture – The Backbone of Sustainable Development."*

The proceedings began with the traditional lamp-lighting ceremony, graced by Shri. Naresh Pal Gangwar, Secretary, Department of Animal Husbandry & Dairying, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India; Dr. Muthukumarasamy B., Joint Secretary (NLM), Department of Animal Husbandry & Dairying, Government of India; and Shri. Tarun Shridhar, IAS (Retd.). CLFMA Office Bearers, including Chairman Mr. Divya Kumar Gulati, Immediate Past Chairman and Convenor Mr. Suresh Deora, Deputy Chairmen Mr. Sumit Sureka and Mr. Abhay Parnerkar, and Hon. Secretary Mr. Nissar F. Mohammed, were also present.




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Following the ceremonial inauguration, **Mr. Suresh Deora, Immediate Past Chairman and Convenor, CLFMA of India,** delivered the welcome address. He highlighted the relevance of the symposium theme to the livestock sector and its role in rural development, livelihoods, employment, nutrition and broader economic growth. He also outlined the programme for the second day, covering sessions on animal agriculture, government and public-sector partnerships, pet food, international trade, and industry coordination under the theme *"One Nation, One Voice,"* Artificial Intelligence in animal agriculture, and the sector's contribution to global food security.



Building on this, **Mr. Divya Kumar Gulati, Chairman, CLFMA of India,** addressed the gathering and highlighted the importance of greater unity across the livestock sector. Referring to the participation of representatives from various segments and associations, including aquaculture, poultry, veterinary services, the Poultry Federation of India, IPEMA, the West Bengal Poultry Federation and the animal health sector, he emphasised the need for the industry to come together and speak with one voice. He also acknowledged the support extended by government officials and stressed the importance of continued government-industry engagement in addressing issues affecting the sector.

A key focus of his address was feed security, particularly the availability and cost of maize and soybean meal. He noted that these two major feed ingredients together constitute approximately 75–80% of feed requirements. Highlighting the need to improve domestic productivity, he noted that national maize productivity is around 3.5–4 tonnes per hectare, while hybrid seeds can yield around 7.5–8 tonnes per hectare, compared with an average of around 12 tonnes per hectare in the US. Soybean productivity, he noted, remains at around 1 tonne per hectare. He emphasised that improving productivity on the available land would be critical to meeting the growing feed requirements of the livestock sector.

Mr. Divya Kumar Gulati also drew attention to the rising cost of essential feed inputs. He noted that the prices of essential amino

acids had increased threefold, despite their inclusion accounting for only around 5% of feed, thereby adding to the cost pressures faced by the sector. He also referred to soybean meal prices reaching ₹70 and highlighted production costs of around ₹105–110 for poultry birds and eggs. He noted that the poultry sector was growing at 7–9%, with poultry feed requirements estimated at around 40 million metric tonnes and demand increasing by approximately 3–3.5 million metric tonnes annually. With maize accounting for around 55% of poultry feed, he stressed the need to address both availability and productivity challenges.

The CLFMA Chairman Mr. Divya Kumar Gulati further noted that animal agriculture contributes approximately 33–35% of agricultural GDP and called for the sector, government and the Department of Animal Husbandry to work together to find practical solutions to feed security challenges. He suggested measures such as a trigger price and imports as possible short-term interventions to address supply gaps, while emphasising that these would need to be supported by sustained efforts to improve domestic productivity. He stressed that coordinated action and a unified approach across the sector would be essential for strengthening feed security and supporting the continued growth of animal agriculture.



Taking the stage as **Keynote Speaker, Shri. Tarun Shridhar, IAS (Retd.), Former Secretary, Department of Animal Husbandry & Dairying, Government of India,** delivered a thought-provoking address on *'Animal Agriculture – The Backbone of Sustainable Development.'* He reflected on the terminology used for the sector, explaining his preference for 'animal husbandry', which he linked to the idea of care and management. He noted that the emphasis on increasing production and productivity must be accompanied by responsible and sustainable management of livestock and allied resources.

He placed nutrition at the foundation of sustainable development, connecting food security, nutrition security, health and the environment through the One Health approach. Referring to the Sustainable Development Goals, he highlighted SDG 1 – No Poverty, SDG 2 – Zero Hunger and SDG 3 – Good Health and Well-being, and noted that these goals are closely linked to the livestock, dairy, poultry and fisheries sectors.



Key Highlights of the Address:

- Sustainable development must focus on development while ensuring that it remains sustainable across economic, social, nutritional and environmental dimensions.
- Nutrition is a fundamental foundation of sustainable development and is closely connected with food security, health and One Health.
- India produces around 248 million tonnes of milk, 149 billion eggs and nearly 18 million tonnes of fish, demonstrating the scale of its livestock and fisheries sector.
- India has progressed from a food-deficit nation dependent on imports to a major global producer of essential food commodities.
- Despite these production gains, India continues to face nutrition and protein insecurity, requiring greater attention to the quality and accessibility of nutrition.
- India was ranked 102nd among 123 countries in the Global Hunger Index cited in the address, with 12% of the population undernourished, 32.9% of children under five stunted, 18.7% wasted and 2.8% dying before the age of five.
- An NSSO 2023–24 survey cited in the address indicated that average protein consumption was around 10–15 grams below the recommended requirement for adults, while more than 50% of the protein consumed was of poor quality.
- The sector requires a national mission for protein supplementation covering the value chain and supply chain from production to consumption.
- Feed security must receive greater attention alongside food and nutrition security, given its impact on livestock productivity and the volatility of feed costs.
- Greater processing and value addition are required, with less than 10% of poultry products currently undergoing processing, according to the address.
- Nutritional literacy must be strengthened through scientifically validated information on the nutritional value of milk, eggs, meat and fish.
- Regional imbalances in livestock and poultry production need to be addressed through coordinated action by government, industry and other stakeholders.
- CLFMA should continue to strengthen its role as an association representing the wider livestock sector, encompassing livestock, dairy, poultry, aquaculture and allied segments.

He also emphasised that animal-source foods have an important role to play in addressing India's protein and micronutrient requirements. He called for an inclusive, science-based approach that allows consumers to make informed choices based on nutritional evidence rather than sentiment or personal beliefs. He stressed that adequate protein and micronutrient intake would be essential to India's aspiration of becoming a developed nation by 2047.

Reiterating his long association with CLFMA, spanning eight years, including seven years after his retirement, Shri Tarun Shridhar acknowledged the organisation's evolution and urged it to preserve its broader identity as a representative of the livestock sector. He called for greater unity across livestock, dairy, poultry, aquaculture and fisheries and emphasised that collaboration across the sector would be critical to strengthening nutrition and feed security.

Concluding his address, Shri Tarun Shridhar stated that India's ambition of becoming a developed nation by 2047 was achievable, provided the country strengthened nutrition and protein security alongside its economic progress. He identified animal-source foods, including milk, eggs, meat and fish, as important instruments in this effort and called for greater conviction, urgency and collective action across the sector.

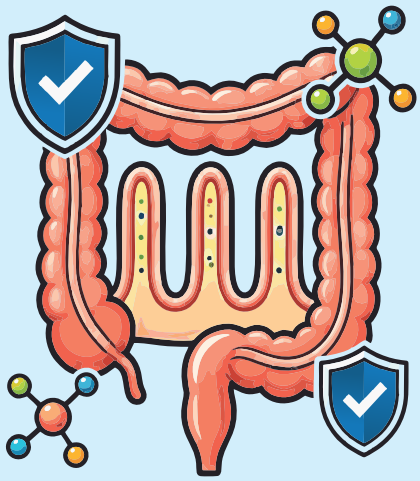




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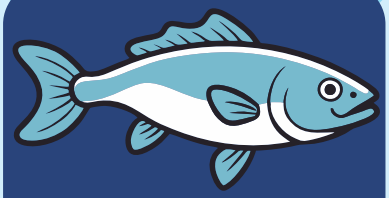


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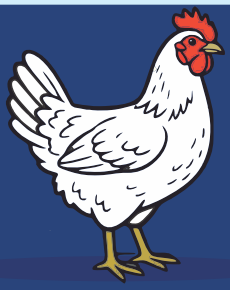


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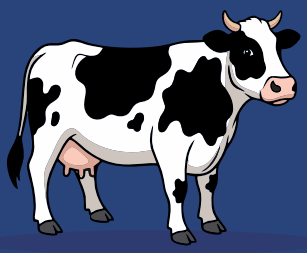
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The inaugural proceedings also featured a special segment honouring distinguished contributions to the animal agriculture sector and recognising academic excellence among emerging professionals. **Mr. Jagbir Singh Dhull** was presented with the **CLFMA Lifetime Achievement Award** in recognition of his contribution to the sector, while **Dr. L. Muniyappa** and **Dr. Shivani Katoch** received the **CLFMA Awards**.



Carrying forward its focus on nurturing young talent, CLFMA of India recognised student achievements across the **Poultry, Dairy and Aqua sectors** through the CLFMA Student Gold, Silver and Bronze Medals and Appreciation Certificates. The initiative received participation from 49 Students from across the country, with entries focusing on important topics of Cattle, Aqua, Poultry. The programme provided a platform to recognise emerging professionals for their academic efforts and contributions to the respective sectors.

To recognise these achievements, students in each sector were felicitated with Gold, Silver and Bronze Medals, along with Appreciation Certificates. The awards were presented across the three sectors as follows:

Student Winner List:

- **Poultry Sector Awards:** Gold – Dr. Abhishek Venkat; Silver – Dr. Nikhil Sitaram Chande; Bronze – Mr. Vignesh Kumar G.; Appreciation Certificates – Dr. Prashanth M. R. and Dr. Komal Mishra
- **Dairy Sector Awards:** Gold – Dr. Mehnaaz Qayoom; Silver – Dr. Omprakash Sahu; Bronze – Mr. Adhar Ankush Gore; Appreciation Certificates – Dr. Eva Sharma and Dr. M. Praveen Kumar
- **Aqua Sector Awards:** Gold – Ms. Shreya Awasthi; Silver – Dr. Vrushabh Pralhad Shende; Bronze – Ms. Ankita Debnath; Appreciation Certificates – Mr. Safal Shandilya and Mr. Rinkesh Meena

The recognition highlighted CLFMA's continued focus on encouraging emerging talent and strengthening the participation of young professionals in the animal agriculture sector. Thanks to Dr. A. S. Ranade for the effective coordination of the student programme which was a great success.



















Following the award ceremony, **Dr. Muthukumarasamy B., Joint Secretary (NLM), Department of Animal Husbandry & Dairying, Government of India,** addressed the gathering on the role of animal-source foods, productivity enhancement and entrepreneurship in strengthening sustainable animal agriculture. Speaking on the nutritional value of animal proteins, he noted that the biological value of egg is 94 and milk is 86, compared with 40–60 for other vegetable protein sources, highlighting the importance of high-quality protein in meeting nutritional requirements.

Dr. Muthukumarasamy also traced the growth of India's poultry sector, drawing from the development of the egg industry in Namakkal, Tamil Nadu, where poultry farming expanded despite challenging climatic and agricultural conditions. He noted that breeder farming involves significant investment, with an estimated ₹7–8 crore required even for a 5,000-bird unit, while biosecurity remains critical in managing risks such as highly pathogenic avian influenza. He also highlighted that 44 compartments have been identified for poultry production and that eggs and egg products are being exported to markets including Russia and Japan.

He highlighted the development of vertical integration in the broiler industry in the Coimbatore region from around 1995–96, describing it as a model that created a mutually beneficial arrangement between farmers and industry. Under this model, farmers provide land, sheds, water and family labour, while industry supports them with chicks, veterinary services, transportation, procurement, vaccines and other inputs. He noted that the model has subsequently expanded beyond Coimbatore to other regions.

Key Highlights of the Address:

- Egg has a biological value of 94, while milk has a biological value of 86, compared with 40–60 for other vegetable protein sources.
- A breeder farm with 5,000 birds can require an investment of around ₹7–8 crore, highlighting the capital-intensive nature of the poultry sector.
- 44 compartments have been identified for poultry production, with eggs and egg products being exported to Russia, Japan and other countries.
- Vertical integration in the broiler industry gained momentum in the Coimbatore region from around 1995–96, creating a coordinated model between farmers and industry.
- Government support covers areas including breed improvement, feed plants, waste-to-wealth management, wool production and meat processing.
- Under government-supported programmes, around ₹31,000 crore of industry investment has been leveraged over the past five years, with around ₹500 crore in interest subvention cited in the address.
- Under the National Livestock Mission, around ₹1,100 crore has been invested in fodder seed production over the past five years, resulting in 1.61 lakh quintals of seed, including maize, sorghum and Lucerne.
- Feed costs account for around 70% of production costs in dairy, making feed efficiency an important area for intervention.
- Productivity improvement depends on genetic potential, environmental factors and disease control, including vaccination and deworming.
- The reduction in Foot-and-Mouth Disease through timely vaccination was highlighted as an example of improving productivity without necessarily increasing animal numbers.
- The industry was encouraged to explore vertical integration in sheep and goat farming to develop the segment at greater scale.
- CLFMA was encouraged to consider supporting students who face difficulties in meeting education and hostel expenses, with semester fees cited at around ₹5,000–6,000 and hostel mess expenses at around ₹3,000.
- The broader objective should be to move farmers towards entrepreneurship and larger-scale, commercially viable livestock enterprises as India works towards its 2047 development vision.

Dr. Muthukumarasamy emphasised that productivity enhancement must combine better genetics, disease prevention, feed efficiency, environmental management and appropriate technology. He also called for greater industry participation in developing sheep and goat enterprises through models similar to vertical integration in poultry, concluding with an appeal for stronger entrepreneurship and sustainable growth across the livestock sector.



Guest of Honour Shri. Naresh Pal Gangwar, Secretary AHD, Department of Animal Husbandry and Dairying, Government of India, addressed the gathering. He highlighted the livestock sector's contribution to the Indian economy, noting that it has grown at around 12% over the last 10 years, significantly higher than GDP growth during the same period. He linked this growth to rising demand for livestock products and observed that demand would increase further as the economy and household incomes grow and India moves towards Viksit Bharat by 2047. He noted that increasing incomes would also raise protein intake and nutritional security, creating further demand for livestock products. Citing the higher prices of several livestock products compared with international prices, he observed that demand continues to exceed supply in several segments. He also pointed to the increasing availability of processed meat and other livestock products, including in smaller cities, as evidence of the sector becoming more organised.

Shri. Naresh Pal Gangwar, Secretary AHD, emphasised that livestock production is transitioning from a sustenance activity towards a standalone enterprise. As fewer people remain engaged in agriculture because of alternative employment opportunities, he stressed the need to accelerate this transition through larger and more organised farms. He identified access to credit and insurance as important enablers, particularly for rural and first-time entrepreneurs, and noted that the Government is working on mechanisms to improve access to banking credit at reasonable interest rates and expand insurance coverage at the primary production level. He also highlighted integrated value chains in dairy and poultry as successful models. While dairy has benefited from the three-tier cooperative model and poultry from private-sector-led integration, he noted that goat, sheep and pig production still lack similar integrated value chains. He said the Government is looking to facilitate clusters for aggregation of produce through cooperatives, private-sector participation or producer companies to improve processing, market access and rural incomes.

The address also covered feed availability, value addition and skilled manpower. Shri. Naresh Pal Gangwar, Secretary AHD noted that maize and soybean face competing demand from several industries and that their availability for feed will depend on productivity, pricing and the relative returns available to farmers. He said the feed industry has developed substantially over the past decade, but that further investment is required in processing and value addition. He also highlighted the expected rise in demand for veterinarians and the gap in veterinary education, noting that the Government is considering schemes to incentivise private-sector participation in veterinary colleges. Referring to the Feed Act deliberations, he called for industry participation so that the framework is responsive to sectoral requirements while addressing gaps and weaknesses. On sustainability, he emphasised that its meaning varies according to developmental context, noting that for India it encompasses poverty alleviation, nutritional security, food security and access to energy alongside environmental concerns.

Key Highlights of the Address:

- Livestock sector growth of around 12% over the last 10 years
- Transition from sustenance-based production to livestock as a standalone enterprise
- Greater access to credit and insurance for rural and first-time entrepreneurs
- Integrated value chains as a driver of dairy and poultry growth

- Proposed clusters for goat, sheep and pig production and aggregation
- Need to address maize and soybean availability through productivity and remunerative pricing
- Greater investment required in processing and value addition
- Growing demand for trained veterinary professionals and veterinary colleges
- Industry participation in Feed Act deliberations
- Sustainability linked to poverty alleviation, nutritional security, food security and access to energy in the Indian context

Shri. Naresh Pal Gangwar, Secretary AHD concluded by congratulating CLFMA on bringing together stakeholders from across the livestock sector and expressing hope that the symposium's discussions would generate ideas to guide its future growth. He also congratulated the award recipients and said that their recognition would encourage other stakeholders to contribute to the sector.



Following the address, the **CLFMA Souvenir 2026** and the **Survey Report 2026** were launched in the presence of the dignitaries and CLFMA office bearers on the dais.



The inaugural session concluded with the vote of thanks proposed by **Mr. Nissar F. Mohammed, Honorary Secretary, CLFMA of India**.

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The ceremony concluded with a felicitation recognising CLFMA of India's Platinum, Gold, Silver and Bronze sponsors, affiliated associations, special guests, media partners and venue partner. CLFMA felicitated Platinum Sponsors, representatives from Godrej Agrovet Ltd., Indian Poultry Equipment Manufacturers Association (IPEMA), U.S. Soybean Export Council, U. S. Soybean Export Council, Inc (USSEC), U.S. Grains & BioProducts Council, Gold Sponsors representatives from Alltech Biotechnology Pvt. Ltd., ANH Nutritional Products India Pvt. Ltd.(DSM), Aviagen India Poultry Breeding Company Pvt. Ltd., Berg And Schmidt India Pvt. Ltd., Cargill India Pvt. Ltd., Gyandhara Industries Pvt. Ltd., Nanda Feeds Pvt. Ltd., Natural Remedies Pvt. Ltd., Noveltech Feeds Pvt. Ltd., Shalimar Pellet Feeds Ltd., Shivshakti Agro (India) Pvt. Ltd., Srinivasa Farms Pvt. Ltd., Silver Sponsors, representatives from Coastal Exports Corporation, Evonik India Pvt. Ltd., Huvepharma SEA (Pune) Pvt. Ltd., Kemin Industries South Asia Pvt. Ltd., Nurture Aqua Technology Pvt. Ltd., Pranav Bitek Agrotech Pvt. Ltd., Shanthi Feeds Pvt. Ltd. Bronze Sponsors, Representatives from AB Vista South Asia, Allanasons Pvt. Ltd., Godrej Foods Limited, Himalaya Wellness Company, Indian Herbs Specialities Pvt. Ltd., Indian Trading Bureau Pvt. Ltd., Komarla Feeds, MBS Hatcheries, Niswin Enterprises, Nuqo Animal Nutrition India Pvt. Ltd., Regen Biocrops, Spectoms Engineering Pvt. Ltd., Swathi Hatcheries, Zamira Lifesciences India Pvt. Ltd., Zhejiang NHU Co. Ltd.

Special Guests from Government and International Organisations were also felicitated by CLFMA OF INDIA. The Ceremony also acknowledged CLFMA's media partners and publications supporting the Symposium, as well as. The Leela Mumbai as the venue partner. Representatives from the various media organisations and publications were felicitated for their association and support to CLFMA OF INDIA. The PR team supporting CLFMA was also felicitated in recognition of its contribution and support to the symposium. The Chairman Mr. Divya Kumar Gulati subsequently presented special mementoes as a token of appreciation for their contribution and association with CLFMA OF INDIA to the Managing Committee members for 2024–26.

The Ceremony concluded with a group photograph and remarks appreciating the close-knit teamwork and collective efforts of the CLFMA family. CLFMA OF INDIA Chairman, Mr. Divya Kumar Gulati, acknowledged and appreciated the valuable contributions of each and every Managing Committee Member, recognising their concerted efforts and commitment towards the betterment of livestock sector. The evening then continued with a networking dinner, providing delegates with an opportunity to connect and engage further.



Day 2 Symposium Proceedings:

The Welcome to National Symposium 2026 Day 2 was addressed by **Mr. Divya Kumar Gulati, Chairman, CLFMA OF INDIA,** followed by the introduction of the Symposium by **Mr. Sumit Sureka, Deputy Chairman, CLFMA of India.**





The sessions featured presentations and discussions covering animal agriculture, policy and industry partnerships, pet food, international trade, sectoral collaboration, and artificial intelligence in animal agriculture.



Presentation by Mr. Sunil Kataria, Managing Director and CEO Godrej Agrovet Ltd.:

The first session featured the theme-based presentation by **Mr. Sunil Kataria, Managing Director and CEO, Godrej Agrovet.** Drawing on his first year in the animal agriculture sector after a career spanning FMCG, telecom, and retail, Mr. Kataria shared his perspective on the theme of *"Animal Agriculture – The Backbone of Sustainable Development."* He outlined three interconnected dimensions of sustainable development for animal agriculture: feed a nation, farmer prosperity, and a safe planet. He emphasised that the sector must contribute to nutritional security, rural livelihoods and environmental sustainability, with animal nutrition serving as a common link across all three.

For consumers, he identified the protein gap as an issue of affordability, noting that the richest 10% of Indians consume 1.5 times more protein than the bottom 10% of consumers. He argued that improving animal nutrition and productivity could help reduce the cost of protein and make nutritious diets more accessible. For farmers, he highlighted the importance of stronger unit economics, productivity and stable incomes, noting that 70% of rural households depend on livestock alongside agricultural income and that annual losses from disease amount to more than ₹20,000 crore. For the planet, he linked improved animal productivity and precise nutrition with lower emissions intensity, pointing to the need for the industry to consider metrics such as emissions per litre of milk alongside conventional measures such as cost per tonne.

A central theme of the presentation was the need for the industry to move from a **feed-focused approach to an animal nutrition and well-being approach.** Mr. Kataria argued that the industry should focus less on what goes into the bag and more on the value delivered to the farmer and the animal. He drew a parallel with the evolution of the tea industry, which moved from selling a commodity to communicating differentiated consumer benefits such as taste, convenience, health and wellness. He suggested

that the animal nutrition sector could similarly move beyond commodity-based selling by investing in nutrition science, R&D, farmer education, differentiated products and stronger brands.

He further emphasised the need to develop products suited to the specific requirements of different regions, considering variations in animal breeds and climatic conditions. He also highlighted the importance of communicating the benefits of nutrition to farmers rather than relying primarily on distributors to drive purchase decisions. According to Mr. Kataria, this shift would require a more farmer-led approach, greater investment in nutrition science and R&D, and a stronger focus on animal health and productivity.

Key Points from Mr. Sunil Kataria's Address:

- Sustainable development in animal agriculture must address three dimensions — healthy humans, prosperous farmers and a safe planet.
- The sector has to contribute to nutritional security, rural livelihoods and environmental sustainability.
- The protein gap in India is also an affordability issue, with the richest 10% consuming 1.5 times more protein than the poorest 10%.
- Animal nutrition can contribute to healthier protein, higher animal productivity and improved farmer incomes.
- 70% of rural households depend on livestock alongside agricultural income.
- Annual losses from livestock disease were cited at more than ₹20,000 crore.
- The industry should consider productivity and emissions intensity alongside conventional metrics such as cost per tonne.
- The presentation cited 8.84% of India's greenhouse gas emissions as coming from the sector.
- Precise nutrition and improved productivity can help reduce emissions intensity while supporting farmer margins.
- The industry needs to move from a feed-focused approach to an animal nutrition and well-being approach.
- Greater investment is required in nutrition science, R&D, farmer education, advisory services and differentiated products.
- Products and nutrition solutions should account for differences in animal breeds and climatic conditions across states.
- The tea industry was presented as an example of how a commodity can evolve into a benefit-led and value-added category.
- The animal nutrition industry should focus on communicating the benefits delivered to farmers and animals rather than only the ingredients used in feed.
- Building strong brands and moving away from a commodity mindset can help create greater value within the sector.
- The growth of pet food was highlighted as an example of the potential for higher-value animal nutrition categories.
- The sector was encouraged to consider a broader identity centred on animal nutrition and well-being rather than livestock feed manufacturing.

The presentation concluded with a call for the sector to reconsider its identity and move beyond the traditional description of livestock feed manufacturing towards a broader focus on animal nutrition and well-being. Mr. Sunil Kataria noted that the industry has strong capabilities in commodity procurement, manufacturing and distribution, but needs to build greater capabilities in nutrition science, farmer advisory and benefit-led product development. He also drew attention to the growth of pet food as an example of how animal nutrition can evolve into a higher-value category, urging the industry to consider the opportunities available within animal health and nutrition.

Following the presentation, **Mr. Sunil Kataria** was felicitated by **Mr. Divya Kumar Gulati, Chairman, CLFMA of India.**

Session 1:

The First session was an **Interactive Policy Roundtable** focusing on **"Government and Industry Interface – Policy, Partnerships and the Future of Animal Agriculture"**

Moderator: Dr. P. S. Mahesh, Joint Commissioner and Director, Centre of Excellence for Animal Husbandry, Government of India

Speakers/Panellists:

Dr. Muthukumarasamy B., Joint Secretary (NLM), Department of Animal Husbandry & Dairying, Government of India

Shri. Suresh Chitturi, Vice Chairman and Managing Director, Srinivasa Farms

Mr. Daljeet Singh Gill, President, Progressive Dairy Farmers Association (PDFA)

Shri. Tarun Shridhar, IAS (Retd.) Former Secretary, Department of Animal Husbandry & Dairying, Government of India



Session Highlights:

Dr. P. S. Mahesh, Joint Commissioner and Director, Centre of Excellence for Animal Husbandry, Government of India, moderated the interactive roundtable and set the context for the discussion on government-industry collaboration. He highlighted the scale of animal agriculture, placing its contribution at approximately US$200 billion, or around ₹25 lakh crore, and spoke about the sector's ambition to reach US$1 trillion by 2047. He also emphasised the importance of presenting the sector as a unified industry and strengthening its engagement with government.

Dr. P. S. Mahesh drew parallels with platforms such as UPI and ONDC to explain the government's role as an enabler and facilitator. He noted that while industry focuses on business and profitability, government interventions are intended to generate wider benefits for the country. He highlighted the emergence of new consumer-facing models in chicken, eggs and milk and called for stronger aggregation and market-linkage models in sheep and goat farming. He also pointed to the National Livestock Mission (NLM) and Animal Husbandry Infrastructure Development Fund (AHIDF) as important mechanisms for encouraging investment and enterprise development.

Dr. Muthukumarasamy B., Joint Secretary (NLM), Department of Animal Husbandry & Dairying, Government of India

Dr. Muthukumarasamy B. highlighted the economic and livelihood potential of animal husbandry and the role of government in improving productivity and supporting farmers. He noted that the sector is currently valued at approximately US$200 billion, or around ₹25 lakh crore. The discussion also referenced an ambition for animal husbandry to account for 50% of the agricultural economy by 2047, with its current contribution cited as close to 40% of agricultural GDP. He stressed that the sector has a direct role in addressing farmer poverty and improving rural livelihoods.

He highlighted the Artificial Insemination Programme, introduced in 1952, as an example of the sector's long-standing efforts to improve livestock quality and productivity. He noted that India has yet to achieve 100% artificial insemination coverage because of regional, climatic and other variations. He also highlighted sex-sorted semen, which can provide an approximately 80–90% chance of producing female calves, and urged greater investment in technologies that can improve breed quality and dairy productivity.

Dr. Muthukumarasamy emphasised the need to view farmers as future entrepreneurs rather than only beneficiaries of government schemes. He called for greater convergence between State and Central government policies to create a more effective support system. Referring to Maharashtra, he highlighted government support for small farmers to establish animals with high genetic potential, enabling them to develop into small-scale cattle breeders through units of approximately 5–10 animals.

He also highlighted the potential beyond dairy, particularly in sheep, goat and pig farming, and called for greater investment in genetic improvement, productivity and organised development of these segments. He emphasised the potential of animal husbandry to contribute to India's agricultural and economic development and concluded that livestock and livelihood have to go hand in hand.

Pointers:

1. The animal husbandry sector was valued at approximately US$200 billion, or around ₹25 lakh crore.
2. The sector has an ambition to account for 50% of the agricultural economy by 2047.
3. Animal husbandry has an important role in addressing farmer poverty and rural livelihoods.
4. The Artificial Insemination Programme was introduced in 1952.
5. India has yet to achieve 100% artificial insemination coverage because of regional, climatic and other variations.
6. Sex-sorted semen can provide an approximately 80–90% chance of producing female calves.
7. Farmers should increasingly be viewed as future entrepreneurs, rather than only beneficiaries of government schemes.
8. Greater convergence between State and Central government policies is required.
9. Maharashtra is supporting small farmers in establishing animals with high genetic potential, with units of approximately 5–10 animals.
10. Sheep, goat and pig farming offer significant opportunities for investment and organised development.
11. Improving genetic quality and productivity can strengthen both farmer livelihoods and the wider animal agriculture sector.
12. "Livestock and livelihood have to go hand in hand."

Shri. Suresh Chitturi, Vice Chairman and Managing Director, Srinivasa Farms

Shri. Suresh Chitturi highlighted the growth potential of the poultry industry and the importance of improving productivity and yield while expanding access to global markets. The discussion indicated that the poultry industry could potentially reach ₹21–25 lakh crore by 2047, driven by improvements in yield and productivity and greater access to international markets.

He also highlighted the need to strengthen veterinary education and improve the quality of veterinary students and graduates entering the profession. He emphasised the need for veterinary education to be more closely aligned with industry requirements and the realities of animal husbandry, while noting the potential role of greater private-sector participation in veterinary education.

Pointers:

1. The poultry industry could potentially become a ₹21–25 lakh crore industry by 2047.
2. Improvements in yield and productivity will be important to achieving this potential.
3. Greater access to global markets can support the sector's growth.
4. The quality and relevance of veterinary education require greater attention.
5. Veterinary graduates need stronger alignment with the requirements of industry and animal husbandry.
6. Greater private-sector participation in veterinary education could be explored.

Mr. Daljeet Singh Gill, President, Progressive Dairy Farmers Association (PDFA)

Mr. Daljeet Singh Gill focused on dairy economics and farmer profitability, emphasising that the sustainability of dairy farming depends on either achieving sufficiently remunerative milk prices or reducing the cost of production. He highlighted higher milk productivity as a more sustainable route to improving farmer profitability by bringing down the cost of production.

He also referred to Fonterra as an example of a dairy ecosystem associated with greater farmer prosperity. Discussing Punjab, he noted that the state has played an important role in supplying and multiplying quality breeds for dairy farming across India, while referring to the absence of a particular multiplication subsidy for Punjab.

He also stressed the role of the feed industry in improving feed quality and nutritional outcomes, which can contribute to healthier animals, higher productivity and stronger farmer economics.

Pointers:

1. Dairy profitability depends on either remunerative milk prices or lower production costs.
2. Improving milk productivity can provide a more sustainable route to reducing production costs.

3. Fonterra was cited as an example of a dairy ecosystem associated with farmer prosperity.
4. Punjab has played an important role in the multiplication and distribution of quality dairy breeds.
5. A particular multiplication subsidy was discussed in the context of Punjab.
6. The feed industry has an important role in improving feed quality and nutritional outcomes.
7. Better feed quality can contribute to animal health, productivity and farmer profitability.

Shri. Tarun Shridhar, IAS (Retd.), Former Secretary, Department of Animal Husbandry & Dairying, Government of India

Shri. Tarun Shridhar emphasised the need to give greater policy attention to animal husbandry and fisheries, noting that these sectors have considerable potential for innovation, growth and livelihood creation. He stressed that stronger communication between government and industry is essential for ensuring that policies reflect ground-level realities.

He called for policymakers to remain open to criticism and feedback from practitioners who understand the sector through direct experience. He emphasised the need to reduce the gap between policymakers and those working within the sector and advocated greater communication without mutual suspicion. He also stressed that policy needs to remain malleable and responsive, with mechanisms that allow feedback from industry and practitioners to inform policy decisions.

He further highlighted the need to examine veterinary education, practice and services, noting that the Government of India has constituted a committee to consider restructuring in these areas.

Pointers:

1. Animal husbandry and fisheries require greater policy attention despite their economic and livelihood potential.
2. The sectors offer significant scope for innovation and growth.
3. Government and industry need better communication and stronger engagement.
4. Policymakers should remain open to criticism and ground-level feedback from practitioners.
5. Industry practitioners can provide valuable insights into the actual requirements of the sector.
6. The gap between policymakers and practitioners needs to be bridged.
7. Policy should remain malleable and responsive to changing sectoral requirements.
8. Veterinary education, practice and services require further examination through the Government of India committee on restructuring.

At the conclusion of the session, the Moderator and Panellists were felicitated in recognition of their participation and valuable contributions to the discussion.



Presentation by Dr. Saurabh Shekhar, Managing Partner – Pet Care Business at Wipro

The next presentation focused on the rapidly evolving **"Pet food and pet care business in India"**, examining the changing dynamics of the pet care ecosystem, emerging consumer behaviour and the growing opportunities across food, nutrition, healthcare and allied services.



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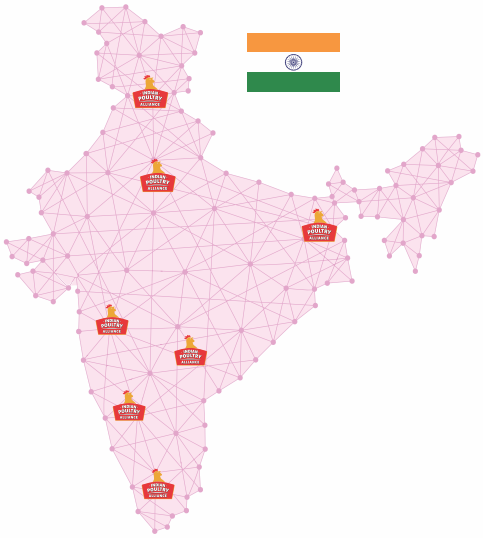
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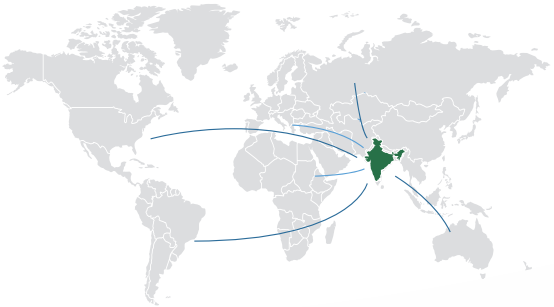


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Dr. Saurabh Shekhar, Managing Partner – Pet Care Business at Wipro, discussed the rapid evolution of India's pet food and pet care market, describing pet care as an emerging consumer and wellness economy. He explained that the ecosystem now extends beyond food and nutrition to veterinary healthcare, insurance, finance, grooming and other services, with pet food remaining one of the most visible categories because of its recurring purchase cycle. He noted that India's pet population is expected to almost double between 2020 and 2030, with dogs accounting for around 70% of domesticated pets and cats approximately 30%. Cats, he added, are the faster-growing category, with rising vaccination rates and increasing visits to veterinary clinics indicating greater adoption of cat healthcare.

Dr. Saurabh Shekhar highlighted that 67% of pet parents are first-time pet parents, creating a significant need for education around nutrition, healthcare and responsible pet parenting. He identified urbanisation, nuclear families and a growing wellness mindset as key structural drivers of pet ownership and the broader shift towards pet humanisation. Pet parents are increasingly seeking the same standards of nutrition, healthcare and wellbeing for their pets that they seek for themselves. He noted that pet ownership penetration in India is around 8%, while packaged pet food penetration is approximately 7% nationally, with penetration at around 11% for cats and 4% for dogs, indicating significant headroom for category expansion. He emphasised that the industry needs to focus on bringing more consumers into the category rather than competing for a limited existing consumer base.

The presentation also covered the evolving product and distribution landscape. Dr Shekhar noted that dogs and cats account for around 90% of India's pet care business, while small mammals and other categories contribute less than 5%. The market is expanding across dry food, wet food, treats, snacks and fresh food, with wet food growing faster than dry food. Prescription, therapeutic and functional diets are also emerging as specialised segments. He stressed that manufacturing technology is not the primary challenge, as extrusion is widely used for dry food and retort technology for wet food. Instead, quality, food safety, supply chain management and cross-contamination control will be critical as the category scales.

Dr. Saurabh Shekhar further highlighted the changing channel landscape, with pet shops and superstores continuing to play an important role in consumer education and product discovery, while e-commerce is growing rapidly due to convenience and reach. The presentation cited the channel contribution at 44% for pet shops and superstores, 32% for e-commerce, 14% for veterinary clinics and 10% for grocery retailers. He also noted the entry of more than 50 start-ups into the pet care space over the previous two years, alongside increasing interest from FMCG companies and investors. He stressed the need for greater transparency in pet food labelling and claims, noting that while BIS standards are voluntary, clearer frameworks could help strengthen consumer trust. He concluded by identifying science, animal welfare and formalisation as important pillars for the development of the pet care ecosystem.

Pointers:

1. "Pet care is emerging as a formal consumer and wellness economy, spanning food and nutrition, veterinary healthcare, insurance, grooming, finance and other services."
2. "India's pet population is expected to almost double between 2020 and 2030, with dogs accounting for around 70% of domesticated pets and cats approximately 30%."
3. "Cats are emerging as the faster-growing category, with increasing vaccination rates and greater visits to veterinary clinics indicating a shift in pet healthcare adoption."
4. "67% of pet parents are first-time pet parents, creating a significant need for education around nutrition, healthcare and responsible pet parenting."
5. "Urbanisation, nuclear families and a growing wellness mindset are key structural drivers of pet ownership and the increasing humanisation of pets."
6. "Pet ownership penetration in India is around 8%, while packaged pet food penetration is approximately 7%, with around 11% penetration for cats and 4% for dogs, leaving significant headroom for growth."
7. "The industry needs to focus on bringing more consumers into the category through education and conversion rather than competing only for existing consumers."
8. "Dogs and cats account for around 90% of India's pet care business, while small mammals and other categories contribute less than 5%."
9. "Wet food is growing faster than dry food, while prescription, therapeutic and functional diets are emerging as specialised opportunities."

10. "Manufacturing technology is not the primary challenge. Quality, food safety, supply chain management and cross-contamination control will be critical as the category scales."
11. "Pet shops and superstores contribute 44% of the business, followed by e-commerce at 32%, veterinary clinics at 14% and grocery retailers at 10%."
12. "More than 50 start-ups have entered the pet care space over the previous two years, reflecting the growing interest in the category."
13. "Greater transparency around pet food labelling and claims is required to strengthen consumer trust, with an opportunity to build on existing voluntary BIS standards."
14. "Science, animal welfare and formalisation will be important pillars for the continued development of India's pet care ecosystem."
15. "Pet parenting is becoming mainstream and the humanisation of pets is accelerating, creating opportunities for stakeholders across the value chain to expand the category."

Mr. Suresh Deora, Immediate Past Chairman, CLFMA of India, felicitated Dr. Saurabh Shekhar in recognition of his participation and contribution to the session.



Presentation by Mr. Kevin Roepke, Executive Director – Middle East, North Africa and South Asia, U.S. Soybean Export Council:

The next presentation focused on the India-U.S. trade relationship and the potential role of agriculture in achieving the target of "US$500 billion in bilateral trade by 2030." The discussion examined the scale of the trade ambition, the economic trajectory of both countries and the opportunities for strengthening agricultural and soybean trade between the two markets.

Mr. Kevin Roepke, Executive Director – Middle East, North Africa and South Asia, U.S. Soybean Export Council, joined the session virtually and spoke on the theme **"500 Billion by 2030,"** referring to the India-U.S. ambition to expand bilateral trade to US$500 billion by 2030. He noted that bilateral trade currently stands at approximately US$240–250 billion, making the target a significant increase over the next four to five years.

Kevin Roepke used the pricing of Apple's latest foldable iPhone as an illustration of the differences between income levels, market pricing and policy conditions. He noted that India has a substantially lower per-capita income than the U.S., while the device is priced significantly higher in India. He attributed such differences to several factors, including taxes, tariffs, unit economics, currency risks and the cost of doing business. He presented this as an example of how market access and policy conditions can influence the availability and affordability of products.

Turning to the global economic outlook, Kevin highlighted the continuing economic weight of the U.S. and China, while noting India's expanding position in the global economy. He projected that India would become the world's third-largest economy by 2030, overtaking Germany. He also discussed the pressures facing developed economies, including higher U.S. bond yields and the implications of elevated interest rates and debt levels.

The presentation then focused on soybean economics and the cost pressures facing U.S. farmers. Referring to soybean

production in Iowa, he explained that land costs constitute a significant share of production costs when calculated using cash-rent equivalents. He noted that excluding land costs, U.S. soybean production remains highly competitive globally. He also highlighted the impact of elevated diesel and fertiliser prices on farmers' operating costs.

Kevin Roepke explained that the expansion of renewable diesel and biodiesel production has created stronger demand for soybean oil, supporting soybean crushing margins in the U.S. Increased crushing capacity means greater availability of soybean meal, which is particularly relevant for poultry and livestock producers. He noted that the U.S. has invested heavily in expanding domestic soybean crushing capacity over the past four to five years, with domestic crush capacity rising substantially during this period.

Addressing India specifically, Kevin Roepke highlighted the lack of significant growth in soybean yields over several decades and contrasted this with productivity gains in major soybean-producing countries such as Brazil, Argentina and the U.S. He said India had increasingly become dependent on imports to meet soybean and soybean meal requirements, particularly as demand for soybean meal continues to grow.

Kevin Roepke also addressed concerns that imports could displace domestic soybean production. Referring to China as a case study, he argued that greater access to imported soybeans had not necessarily undermined domestic production. Instead, China's domestic soybean production had increased while the country became the world's largest soybean importer. He attributed this to the ability to focus domestic production on higher-value opportunities while using imports to meet broader market demand.

He concluded by emphasising the importance of market access and policy conditions in strengthening agricultural trade. He acknowledged CLFMA's advocacy on soybean meal imports and argued that imports should complement rather than replace domestic production. He connected this discussion back to the broader India-U.S. trade ambition and the role of policy in enabling more efficient agricultural markets.

Pointers:

1. India-U.S. bilateral trade is targeted to reach US$500 billion by 2030.
2. Agriculture is expected to play an important role in expanding bilateral trade.
3. Market pricing is influenced by taxes, tariffs, currency risks and the cost of doing business.
4. India is projected to become the world's third-largest economy by 2030.
5. Elevated diesel and fertiliser costs are putting pressure on U.S. soybean farmers.
6. Land costs represent a significant component of soybean production costs when calculated using cash-rent equivalents.
7. Excluding land costs, U.S. soybean production remains globally competitive.
8. Renewable diesel and biodiesel are driving additional demand for soybean oil.
9. Rising soybean crushing capacity in the U.S. is increasing the availability of soybean meal.
10. India has experienced limited soybean yield growth over several decades compared with major global producers.
11. India has increasingly relied on soybean and soybean meal imports to meet domestic demand.
12. China was cited as an example where rising soybean imports coincided with growth in domestic soybean production.
13. Imports should complement domestic production rather than displace it.
14. Market access and policy conditions remain important to strengthening agricultural trade and supporting livestock feed availability.

Excellence Centre Awards

Following a brief presentation by Dr. Vijay Anand of the U.S. Soybean Export Council (USSEC), Mr. Divya Kumar Gulati, Mr. Abhay Shah, Mr. Abhay Parnerkar, and Mr. R. Ramkutty were invited on stage to felicitate the recipients and present the Soy Excellence Centre Awards, recognizing their efforts in nurturing professionals and enhancing their knowledge and expertise.

Session 2: "One Nation, One Voice"

The following session featured a panel discussion on **"One Nation, One Voice,"** examining the need for greater coordination among associations representing poultry, dairy, aquaculture, animal feed and allied industries. The discussion focused on establishing a common platform for industry representation, identifying shared challenges, building consensus on policy priorities and strengthening engagement with government authorities.

Moderator: Mr. Mrityunjay Jha, Commodity Editor and Anchor, Zee Business

Panellists:

- Mr. Divya Kumar Gulati, Chairman, CLFMA of India
- Mr. Ranpal Dhanda, President, Poultry Federation of India (PFI)
- Mr. Uday Singh Bayas, President, Indian Poultry Equipment Manufacturers Association (IPEMA)
- Mr. Madan Mohan Maity, General Secretary, West Bengal Poultry Federation Association (WBPFA)
- Mr. Saji Chacko, President, Society of Aquaculture Professionals (SAP)
- Mr. R. Ramkutty, Broiler Coordination Committee (BCC)



Session Highlights

Mr. Divya Kumar Gulati, Chairman, CLFMA of India

Mr. Divya Kumar Gulati emphasised that a unified industry voice was increasingly important as the livestock sector continued to expand. He noted that the poultry sector was growing at an estimated 8–11%, while dairy and shrimp production were also increasing. As growth brought new challenges, coordinated engagement with the Ministry of Animal Husbandry and Dairying was necessary to ensure that the industry's concerns received adequate attention.

He clarified that the objective was not to merge associations into a single organisation, but to bring them together to address common issues while preserving their individual strengths and responsibilities. The initiative had begun by opening communication channels and building relationships among association leaders. The next step was to identify common concerns and develop joint representations.

Mr. Divya Kumar Gulati highlighted collaborative surveys on maize and soybean as an important step towards building a shared evidence base for industry and policy discussions. He noted that the national average maize productivity was estimated at approximately 3.5–4 tonnes per hectare, while differing views on actual productivity demonstrated the need for reliable data and a common understanding of the findings.

He also identified improving productivity, increasing the availability of processed animal products and addressing consumer misconceptions about animal-source protein as potential shared priorities. He stressed that associations would need to collectively rank the most urgent issues before approaching the government.

Pointers:

1. The poultry sector was growing at an estimated 8–11%, alongside expanding dairy and shrimp production.
2. A common platform can strengthen industry representation before government authorities without requiring associations to merge.
3. Building trust and communication among association leaders is an essential first step towards coordinated representation.
4. Joint maize and soybean surveys can provide a shared evidence base for policy discussions.

5. National average maize productivity was estimated at approximately 3.5–4 tonnes per hectare, highlighting the need for reliable data and common assessment.
6. Improving productivity, promoting processed animal products and addressing consumer misconceptions about animal-source protein were identified as potential shared priorities.
7. Associations must collectively identify and rank common concerns before making representations to the government.

Mr. Uday Singh Bayas, President, Indian Poultry Equipment Manufacturers Association (IPEMA)

Mr. Uday Singh Bayas highlighted the value of collaboration, citing Poultry India as an example of how stakeholders could come together to exchange ideas, showcase products and create business opportunities. He said associations representing farmers, manufacturers and other industry participants had distinct strengths that could be combined through a common platform. Such coordination could strengthen the industry's engagement with policymakers and support the development of domestic capabilities and access to global markets.

Mr. Uday Singh Bayas also highlighted the importance of state-level associations in communicating local challenges, with national organisations helping take these concerns forward. He noted that the collaborative soybean survey could support evidence-based representations and improve coordination between state and national associations.

Addressing farm productivity, he observed that poultry farming was often perceived as a loss-making business, although outcomes could be influenced by several factors, including equipment, feed and bird quality. He emphasised that reliable equipment and appropriate manufacturing standards were important to the long-term performance and profitability of poultry farms.

Pointers:

1. Industry associations have distinct strengths that can be combined through a common platform.
2. Poultry India illustrates how collaboration can support knowledge-sharing, product showcasing and business opportunities.
3. State-level associations can communicate local challenges, while national bodies can take these concerns forward to policymakers.
4. Collaborative soybean surveys can support evidence-based representations to government departments.
5. Equipment quality, feed quality and the quality of birds are important factors influencing poultry farm productivity and profitability.
6. Reliable equipment and sound manufacturing practices can support sustained farm performance.

Mr. Ranpal Dhanda, President, Poultry Federation of India (PFI)

Mr. Ranpal Dhanda stated that the Poultry Federation of India already represented farmers and raised concerns relating to feed raw materials, vaccines, imported supplements and duties on products such as amino acids. He maintained that sector-specific associations should continue addressing their respective concerns while coming together when issues affected the wider industry. He also highlighted challenges faced by small farmers in accessing government benefits and subsidies, including support for biogas and other policy measures.

Mr. Ranpal Dhanda identified feed raw material availability as one of the industry's most important common concerns. He noted that India cultivated maize across approximately 14 million hectares, with yields estimated at 3.7–4 tonnes per hectare. Based on his practical experience and field trials across locations in North and East India, he suggested that yields could reach 10–11 tonnes per hectare with access to quality seeds and appropriate inputs. He called for associations to work together to improve productivity and strengthen domestic raw material availability.

He also raised concerns about product quality and possible adulteration in soybean meal. He argued that suppliers should clearly communicate product specifications and prices, while buyers should be willing to pay for the quality they require. He called for stronger quality-control mechanisms and better methods to detect adulteration at the source. The discussion acknowledged, however, that reliable market-wide data was not available to establish the extent of the problem.

Pointers:

1. The Poultry Federation of India raises concerns affecting farmers, including feed raw materials, vaccines and imported supplements.

2. Duties on imported products such as amino acids were identified as an area requiring attention.
3. Small farmers need better access to relevant government policies, benefits and subsidies.
4. India cultivates maize across approximately 14 million hectares, with yields estimated at 3.7–4 tonnes per hectare.
5. Mr Ranpal Dhanda suggested that maize yields could reach 10–11 tonnes per hectare with quality seeds and appropriate inputs, based on his experience and field trials.
6. Improving maize productivity could strengthen domestic feed raw material availability.
7. Soybean meal quality concerns require transparent product specifications, reliable testing and stronger quality-control mechanisms.
8. Reliable data is needed to establish the extent of possible adulteration across the market.

Mr. Madan Mohan Maity, General Secretary, West Bengal Poultry Federation Association (WBPFA)

Mr. Madan Mohan Maity proposed establishing a common forum through which state-level and national associations could jointly raise issues with the government. He emphasised that poultry, dairy, fisheries and meat production faced both distinct and shared challenges. Better coordination could help the industry assess maize and soybean production, understand feed requirements and identify supply gaps across sectors.

Mr. Madan Mohan Maity stressed that industry associations had an important role in improving agricultural productivity alongside government initiatives. Citing West Bengal, he noted that maize production in the state had increased from approximately 0.4 million metric tonnes a decade earlier to nearly 3 million metric tonnes, supported by joint efforts involving poultry associations and the government. He called for associations to work with their respective state governments and collectively communicate sectoral requirements to the Central Government.

He also advocated bringing allied sectors, including feed and pharmaceutical manufacturers, into the common platform. Drawing on an example involving broken rice exports, he explained how conflicting representations from different industries could complicate government decision-making. He argued that a common forum would enable stakeholders to discuss differing interests and work towards more coordinated policy positions.

Pointers:

1. A common forum could bring state-level and national associations together to address shared industry concerns.
2. Joint assessment of maize and soybean production, availability and demand could support better planning across sectors.
3. Industry associations have a role in improving agricultural productivity alongside government initiatives.
4. West Bengal's maize production increased from approximately 0.4 million metric tonnes to nearly 3 million metric tonnes over a decade, supported by joint industry and government efforts.
5. Associations should engage with state governments and collectively communicate industry requirements to the Central Government.
6. Allied sectors, including feed and pharmaceutical manufacturers, should be included in collective industry discussions.
7. Conflicting representations from different industries can complicate policymaking, making dialogue and consensus important.

Mr. R. Ramkutty, Broiler Coordination Committee (BCC)

Mr. R. Ramkutty emphasised that collective action was necessary to address the lack of a level playing field across regions. He highlighted variations in maize and soybean prices, differences in production costs and regional fluctuations in broiler prices as challenges affecting the industry's financial stability. He called for associations to coordinate on raw material and finished-product pricing concerns and work towards a more predictable business environment.

Mr. R. Ramkutty also highlighted the gap between feed raw material demand and domestic availability, particularly for maize and soybean. He raised concerns about post-harvest quality issues, including aflatoxin contamination in maize, and called for better storage and grain-handling infrastructure. Referring to international practices observed during industry visits, he emphasised the need for suitable grain storage and logistics facilities to preserve quality and improve supply management.

On feed quality, Mr. Ramkutty discussed concerns about the possible substitution of soybean meal with lower-cost ingredients, including rice bran, wheat bran and DDGS. He noted that protein analysis alone might not always establish product quality and



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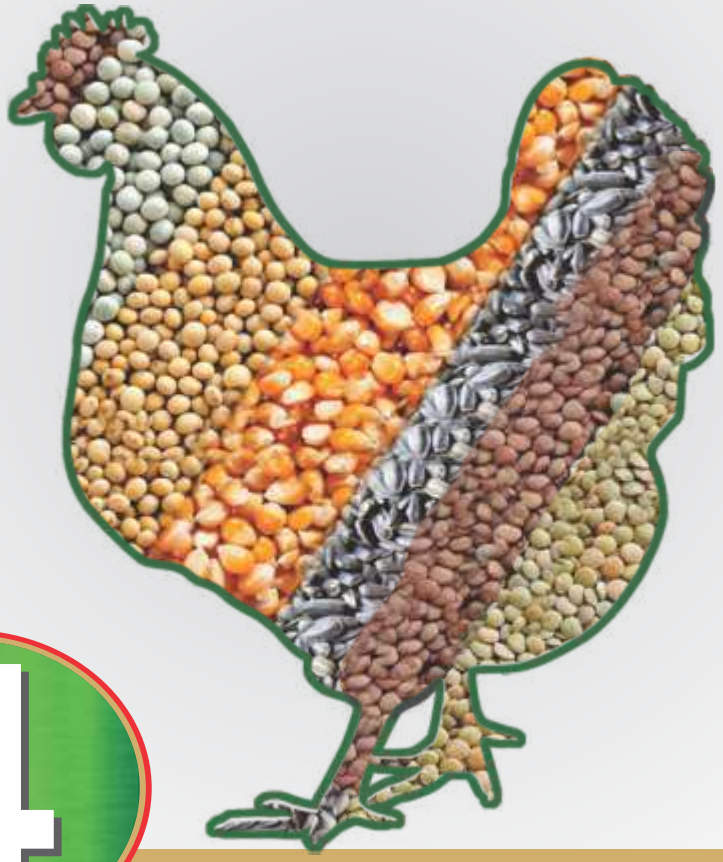
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that many feed users lacked the laboratory facilities required for detailed testing. He also highlighted the industry's dependence on imported amino acids, micronutrients, antibiotics and vitamins, calling for collective engagement with the government to encourage domestic manufacturing and reduce import dependence.

Pointers:

1. Regional variations in raw material prices, production costs and broiler prices create an uneven operating environment for the industry.
2. Better coordination among associations could support greater price stability for raw materials and finished products.
3. Gaps between demand and domestic availability of maize and soybean remain major feed industry concerns.
4. Post-harvest quality issues, including aflatoxin contamination in maize, require attention.
5. Better storage, grain handling and logistics infrastructure could help preserve raw material quality.
6. Protein analysis alone may not always establish the quality of soybean meal, highlighting the need for more robust testing.
7. Many feed users lack the laboratory facilities required for detailed quality analysis.
8. Domestic manufacturing of amino acids, micronutrients, antibiotics and vitamins could reduce import dependence.

Mr. Saji Chacko, President, Society of Aquaculture Professionals (SAP)

Mr. Saji Chacko observed that although aquaculture and poultry operated under different business models, they shared concerns relating to food production, nutrition, marketing and raw material availability. He noted that nearly 90% of shrimp production was exported, whereas approximately 90% of poultry production was consumed domestically. These differences created opportunities for sectors to learn from one another's practices and explore approaches that could be adapted to their respective markets.

Mr. Saji Chacko also highlighted the importance of responsible antibiotic use under the One Health approach. He explained that antibiotic residues entering natural water systems could affect aquaculture products, including products from farms that had not directly used those antibiotics. He emphasised that a common industry platform could help stakeholders discuss interconnected concerns, share knowledge and develop coordinated approaches to food safety and environmental management.

Pointers:

1. Poultry and aquaculture have different market orientations, with shrimp production largely export-oriented and poultry production predominantly consumed domestically.
2. Cross-sector collaboration can help associations learn from each other's marketing and production practices.
3. Soybean availability is a shared concern affecting both aquaculture and poultry.
4. Responsible antibiotic use is an important issue under the One Health approach.
5. Antibiotic residues entering natural water systems can create risks for aquaculture products.
6. A common platform can support coordinated responses to shared food safety and environmental concerns.

The Moderator & Panellists were felicitated by Mr. Suresh Deora, Immediate Past Chairman, CLFMA of India, in recognition of their participation and contributions to the discussion.



Presentation on Artificial Intelligence in Animal Agriculture:

Mr. Bhaskar Karampudi, Co-founder & Director B-CUBE Consulting Private Limited opened the session by highlighting the dual role AI can play in animal agriculture, moving beyond the commonly perceived applications of sensors, robotics and automated equipment. He noted that companies across the sector already generate substantial volumes of data through procurement, raw materials, feed, production, quality, laboratory reports, sales, distribution, farm performance, technical services, customer interactions, dispatches, collections, SOPs, manuals and regulatory documentation. The challenge, he explained, is not the availability of data but the ability to connect fragmented information and convert it into timely action.

He pointed out that information is often maintained across different departments and formats, including Excel sheets, Word documents, mobile applications and ERP systems. As a result, managers can spend considerable time collecting and reconciling information instead of analysing it. AI can help connect these sources, identify patterns, flag exceptions and generate decision-ready summaries, allowing organisations to act faster.

The speaker also explained that AI extends rather than replaces human intelligence. He broadly outlined generative AI, agentic AI, workflow automation, analytical AI and predictive AI as areas with applications across animal agriculture. He demonstrated several capabilities of generative AI, including research, content generation, document analysis, multilingual interaction and the creation of company-specific knowledge repositories.

He demonstrated how ChatGPT could be used to research developments in AI applications in animal agriculture, identify relevant research papers and videos, and organise information for presentation development. He also explained how company SOPs and other internal documents could be uploaded to a dedicated project to create a company-specific knowledge resource that employees could consult when seeking information from internal documents.

The presentation then moved to applications of AI in animal agriculture beyond generative tools. Examples included chatbots, AI voice agents, predictive analytics, animal behaviour monitoring, acoustic analysis, facial recognition, sensors, disease prediction and workflow automation. The speaker demonstrated a chatbot configured for CLFMA-related information, as well as an AI-based pond health advisory that could generate recommendations based on parameters entered by users.

He also demonstrated the potential for AI-powered intelligence dashboards that bring together commodity markets, poultry, dairy and aquaculture intelligence, feed ingredients, weather information, industry news and market data. Such systems could also automate the generation and circulation of industry newsletters.

The speaker further discussed predictive AI for commodity price analysis, particularly for key feed ingredients such as maize. He explained how historical price data could be analysed to identify market signals and potentially support procurement and hedging decisions. He cited an example in which an AI-based tool identified a positive price signal for maize and subsequently tracked a significant increase in prices.

He concluded by emphasising that AI can help the animal agriculture industry convert its existing data into actionable intelligence, automate repetitive processes, improve operational efficiency and support better business decisions. He also offered to provide one-hour consulting sessions to a group of CLFMA members to explore potential AI applications within their businesses.

Pointers:

1. Animal agriculture companies already generate substantial volumes of operational and business data.
2. The key challenge is connecting fragmented data and converting it into timely action.
3. AI can integrate information from different departments and formats.
4. AI can identify patterns, flag exceptions and generate decision-ready summaries.
5. AI extends human capabilities rather than simply replacing human intelligence.
6. Generative AI can support research, content creation, and document analysis and data interpretation.
7. Company SOPs and internal documents can be organised into AI-enabled knowledge repositories.
8. AI tools can support interaction across multiple languages.
9. Agentic AI can be applied through chatbots and AI voice agents for customer interactions and payment follow-ups.
10. Analytical and predictive AI can support animal health and behaviour monitoring through video, acoustic and sensor data.

11. AI applications can help identify stress, feeding patterns, lameness and other animal health indicators.
12. Workflow automation can generate advisories based on user-provided farm or pond parameters.
13. AI-powered dashboards can consolidate commodity, market, weather and industry intelligence.
14. Historical commodity price data can be analysed to support procurement and potential hedging decisions.
15. AI adoption can help improve efficiency, reduce repetitive work and support faster decision-making across animal agriculture.

Following the session, Mr Bhaskar was felicitated by Mr Suresh Deora, Immediate Past Chairman, CLFMA of India, for his participation and contribution to the session.

Session 3: "Animal Agriculture and Global Food Security"

The following session featured a panel discussion on "Animal Agriculture and Global Food Security," examining how India can strengthen animal-protein production amid population growth, declining agricultural land availability and rising food demand. The discussion focused on improving animal productivity, strengthening feed security, expanding domestic and international markets, addressing taxation and import-duty concerns, investing in research and technology, and building stronger collaboration between industry, government and academia.

Moderator: Mr. S. V. Bhave, Managing Director, Berg & Schmidt (India) Pvt. Ltd.

Panellists:

- Dr. S. K. Dutta, Joint Commissioner (NLM), Department of Animal Husbandry and Dairying, Government of India
- Mr. Neeraj Kumar Srivastava, Managing Director, NUQO Animal Nutrition India Pvt. Ltd. (South Asia)
- Dr. Gagan Garg, Joint Commissioner (RGM), Department of Animal Husbandry and Dairying, Government of India
- Prof. (Dr.) Pankaj Kumar Shukla, President, Indian Poultry Science Association
- Mr. Naveen Pasuparthy, President, Karnataka Poultry Farmers & Breeders Association (KPFBA)
- Dr. Ajay Deshpande, President, Vets In Poultry (VIP)
- Mr. Valsan Parameswaran, Secretary, All India Poultry Products Exporters Association (AIPPEA) – Egg



Session Highlights

Dr. S. K. Dutta, Joint Commissioner (NLM), Department of Animal Husbandry and Dairying, Government of India

Dr. S. K. Dutta highlighted the need to improve animal productivity to meet India's growing protein requirements while addressing constraints in land availability and production resources. He identified poultry, dairy and fisheries as important contributors to the country's protein supply, noting that productive animals and technology-led breeding systems would help increase output without requiring a proportionate increase in animal numbers. He emphasised investment in science-based

farming practices, breeding technologies and breed multiplication systems to improve productivity and make better use of available space.

Dr. S. K. Dutta observed that India's animal husbandry practices remain substantially unorganised, creating the dual challenge of improving productivity while sustaining livelihoods and income generation. He noted that government initiatives had contributed to rising production, with milk output reaching approximately 249 million tonnes. He also highlighted the potential to expand egg production, referring to a target of 220 billion eggs over the preceding five-year period, which would help increase availability towards an average of three eggs per person per week.

He identified feed security as a major concern for animal agriculture, emphasising the need to ensure sufficient quantities of nutritious, good-quality feed as demand increases. Disease management was another priority, particularly as global warming and pollution add to the challenges faced by biological production systems. While technologies are available to address several of these concerns, he stressed that their adoption and implementation would be important for sustaining growth.

Dr. S. K. Dutta also called for greater private-sector participation in breeding, aligned with government policy and focused on productive, resilient and climate-suitable breeds. He highlighted the potential of the sheep, goat and pig sectors, which require greater organisation and investment. Integrated production systems similar to those established in poultry could help these sectors expand and contribute to India's protein requirements.

Pointers:

1. Population growth and constraints on land availability make improvements in animal productivity essential for food security.
2. Science-based farming, technology-led breeding and breed multiplication systems can improve output without requiring a proportionate increase in animal numbers.
3. Milk production had reached approximately 249 million tonnes, while egg production retained considerable potential for further growth.
4. The sector needed to work towards the cited target of 220 billion eggs over the preceding five-year period to improve egg availability.
5. Feed security and access to nutritious, good-quality feed are major challenges for animal agriculture.
6. Disease management requires continued attention, particularly in the context of global warming and pollution.
7. Private-sector participation in breeding should complement government efforts, with a focus on productive, resilient and climate-suitable breeds.
8. The sheep, goat and pig sectors could benefit from greater organisation and integrated production systems.

Dr. Gagan Garg, Joint Commissioner (RGM), Department of Animal Husbandry and Dairying, Government of India

Dr. Gagan Garg discussed India's contribution to global food security through domestic production and international trade. He noted that India was the world's second-largest egg producer and fourth-largest meat producer, while also making progress in dairy productivity. Over the preceding 12 years, average milk productivity per animal had increased by approximately 38%, reaching 6.37 kg per animal per day, compared with the global average of 6.9 kg. Annual milk production per animal stood at 2,251 kg, approximately 300 kg below the world average, according to the FAO statistics he cited.

Dr. Garg highlighted the acceleration in animal-product exports amid food shortages and changing international trade conditions. He stated that dairy exports had grown by 44% over the preceding two years, poultry and egg product exports had recorded 23% growth compared with 2024, and buffalo meat exports had increased by 45% over the same two-year period. He also noted that buffalo meat exports in the first quarter of the current year had already exceeded one-third of the previous year's total.

He observed that expanding exports required countries to address sanitary and phytosanitary (SPS) requirements and other market-access barriers. Even developed economies continued to protect domestic producers of dairy, poultry meat and table eggs. Dr Garg explained that resolving such barriers required technical evidence, financial resources and sustained negotiations, including through the World Trade Organisation where appropriate. He also highlighted the potential role of free trade agreements in improving access to animal-feed imports, noting that concessions under the recent India–UK trade agreement could progressively reduce duties on animal feed over the next decade.

Dr. Garg further emphasised that food security extended beyond human consumption to pet food. He cited an estimated domestic pet-food industry value of ₹5,500 crore, with approximately 12–13% of its output being exported, and called attention to India's role in supplying both domestic and international markets.

Pointers:

1. Average milk productivity had increased by approximately 38% over 12 years, reaching 6.37 kg per animal per day.
2. Annual milk production per animal stood at 2,251 kg, around 300 kg below the global average cited from FAO statistics.
3. Dairy exports grew by 44% over the preceding two years, while poultry and egg product exports recorded 23% growth compared with 2024.
4. Buffalo meat exports increased by 45% over the preceding two years, with first-quarter exports in the current year exceeding one-third of the previous year's total.
5. SPS requirements and market-access barriers remain important considerations for animal-product exports.
6. Technical evidence, financial resources and sustained negotiations are required to address international trade barriers.
7. Trade agreements could improve access to animal-feed imports through progressive duty concessions.
8. India's food-security contribution also includes pet food, with the domestic industry valued at approximately ₹5,500 crore and around 12–13% of output being exported.

Mr. Naveen Pasuparthy, President, Karnataka Poultry Farmers & Breeders Association (KPFBA)

Mr. Naveen Pasuparthy discussed the challenges facing poultry exports and the cost implications of import duties on equipment and feed inputs. Drawing on industry experience in the UAE and Oman, he noted that Indian raw poultry meat and cut-up parts faced significant competition in Gulf markets, where South American suppliers could offer products at substantially lower prices. While acknowledging that governments had a responsibility to protect domestic farmers, he argued that import-duty concessions should be considered for products and technologies that were not manufactured in India.

He highlighted the growth in India's poultry-processing capacity, which had increased from 13,000 birds per hour in 2002 to 83,000 in 2018 and 2, 67,000 birds per hour in 2026, according to the figures he presented. Mr Pasuparthy proposed a differentiated approach to import duties on processing equipment. Indian manufacturers could supply equipment for lines processing up to 1,500 birds per hour, but higher-capacity operations required advanced automation for chilling, evisceration and cut-up processes. He argued that the 35% import duty on such equipment could make large-scale processing projects less viable.

He also raised concerns about the 5% GST on soybean meal, which he said had been introduced over the preceding five to seven years. He observed that businesses were responding through tax-planning arrangements, including purchasing soybean meal and getting it crushed through third parties. He argued that tax policies that did not account for sectoral economics could increase production costs, which would eventually be passed on to consumers. He called for the poultry sector's total GST contribution to be assessed, particularly because several inputs attract GST while the sector's end product does not.

In his additional remarks, Mr. Pasuparthy described poultry as part of a broader crop-agriculture value chain, given that feed accounts for approximately 70% of egg production costs and 74–78% of broiler production costs. He urged associations and poultry companies to work directly with maize farmers, promote better-quality seeds and invest in grain elevators and storage infrastructure. He explained that bulk procurement, cleaning, drying and silo storage could preserve maize quality for nine to ten months and improve raw-material availability. He emphasised that the industry itself needed to take responsibility for these investments rather than relying solely on government intervention.

Pointers:

1. Import-duty concessions should be considered for animal-agriculture inputs and technologies that are not manufactured domestically.
2. India's poultry-processing capacity increased from 13,000 birds per hour in 2002 to 83,000 in 2018 and 2, 67,000 in 2026.
3. A differentiated import-duty approach could support investment in high-capacity processing equipment requiring advanced automation.

4. The 35% import duty on high-capacity equipment was identified as a factor affecting project viability.
5. The 5% GST on soybean meal was cited as a cost concern, with businesses adopting alternative tax-planning arrangements.
6. The poultry sector's overall GST contribution should be assessed to inform discussions on taxation.
7. Feed accounts for approximately 70% of egg production costs and 74–78% of broiler production costs.
8. Industry associations and poultry companies should improve raw-material availability through better seeds, direct procurement, grain elevators, bulk handling and silo storage.
9. Proper drying and storage can help preserve maize quality for nine to ten months.

Dr. Ajay Deshpande, President, Vets In Poultry (VIP)

Dr. Ajay Deshpande emphasised the need to maximise output from limited land, water and energy resources to support a growing population. He argued that resource-use efficiency should remain central to animal agriculture, with progress measured through feed conversion, disease resistance, mortality reduction and the effective use of alternative raw materials.

He highlighted improvements in feed conversion ratios (FCRs) over the preceding decade and the industry's ambition to move towards a 1:1 ratio. However, he cautioned that this objective needed to be examined alongside its possible effects on broiler health and disease sensitivity. Continued research would be required to understand these implications and ensure that gains in production efficiency did not compromise animal health.

Dr. Ajay Deshpande also called for more research into the use of non-conventional and inedible raw materials in poultry feed. By converting these materials into nutritious chicken meat and eggs, the industry could improve resource utilisation and reduce pressure on conventional feed ingredients. He further highlighted genetic selection for disease resistance, noting that even mortality rates of 2–5% could represent substantial losses when applied across large production volumes.

He concluded that greater investment in research, vaccine development, mortality control and overall production efficiency would be essential to strengthening animal agriculture's contribution to food security.

Pointers:

1. Improve the efficiency of land, water and energy use to increase animal-protein production within existing resource constraints.
2. Continue improving FCRs while investigating the effects of increasingly efficient production systems on broiler health and disease sensitivity.
3. Expand research into non-conventional and inedible raw materials that can be converted into nutritious poultry products.
4. Strengthen genetic selection for disease resistance to reduce mortality and improve production outcomes.
5. Even mortality rates of 2–5% can represent substantial losses across large production systems.
6. Increase investment in research, vaccine development and disease management to minimise losses.
7. Evaluate production improvements in terms of overall resource efficiency, animal health and effective raw-material utilisation.

Mr. Neeraj Kumar Srivastava, Managing Director, NUQO Animal Nutrition India Pvt. Ltd. (South Asia)

Mr. Neeraj Kumar Srivastava highlighted the contribution of animal agriculture to India's protein supply through sustained improvements in productivity. He noted that progress in feed conversion had enabled the sector to produce more animal protein from the same resource base. Referring to the movement from an FCR of 2:1 towards 1:1, he argued that improved feed efficiency had the potential to significantly reduce resource requirements per unit of output.

He also cited the growth in milk production relative to the increase in animal numbers. Referring to census figures for 2011 and 2020, he stated that milk production had increased by 39%, while the animal population had grown by only 1.5%. He said this demonstrated the potential to increase output through productivity improvements rather than relying primarily on a larger livestock population.

Mr. Neeraj Kumar Srivastava stressed the need to increase yields per hectare of agricultural land and milk production per animal.

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India had already made substantial progress in egg and chicken production, and similar gains across dairy, meat and other animal-protein categories could help meet rising demand. He estimated that India's population of approximately 1.45 billion people would require 30–35 million metric tonnes of protein, highlighting the importance of animal-derived protein sources in meeting this requirement.

He also pointed to the need to balance the use of grains for human consumption with their use in animal feed. Higher crop yields, better animal nutrition and improved genetics would be essential to producing more food from the same land and resource base, strengthening India's ability to contribute to global food security.

Pointers:

1. Improvements in feed conversion can increase animal-protein output from the same quantity of resources.
2. Milk production increased by 39% between the 2011 and 2020 census periods, while the animal population grew by only 1.5%, according to the figures cited.
3. Higher agricultural yields per hectare and greater milk production per animal can help meet rising demand without relying solely on increases in land use or livestock numbers.
4. Continued progress in egg, chicken, dairy and meat production will depend on improvements in nutrition, genetics and management.
5. India's population of approximately 1.45 billion was estimated to require 30–35 million metric tonnes of protein.
6. The sector needs to balance grain use for human consumption and animal feed through improvements in crop and animal productivity.

Mr. Valsan Parameswaran, Secretary, All India Poultry Products Exporters Association (AIPPEA) – Egg

Mr. Valsan Parameswaran outlined the growth of India's egg-export industry, with Namakkal in Tamil Nadu accounting for approximately 99% of the country's egg exports, according to the figures he presented. He recalled that the industry had begun with one or two containers per week in the 1970s and had expanded to approximately 20–25 containers per day in the preceding year. He placed the value of exports at around ₹2,000 crore and noted that the industry had achieved this growth despite requiring greater government support.

He discussed India's experience in supplying eggs to the United States despite the absence of formal approval for Indian eggs under the US federal framework. He also expressed hope that Indian poultry products would gain access to Europe by the end of 2026, subject to the necessary approvals. However, he identified antimicrobial resistance (AMR) and antibiotic residues as significant challenges and urged the Department of Animal Husbandry and Dairying to work with state governments and other bodies to reduce antibiotic use and improve compliance with export requirements.

Mr. Valsan Parameswaran highlighted permit-related challenges in Oman and called for government-to-government dialogue to restore export permits. He also described the impact of rising sea freight costs in the UAE, which had increased from US$1,800 to US$9,500. Exporters continued shipping despite losses, but delays and rerouting had added to costs. He cited an instance in which an exporter lost ₹4 lakh per container following rerouting and delays, alongside challenges in meeting the required remaining shelf life of products upon arrival in Dubai. He requested government support, including consideration of assistance for exporters facing exceptional freight costs.

He highlighted Namakkal's wider contribution to poultry production, noting that the town produced approximately 8–9 crore eggs per day and crushed around 20,000 tonnes of poultry feed daily. Its poultry population had grown from approximately 50,000 birds to nearly 10 crore birds over three decades. He also referred to the school egg-distribution programme, which had reached approximately 55–60 lakh eggs, and encouraged associations to work with state governments to expand egg consumption among schoolchildren.

Mr. Parameswaran proposed a federation of federations with 10–12 representatives from across India to coordinate common policy and trade concerns while allowing regional associations to continue addressing local issues. He observed that fragmented representations on raw-material prices and imports could create confusion and leave the industry dependent on a limited number of traders. A coordinated approach, he argued, could help the sector present common positions and explore collective import arrangements.

He further called for streamlined export certification, citing confusion between certification systems administered through

AQCA and EEA, with requirements varying across importing countries. He proposed digital certification within 48–72 hours and recommended farm-to-fork traceability supported by poultry-farm registration. Such a system would make it easier to identify the source of eggs and strengthen confidence in Indian products among international buyers.

Pointers:

1. Namakkal was cited as accounting for approximately 99% of India's egg exports, with exports valued at around ₹2,000 crore in the preceding year.
2. The industry's export volumes had grown from one or two containers per week in the 1970s to approximately 20–25 containers per day.
3. Address AMR and antibiotic residues through coordinated action involving the Department of Animal Husbandry and Dairying, state governments and relevant industry bodies.
4. Pursue government-to-government dialogue to resolve permit-related issues affecting exports to Oman.
5. Sea freight costs to the UAE had risen from US$1,800 to US$9,500, creating significant financial pressure on exporters.
6. Consider support mechanisms for exporters facing exceptional freight costs, shipment delays and rerouting.
7. Expand opportunities in international markets, including Europe, subject to the required approvals and compliance with importing-country standards.
8. Promote egg consumption through school programmes, building on the reported distribution of approximately 55–60 lakh eggs under the scheme cited for Tamil Nadu.
9. Establish a federation of federations with 10–12 representatives to coordinate common concerns while preserving regional associations' autonomy.
10. Develop digital export certification with a proposed turnaround of 48–72 hours and strengthen farm-to-fork traceability through poultry-farm registration.

Prof. (Dr.) Pankaj Kumar Shukla, President, Indian Poultry Science Association

Prof. (Dr.) Pankaj Kumar Shukla discussed animal agriculture's contribution to global nutrition, highlighting both the quantity and quality of protein it provides. He stated that animal agriculture contributed approximately 18% of global energy requirements and 34% of protein requirements. He also drew attention to the higher bioavailability and digestibility of animal-source protein, which he placed at 70–96%, compared with less than 40% for vegetable or vegetarian sources in the examples he cited. He argued that this distinction should be considered when assessing the sector's contribution to human nutrition.

Tracing the development of India's poultry industry, Prof. Shukla described the shift from backyard egg production in the 1970s to modern systems supported by selective breeding, nutrition and processing technologies. He noted that egg production had increased from approximately 2 billion eggs to around 150 billion, while milk production had grown from a few million litres to approximately 248 million metric tonnes. These developments, he said, reflected improvements in the sector's ability to convert feed and other resources into animal-source food.

Prof. P K Shukla described animal agriculture as an important component of the circular economy, noting that the sector had made progress in converting production inputs into food while limiting waste. He emphasised that continued gains must be accompanied by greater attention to environmental sustainability and nutrient efficiency. Precision nutrition could help reduce unnecessary nitrogen excretion, limit environmental pollution and improve the conversion of feed into food.

He also highlighted the changing responsibilities of veterinarians, whose roles now extend beyond animal treatment to food safety, production systems and public health. He called for a skilled supporting workforce alongside veterinarians and stressed that the sector needed to prepare its workforce for evolving requirements.

On veterinary education, Prof. P. K. Shukla supported creating opportunities for private institutions while cautioning against compromising academic and professional standards. He recommended dynamic curricula, stronger field feedback and more regular collaboration between academia and industry. He observed that universities often pursued academic-oriented research while producers faced practical challenges requiring targeted solutions. A structured platform could allow industry to identify research needs, academic institutions to develop solutions and businesses to provide financial support for relevant work.

Pointers:

1. Animal agriculture contributes approximately 18% of global energy requirements and 34% of protein requirements, according to the figures cited.
2. Animal-source protein was cited as having 70–96% bioavailability and digestibility, compared with less than 40% for vegetable or vegetarian sources.
3. India's progress in egg and milk production reflects improvements in breeding, nutrition and production technology.
4. Precision nutrition can improve feed conversion, reduce excess nitrogen excretion and limit environmental pollution.
5. Veterinarians increasingly contribute to food safety, production systems and public health, requiring a suitably skilled workforce.
6. Private participation in veterinary education should be encouraged without compromising educational standards.
7. Veterinary curricula should remain dynamic and reflect field requirements, supported by feedback on graduate preparedness.
8. A structured industry-academia platform could help identify practical challenges, support relevant research and facilitate the implementation of solutions.

Mr. S. V. Bhave, Moderator, Managing Director, Berg & Schmidt (India) Pvt. Ltd.

During the discussion, Mr. S. V. Bhave highlighted the pressure that population growth and declining per-capita agricultural land availability placed on food production. He noted that the global population had increased from approximately 5 billion in 1980 to more than 8 billion in 2023–24, while per-capita agricultural land availability had declined from 1.04 hectares to 0.59 hectares. He argued that animal agriculture would need to improve productivity and resource efficiency to meet rising demand.

Mr. S. V. Bhave raised the need for a coordinated industry position on taxation, particularly the treatment of animal feed and feed supplements under GST. He observed that manufacturers and integrators could accumulate input tax credit when their inputs attracted GST, but their end products did not carry a corresponding tax liability. In such cases, the tax paid on inputs became a cost for businesses and affected production economics. He urged associations to seek an impartial assessment of whether a zero-GST regime could be considered for feed and feed supplements, alongside requests for lower import duties on essential inputs.

He cited the tractor industry as an example of how tax treatment could influence sectoral economics. According to his account, the industry had made representations for a uniform 5% GST rate, which he said improved the economics of manufacturers facing 18% GST on inputs. He drew a parallel with soybean meal, noting that approximately 83% of a soybean was converted into meal and 16–17% into oil, making the tax treatment of the meal significant to crushing economics.

Mr. S. V. Bhave also raised the debate over genetically modified (GM) crops. He cited reported yields of approximately 1,100–1,200 kg per acre for non-GM soybean compared with 2,800–2,900 kg per acre for GM soybean. He argued that the difference warranted further policy consideration and suggested that allowing GM maize and soybean cultivation could improve crop productivity, land-use efficiency and farmer profitability while increasing raw-material availability for animal agriculture. He presented this as his personal view.

Pointers:

1. Global population growth and declining per-capita agricultural land availability reinforce the need to improve production efficiency.
2. A coordinated industry representation could examine whether animal feed and feed supplements could be considered for a zero-GST regime.
3. Input tax credit that cannot be fully utilised can become a cost for manufacturers and integrators.
4. The tractor industry's experience with a 5% GST rate was cited as an example of how tax treatment can affect sectoral economics.
5. Soybean crushing economics are influenced by the relative output of meal and oil, cited at approximately 83% and 16–17%, respectively.

6. The moderator cited yields of 1,100–1,200 kg per acre for non-GM soybean and 2,800–2,900 kg per acre for GM soybean in support of further discussion on GM crop policy.
7. Any assessment of GM maize and soybean cultivation should consider productivity, land-use efficiency, farmer profitability and raw-material availability.

Following the panel discussion, Mr Suresh Deora felicitated the moderator and all the panellists in recognition of their participation and insights.

For more information, please refer to our website www.clfma.org and **CLFMA of India | 67th National Symposium 2026 | Day 2** https://youtu.be/G8lcLmkUx_k?si=5BLCRa6amGcH8K_v



VALEDICTORY SESSION:

Symposium Summation & Conclusion:

The Symposium concluded with the valedictory session delivered by **Mr. Abhay Shah, Deputy Chairman, CLFMA of India**, who offered a summation of the discussions and key takeaways from the event. The session also included the felicitation of sponsors, media, guests and invitees.

Takeaway:

Distinguished guests, respected speakers, members of CLFMA, sponsors, media partners, delegates and industry stakeholders came together in Mumbai for the 59th Annual General Meeting and 67th National Symposium of CLFMA of India. Over two days, participants deliberated on the theme, "Animal Agriculture – The Backbone of Sustainable Development," examining the sector's role in India's sustainable development and the opportunities and challenges shaping its future.

The symposium provided a platform to hear from government representatives, industry leaders and experts across animal agriculture. The discussions covered government and sector partnerships, technology and artificial intelligence, collaboration among national associations, emerging opportunities in pet food, and the role of animal agriculture in global food security. The discussions also highlighted the need to strengthen feed security, domestic production, animal nutrition, veterinary capacity, farmer productivity and value chains, while building greater awareness of protein and nutrition and supporting the transition towards enterprise-led livestock farming.

The inaugural session brought together senior government representatives and industry leaders to set the context for the discussions ahead. Mr. Suresh Deora, Immediate Past Chairman, CLFMA of India, welcomed the gathering, followed by an address by Mr. Divya Kumar Gulati, Chairman, CLFMA of India. Shri. Tarun Shridhar, IAS (Retd.), Former Secretary, Department of Animal Husbandry & Dairying, Government of India, highlighted the importance of protein awareness, the nutritional value of animal-source foods, and feed and nutrition security. Shri. Naresh Pal Gangwar, Secretary, Department of Animal Husbandry & Dairying, Government of India, emphasised rising demand for livestock products, animal nutrition and the sector's shift towards enterprise-led farming and integrated value chains. Dr. Muthukumarasamy B., Joint Secretary (NLM), Department of Animal

Husbandry & Dairying, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India, highlighted the need to strengthen domestic feed production and seed availability, while addressing rising feed costs and improving animal genetics, disease control, vaccination and research to enhance productivity and farmer self-reliance.

The session also featured the CLFMA Awards and CLFMA Platinum, Gold, Silver, Bronze Medals, recognising contributions and achievements in the sector. Mr. Jagbir Singh Dhull was presented with the CLFMA Lifetime Achievement Award in recognition of his contribution to the Sector, while Dr. L. Muniyappa and Dr. Shivani Katoch received the CLFMA Awards. Carrying forward its focus on nurturing young talent, CLFMA of India recognised student achievements across the Poultry, Dairy and Aqua sectors through the CLFMA Student Gold, Silver and Bronze Medals and Appreciation Certificates. The session also launched the CLFMA Souvenir 2026 and Survey Report 2026–2030.

Day two of the Symposium brought together perspectives from industry, government and other stakeholders on the evolving priorities for animal agriculture. Mr. Sunil Kataria, CEO & MD, Godrej Agrovet Ltd., spoke on the sector's role in sustainable development, with a focus on nutrition, farmer livelihoods and environmental responsibility. The Interactive Policy Roundtable on Government and Sector Partnership for Animal Agriculture examined key priorities including productivity, genetics, nutrition, veterinary services, technology and stronger government-industry collaboration.

The programme also covered emerging areas of opportunity, including the growing pet care market and the role of AI in animal agriculture. Dr. Saurabh Shekhar, Managing Partner – Pet Care, Pet Care Business, highlighted rising pet ownership and healthcare engagement, while Mr Kevin Roepke, Executive Director, MENASA, U.S. Soybean Export Council, discussed the role of agricultural trade in the US$500 billion bilateral trade target and concerns around India's soybean productivity.

A panel discussion with national associations on “One Nation, One Voice” highlighted the need for greater coordination across the industry as its growth brings new challenges and policy complexities. The symposium also explored the role of technology through a presentation on AI in Animal Agriculture by Mr. Bhaskar, which looked at applications such as behavioural identification, feeding pattern monitoring and early detection of animal health issues.

The final panel discussion, “Animal Agriculture and Global Food Security,” shifted the focus to the sector's broader responsibility to feed a growing population while balancing productivity, farmer prosperity, animal health, and sustainability. The discussion reinforced the need for collaboration and innovation to build a stronger and more resilient animal agriculture sector.

As the symposium drew to a close, the discussions underscored the importance of strengthening collaboration among the government, industry, associations, researchers, and farmers. Across the sessions, the need to enhance productivity, ensure feed and nutrition security, strengthen animal health, promote technology adoption, and develop robust value chains emerged as key priorities for building a more resilient and sustainable animal agriculture sector.



CLFMA OF INDIA's 67th National Symposium 2026 concluded on a positive note, bringing together diverse perspectives and reinforcing the collective commitment to advancing the future of animal agriculture in India. The Vote of Thanks was delivered by Mr. R. Ramkutty, Treasurer, CLFMA of India, who expressed his gratitude to all the dignitaries, speakers, participants, and stakeholders for their valuable contributions and support in making the symposium a success.

CLFMA OF INDIA's 59th AGM & 67th National Symposium 2026



Registration of Delegates



Registration of CLFMA Members at 59th AGM 2026



CLFMA ED Col. Vinay Kumar welcomed CLFMA Office Bearers and Members for AGM



CLFMA Office Bearers along with CA Rohan Dedhia on the Dias



Chairman Address delivered by Mr. Divya Kumar Gulati



CLFMA Member of Intl. Liaison Committee, Mr. Anushrav Gulati, gave a comprehensive update on CLFMA PR activities in detail



CLFMA Hon. Secretary Mr. Nissar F. Mohammed started AGM Proceedings and presented Minutes of the Extra Ordinary General Meeting (Hybrid) and CLFMA Annual Report 2026



CLFMA Treasurer Mr. R. Ramkutty presented the audited Statement of Accounts for the year ending 31st March, 2026



CLFMA Past Chairman Mr. Neeraj Kumar Srivastava, briefed on the Election Procedure and the responsibility of Managing Committee Members



CLFMA Member at 59th AGM 2026



Vote of Thanks by CLFMA Hon. Secretary Mr. Nissar F. Mohammed at 59th AGM 2026



ED Col. Vinay Kumar alongwith CLFMA Chairman Mr. Divya Kumar Gulati and CLFMA Office Bearers

CLFMA OF INDIA's 59th AGM & 67th National Symposium 2026



Emcee Ms. Pamela Singh Bhutoria gave a warm welcome to Special Guests, Guest of Honour for the Inaugural Session of Symposium 2026



Audience at the Inaugural Session of 67th National Symposium 2026



Auspicious Lighting of the Lamp by Shri. Naresh Pal Gangwar, Secretary AHD, GOI



Auspicious Lighting of the Lamp by Shri. Tarun Shridhar, IAS (Retd.)



CLFMA Chairman Mr. Divya Kumar Gulati felicitating Special Guest Shri. Naresh Pal Gangwar, Secretary AHD, GOI with Memento and Shawl



CLFMA Immediate Past Chairman and Convenor Mr. Suresh Deora felicitating Special Guest Dr.Muthukumarasamy B. JS (NLM), GOI with Memento



CLFMA Dy. Chairman Mr. Sumit Sureka felicitating Shri. Tarun Shridhar, IAS (Retd.) with Memento and Shawl



Welcome Address at the Inaugural Session of 67th National Symposium 2026 by Mr. Suresh Deora, CLFMA Immediate Past Chairman and Convenor



Chairman Address by Mr. Divya Kumar Gulati at the Inaugural Session of 67th National Symposium 2026



Audience at the Inaugural Session of 67th National Symposium 2026



Keynote Speaker, Shri. Tarun Shridhar, IAS (Retd.), Former Secretary, Dept of AHD, GOI



CLFMA Chairman Mr. Divya Kumar Gulati along with Special Guests at Dias



CLFMA Dy. Chairman Mr. Sumit Sureka introduced Mr. Jagbir Singh Dhull, Lifetime Achievement Awardee



Special Guest Shri. Naresh Pal Gangwar, Secretary AHD, GOI felicitating Mr. Jagbir Singh Dhull, Lifetime Achievement Awardee with Bouquet



Special Guest Shri. Naresh Pal Gangwar, Secretary AHD, GOI felicitating Mr. Jagbir Singh Dhull, Lifetime Achievement Awardee with Memento and Certificate



CLFMA Treasurer Mr. R. Ramkutty introduced Dr. L. Muniyappa, CLFMA Awardee



Special Guest Shri. Naresh Pal Gangwar, Secretary AHD, GOI felicitating Dr. L. Muniyappa, CLFMA Awardee with Memento and Certificate



CLFMA Dy. Chairman Mr. Abhay Shah introduced Dr. Shivani Katoch, CLFMA Awardee



Special Guest Shri. Naresh Pal Gangwar, Secretary AHD, GOI felicitating Dr. Shivani Katoch, CLFMA Awardee with Memento and Certificate



Dr. A. S. Ranade, Retd. University Head of Poultry Science and Associate Dean briefed on the Student Programme



CLFMA Bronze Award to Mr. Vignesh Kumar G. for Poultry Sector - Student Programme 2026



CLFMA Bronze Award to Mr. Adhar Ankush Gore for Dairy Sector - Student Programme 2026



CLFMA Bronze Award to Ms. Ankita Debnath for Aqua Sector - Student Programme 2026



CLFMA Silver Award to Dr. Nikhil Sitaram Chande for Poultry Sector - Student Programme 2026

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CLFMA Silver Award to Dr. Omprakash Sahu for Dairy Sector - Student Programme 2026



CLFMA Silver Award to Dr. Vrushabh Pralhad Shende for Aqua Sector - Student Programme 2026



CLFMA Gold Award to Dr. Abhishek Venkat for Poultry Sector - Student Programme 2026



CLFMA Gold Award to Dr. Mehnaaz Qayoom for Dairy Sector - Student Programme 2026



CLFMA Gold Award to Ms. Shreya Awasthi for Aqua Sector - Student Programme 2026



Special Guest Address by Dr. Muthukumarasamy B., Joint Secretary (NLM), GOI



Audience at the Inaugural Session of 67th National Symposium 2026



Special Guest Address by Shri. Naresh Pal Gangwar, Secretary AHD, GOI



Launching of CLFMA Souvenir 2026



Launching of CLFMA Survey Report 2026



Mr. Nissar F. Mohammed, Hon. Secretary, CLFMA OF INDIA delivered Vote of Thanks, expressing gratitude to all participants and stakeholders.



CLFMA Chairman Mr. Divya Kumar Gulati along with the Special Guest – Group photo



CLFMA International Delegates – Ms. Penny Rogers, Mr. Adam Balcerak along with Special Guest Mr. Saji Chako



CLFMA Special Guest Mr. Sandeep Bajoria along with Ms. Penny Rogers, Intl. Delegates



CLFMA Chairman Mr. Divya Kumar Gulati



CLFMA Immediate Past Chairman Mr. Suresh Deora



CLFMA Secretariat



Live Performance at the Inaugural Session



CLFMA Chairman Mr. Divya Kumar Gulati felicitating Platinum Sponsors, representative from U. S. Soybean Export Council, Inc (USSEC)



CLFMA Chairman Mr. Divya Kumar Gulati felicitating Platinum Sponsors, representative from U.S. Grains & Bio Products Council



CLFMA MC Member Mr. Laxmanan felicitating Gold Sponsors, representatives from ANH Nutritional Products India Pvt. Ltd. (DSM)



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CLFMA Chairman Mr. Divya Kumar Gulati felicitating CLFMA Special Guest Mr. H. R. Khanna



CLFMA MC Member Mr. Laxmanan felicitating Ms. Penny Rogers, International Delegate



CLFMA MC Member Mr. Laxmanan felicitating Bronze Sponsors representatives from Nuqo Animal Nutrition India Pvt. Ltd.



CLFMA Chairman Mr. Divya Kumar Gulati felicitating Association - Broiler Co-ordination Committee (BCC)



CLFMA Chairman Mr. Divya Kumar Gulati felicitating Association - Indian Federation of Animal Health Companies (INFAH)



CLFMA Chairman Mr. Divya Kumar Gulati felicitating Association - Indian Poultry Journalists' Association (IPJA)



CLFMA Dy. Chairman Mr. Sumit Sureka felicitating Association - Institution of Veterinarians of Poultry Industry (IVPI)



CLFMA Chairman Mr.Divya Kumar Gulati felicitating Association-Poultry Federation of India (PFI)



CLFMA Chairman Mr.Divya Kumar Gulati felicitating Association-Vets In Poultry (VIP)



CLFMA Immediate Past Chairman Mr. Suresh Deora felicitating Association - World Veterinary Poultry Association (WVPA India)



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CLFMA Treasurer Mr. R. Ramkutty felicitating Media Partner – Gauri Publication (Poultry Square)



CLFMA Chairman Mr.Divya Kumar Gulati felicitating Communicate India



CLFMA Dy. Chairman Mr. Abhay Shah felicitating HyBiz TV



CLFMA Chairman Mr.Divya Kumar Gulati felicitating Mr. Jaydeep Mazoomdar, Real Show



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA Executive Director, Col. Vinay Kumar



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA Admin Manager, Ms. Shilpa Utekar



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA Admin Officer, Ms. Shraddha Kadam



CLFMA Treasurer Mr. R. Ramkutty felicitating CLFMA Accounts Manager Ms. Poonam Mestry



CLFMA Immediate Past Chairman Mr. Suresh Deora felicitating representative from Hotel The Leela



CLFMA Hon. Secretary Mr. Nissar F. Mohammed felicitating CLFMA Office Assistant Mr. Dinesh Ambavkar



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. Sumit Sureka (Dy. Chairman)



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. Abhay Shah (Dy. Chairman)



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. Nissar F. Mohammed (Hon. Secretary)



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. R. Ramkutty (Treasurer)



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. Suresh Deora (Immediate Past Chairman)



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Dr. Vijay Makhija



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. Vijay D. Bhandare



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. R. Laxmanan



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. Jaison John



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. Paramartha Roy



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. Sameer Chotai



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Dr. Devender Hooda



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. C. Saravanan



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Prof. Dr. Ajit Ranade



CLFMA Treasurer Mr. R. Ramkutty felicitating Gold Sponsors representatives from Alltech Biotechnology Pvt. Ltd.



CLFMA Chairman Mr.Divya Kumar Gulati felicitating CLFMA MC Member Mr. Anushrav Gulati



CLFMA Secretariat with CLFMA Office Bearers



Registration of Delegates – Day 2



Welcome Address by Mr. Divya Kumar Gulati , Chairman, CLFMA OF INDIA



Introduction of Symposium – Mr. Sumit Sureka, Dy. Chairman, CLFMA OF INDIA



Theme based presentation by Speaker Mr. Sunil Kataria, CEO & MD, Godrej Agrovet Ltd.



Audience at Symposium 2026



Audience at Symposium 2026



CLFMA Chairman Mr. Divya Kumar Gulati felicitating Speaker Mr. Sunil Kataria, CEO & MD, Godrej Agrovet Ltd with Memento



CLFMA Dy. Chairman Mr. Sumit Sureka, introducing and welcoming Moderator and Panellists of Session 1



Session 1 - Moderator Dr. P. S. Mahesh, Joint Commissioner and Director, CEAH Bengaluru



Session 1 Panellist – Shri. Suresh Rayudu Chitturi, Vice Chairman and MD, Srinivasa Farms



Session 1 Panellist - Shri. Tarun Shridhar, IAS (Retd.)



Session 1 Panellist - Dr. Muthukumarasamy B., Joint Secretary (NLM), Dept. of AH&D, GOI



Session 1 Panellist – Shri. Daljeet Singh, President, Progressive Dairy Farmers Association (PDFA)



Q&A Session of Session 1



Session 1 – Group Photo



CLFMA Chairman Mr. Divya Kumar Gulati felicitating Session 1 - Moderator Dr. P. S. Mahesh, Joint Commissioner and Director, CEAH Bengaluru



CLFMA Dy. Chairman Mr. Abhay Shah felicitating Session 1 – Panellist Shri. Tarun Shridhar, IAS (Retd.)



CLFMA Dy. Chairman Mr. Naveen Pasuparthy felicitating Session 1 – Panellist Shri. Suresh Rayudu Chitturi, Vice Chairman and MD, Srinivasa Farms



CLFMA Past Chairman Mr. S. V. Bhave felicitating Session 1 – Panellist Shri. Daljeet Singh, President, Progressive Dairy Farmers Association (PDFA)



Presentation on Pet food by Speaker Dr. Saurabh Shekhar, Managing Partner – Pet Care, Pet Care Business



CLFMA Immediate Past Chairman Mr. Suresh Deora felicitating Speaker Dr. Saurabh Shekhar, Managing Partner – Pet Care, Pet Care Business



CLFMA MC 2024-2026 (Group Photo)



CLFMA MC 2024-2026 & 67th National Symposium Speakers (Group Photo)



Mr. Abhay Shah, Dy. Chairman of CLFMA introduced Speaker Mr. Kevin Roepke, Executive Director, MENASA, U.S. Soybean Export Council



Presentation by Speaker Mr. Kevin Roepke, Executive Director, MENASA, U.S. Soybean Export Council.



Soy Excellence Centre Awards by Dr. Vijay Anand of USSEC



CLFMA Dy. Chairman Mr. Abhay Shah introducing and welcoming Moderator and Panellists of Session 2



Session 2 - Moderator Mr. Mrityunjay Jha, Commodity Editor and Anchor, Zee Business



Session 2 Panellist – Mr. Ranpal Dhanda, President, Poultry Federation of India (PFI)



Session 2 Panellist – Mr. Ramkutty, Broiler Co-ordination Committee (BCC)



Session 2 Panellist – Mr. Madan Mohan Maity, General Secretary, West Bengal Poultry Federation Association (WBPFA)



Session 2 Panellist – Mr. Divya Kumar Gulati, Chairman, CLFMA OF INDIA



Session 2 Panellist – Mr. Saji Chako, President, Society of Aquaculture Professionals (SAP)



Session 2 Panellist – Mr. Uday Singh Bayas, President, Indian Poultry Equipment Manufacturers Association (IPEMA)



Q&A Session by Moderator Mr. Mrityunjay Jha, Commodity Editor and Anchor, Zee Business



CLFMA Immediate Past Chairman Mr. Suresh Deora felicitating Session 2 - Moderator Mr.Mrityunjay Jha, Commodity Editor and Anchor, Zee Business



CLFMA East Zone President Mr. Sameer Chotai felicitating Session 2 Panellist – Mr. Ranpal Dhanda, President, Poultry Federation of India (PFI)



CLFMA MC Member Dr. Vijay Makhija felicitating Session 2 Panellist Mr. Uday Singh Bayas, President, Indian Poultry Equipment Manufacturers Association (IPEMA)



CLFMA Dy. Chairman Mr. Naveen Pasuparthy felicitating Mr. Madan Mohan Maity, General Secretary, West Bengal Poultry Federation Association (WBPFA)



CLFMA MC Member Mr. Jaison John felicitating Mr. Saji Chako, President, Society of Aquaculture Professionals (SAP)



CLFMA South Zone President Mr. C. Sarvanan felicitating Mr. R. Ramkutty, Broiler Co-ordination Committee (BCC)



Session 2 – Group Photo



Presentation on AI in Animal Agriculture by Speaker Mr. Bhaskar Karampudi, Co-Founder & Director B-CUBE Consulting Pvt. Ltd.



Interactive Session with Audience by Speaker Mr. Bhaskar Karampudi, Co-Founder & Director B-CUBE Consulting Pvt. Ltd.



CLFMA Immediate Past Chairman Mr. Suresh Deora felicitating Mr. Bhaskar Karampudi, Co-Founder & Director B-CUBE Consulting Pvt. Ltd.



CLFMA Dy. Chairman Mr. Abhay Shah introducing and welcoming Moderator and Panellists of Session 3



Session 3 - Moderator Mr. S. V. Bhave, Managing Director, Berg And Schmidt India Pvt. Ltd.



Session 3 Panellist – Dr. S. K. Dutta, Joint Commissioner (NLM), Dept of AH&D, GOI



Session 3 Panellist – Dr. Gagan Garg, Joint Commissioner (RGM), Dept.of AH&D, GOI



Session 3 Panellist – Mr. Valsan Parameswaran, Secretary, All India Poultry Products Exporters Association (AIPPEA)- Egg



Session 3 Panellist – Mr. Naveen Pasuparthy, President, Karnataka Poultry Farmers & Breeders Association (KPFBA)



Session 3 Panellist - Prof. (Dr.) Pankaj Kumar Shukla, President, Indian Poultry Science Association



Session 3 Panellist – Mr. Neeraj Kumar Srivastava, MD, Nuqo Animal Nutrition India Pvt. Ltd. (South Asia)



Session 3 Panellist – Dr. Ajay Deshpande, President, Vets In Poultry (VIP)



CLFMA Immediate Past Chairman Mr. Suresh Deora felicitating Session 3 Moderator Mr. S. V. Bhave, Managing Director, Berg And Schmidt India Pvt. Ltd.



CLFMA Immediate Past Chairman Mr. Suresh Deora felicitating Session 3 Panellist – Dr. S. K. Dutta, Joint Commissioner (NLM), Dept of AH&D, GOI



CLFMA Hon. Secretary Mr. Nissar F. Mohammed felicitating Session 3 Panellist – Mr. Naveen Pasuparthy, President, Karnataka Poultry Farmers & Breeders Association (KPFBA)



CLFMA Hon. Secretary Mr. Nissar F. Mohammed felicitating Session 3 Panellist Prof. (Dr.) Pankaj Kumar Shukla, President, Indian Poultry Science Association



CLFMA Chairman Mr. Divya Kumar Gulati felicitating Session 3 Panellist Mr. Neeraj Kumar Srivastava, MD, Nuqo Animal Nutrition India Pvt. Ltd. (South Asia)



CLFMA Chairman Mr. Divya Kumar Gulati felicitating Session 3 Panellist Dr. Gagan Garg, Joint Commissioner (RGM), Dept.of AH&D, GO



CLFMA East Zone President Mr. Sameer Chotai felicitating Session 3 Panellist Dr. Ajay Deshpande, President, Vets In Poultry (VIP)



CLFMA East Zone President Mr. Sameer Chotai felicitating Session 3 Panellist Mr. Valsan Parameswaran, Secretary, All India Poultry Products Exporters Association (AIPPEA)- Egg



Session 3 – Group Photo



CLFMA Past Chairman Mr. S. V. Bhave felicitating to S. R. Publication



Valedictory Session delivered by Mr. Abhay Shah, Dy. Chairman of CLFMA OF INDIA



Vote of Thanks by Mr. R. Ramkutty, Treasurer, CLFMA OF INDIA



CLFMA Executive Director Col. Vinay Kumar and Dy. Chairman Mr. Abhay Shah along with International Delegate Ms. Penny Rogers



CLFMA Secretariat



CLFMA Secretariat

Feed Borne Metabolic Disorders, Economic Impact and their Prevention in Poultry

Prof(Dr) R.N.S.Gowda*

Feed-borne metabolic disorders in poultry are non-infectious diseases caused by nutritional imbalances, improper feed formulation, or toxins in the diet. These disorders directly disrupt normal bodily functions, leading to poor production, skeletal deformities, or sudden death. The performance of broilers or layers greatly affect causing invisible economic loss.

Preventing these conditions requires strict quality control of raw ingredients, precise amino acid and mineral formulation, and proper feed processing.

Major Feed-Borne Metabolic Disorders

1. **Fatty Liver Hemorrhagic Syndrome (FLHS)**: Triggered by excessive energy intake (high carbohydrates), causing massive fat deposition in the liver, capillary rupture, and sudden death in laying hens.]
2. **Ascites Syndrome (Pulmonary Hypertension)**: Common in fast-growing broilers; accelerated growth increases oxygen demand, which is worsened by high-density, nutrient-heavy pelleted feeds, leading to right-ventricular heart failure and fluid accumulation in the abdomen.
3. **Sudden Death Syndrome (SDS / Flip-Over Disease)**: Affects healthy, fast-growing broilers fed high-energy diets, leading to sudden cardiac arrhythmias.
4. **Gout (Visceral and Articular)**: Caused by excessive dietary calcium, high protein levels, or water deprivation, resulting in the accumulation of uric acid crystals on internal organs or joints.
5. **Mycotoxicosis**: Induced by molds in contaminated feed (like aflatoxins or ochratoxins), which severely damage the liver and kidneys, crippling metabolic efficiency.
6. **Cage Layer Fatigue (Osteoporosis)**: Affects high-producing laying hens due to a depletion of calcium reserves, caused by insufficient calcium, phosphorus, or Vitamin D3 in their feed.
7. **Rickets**: Occurs in young, growing chicks due to an absolute deficiency or incorrect ratio of calcium and phosphorus, or a lack of Vitamin D3, causing soft, rubbery bones.

Economic Impact

Metabolic diseases in poultry cause massive global economic losses that often exceed the financial damage of infectious outbreaks. Because these disorders stem from high-performance

Summary of Dietary Causes and Prevention

Disorder	Primary Feed-Related Cause	Key Prevention Strategy
FLHS	Excess energy-to-protein ratio	Limit energy intake; add choline, Vitamin E, and Vitamin B12.
Ascites	High-density feed driving hyper-growth	Restrict early feed intake; utilize mash feed instead of pellets.
SDS	Rapid growth from high-energy diets	Restrict nutrient density early; replace some carbohydrates with fats.
Gout	Excess calcium or protein;	Balance calcium / phosphorus ratios ; ensure continuous fresh water.
Mycotoxicosis	Moldy corn, wheat, or soy ingredients	Use mold inhibitors; add commercial toxin binders to the mix.
Layer Fatigue	Calcium and Vitamin D3 deficiency	Provide large-particle limestone; optimize layer feed transitions.
Rickets	Incorrect Ca:P ratio; low Vitamin D3	Maintain strict 2:1 or 2.1:1 Ca:P ratios for growing chicks.

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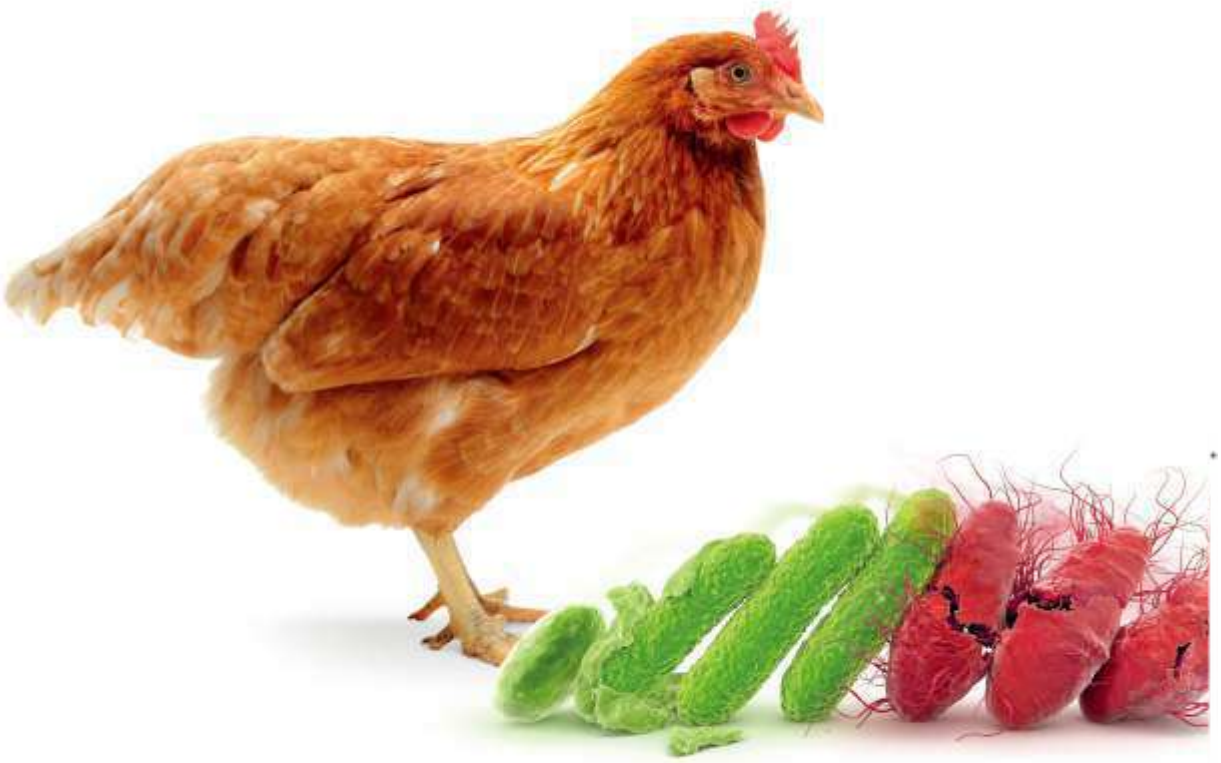
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breeding (rapid growth and intense egg production), they directly compromise herd efficiency, convert feed into waste, and lower final market value.

Economic Impact on Poultry Production

- **Increased Mortality Rates**: Direct losses from sudden deaths in late-stage broilers, where the financial investment per bird is highest.
- **Poor Feed Conversion Ratio (FCR)**: Damaged metabolic systems cannot convert feed into meat or eggs efficiently, drastically raising production costs.
- **Carcass Condemnation**: High rates of bird rejection or downgrading at the processing plant due to ascites fluid, breast blisters, or internal bruising.
- **Reduced Egg Production**: FLHS and gout in layers lead to sharp drops in egg output, poor shell quality, and early culling of the flock.
- **Medication and Vet Costs**: Elevated expenses for diagnostic testing, therapeutic feed additives, and veterinary interventions to manage outbreaks

The global financial impact hits farms through distinct economic channels:

1. Direct Capital Loss (Mortality)

Unlike infectious diseases that hit weak birds, metabolic conditions like **Sudden Death Syndrome (SDS)** and **Ascites** selectively kill the heaviest, healthiest, and most fast-growing broilers.

- **Late-Stage Mortality:** Deaths spike at 3 to 5 weeks of age. This represents the worst economic scenario because the farmer has already invested maximum feed, labor, and utilities into a bird that will never go to market.
- **Historical Baseline Costs:** Long-standing research indicates that even modest individual country baseline losses (such as a 1% to 2% incidence rate of combined Ascites and SDS) drain tens of millions of dollars annually from developed regional broiler industries. Globally, with over 40 billion broilers processed each year, even minor variations in regional rates result in hundreds of millions of dollars in deadweight loss.

2. Production Inefficiencies (Morbidity)

- For every bird that dies of a metabolic disease, a larger percentage of the flock suffers from sub-clinical morbidity, severely hammering profit margins.
- **Skeletal & Leg Disorders:** Conditions like rickets and lameness do not always kill the bird, but they severely limit movement. Affected birds cannot reach feed and water trays comfortably, drastically lowering their **Feed Conversion Ratio (FCR)**.
- **Reduced Egg Yields:** In layers, metabolic failure like **Cage Layer Fatigue** or **Fatty Liver Hemorrhagic Syndrome (FLHS)** sharply drops or completely stops egg production, rendering the hen a daily financial liability.

3. Downgrading and Processing Plant Condemnations

Economic losses do not end at the farm gate; they follow the birds directly into the processing plant.

- **Carcass Rejection:** Birds with moderate, sub-clinical Ascites often make it to the processing facility but are completely condemned during post-mortem inspections due to fluid accumulation or systemic bruising.
- **Breast Blisters and Skin Lesions:** Birds with metabolic skeletal issues spend too much time resting on their breasts on contaminated litter. This triggers breast blisters, hock burns, and dermatitis, forcing plants to downgrade premium whole-chicken cuts into low-value rendering or pet food.

4. The "Prevention Cost" Paradox

Mitigating metabolic disorders introduces its own economic trade-offs.

- **Slowing Growth Decreases Profit:** The most effective field

Economic Impact Matrix by Disorder

Disorder	Primary Economic Impact Channel	Severity of Profit Loss
Ascites	Heavy late-stage mortality and total carcass condemnation at processing.	Extremely High
SDS (Flip-Over)	Immediate death of premium, heavy male birds close to market weight.	High
Skeletal (Leg Issues)	Elevated FCR, slow weight gain, and high processor downgrades.	Moderate to High
FLHS/Fatty Liver	Permanent drop in flock peak egg production and sudden hen mortality.	High (Layers)
Mycotoxicosis	Severe feed wastage, poor immune response, and weight suppression.	Widespread / Insidious

remedy for Ascites and SDS is early-stage feed restriction or diet dilution. However, intentionally slowing growth to prevent metabolic failure adds extra days to the production cycle, increasing overall labor, farm overhead, and fixed operating costs.

- **Premium Ingredient Overhead:** Preventing disorders like mycotoxicosis or rickets requires adding costly commercial toxin binders, synthetic vitamins, and micro-minerals to the mill mixer, inflating the baseline cost per ton of feed.

Prevention Strategies

1. **Feed Restriction Programs**: Implement early-life skip-a-day feeding or physical feed restrictions to slow down early broiler growth and prevent ascites and sudden death syndrome.
2. **Nutrient Balancing**: Maintain strict, optimal ratios of calcium to available phosphorus, and limit total dietary energy during hot weather.
3. **Mycotoxin Binders**: Add high-quality toxin binders (like bentonite clay or yeast cell wall extracts) to the feed mill mixer to neutralize fungal toxins.
4. **Choline and Lipotropic Factors**: Supplement layer diets with choline, Vitamin E, selenium, and methionine to boost fat metabolism and protect against fatty liver syndrome.
5. **Formulation Adjustments**: Replace a portion of dietary carbohydrates with supplemental fats or oils in hot climates to reduce metabolic heat production.
6. **Water Management**: Ensure continuous access to cool, clean drinking water to assist the kidneys in flushing out excess uric acid and preventing gout.

1. Implement Growth Management

- **Feed Restriction**: Limit feed access or reduce light hours in broilers between 7 to 14 days of age to naturally lower metabolic demand and prevent Ascites and SDS.
- **Physical Feed Form**: Use mash feed instead of high-density pellets for birds highly susceptible to metabolic collapse, as mash slows down consumption rates.

2. Optimize Nutrient and Mineral Ratios

- **Mineral Balancing**: Ensure the dietary Calcium to Available Phosphorus ratio is strictly maintained (typically 2:1 for broilers, while laying hens require much higher calcium, around 3.5% - 4.5%).
- **Lipotropic Agents**: Add lipotropic factors like **choline chloride, methionine, and selenium** to layer diets to assist the liver in metabolizing fats and preventing FLHS.
- **Electrolyte Balance**: Keep the Dietary Electrolyte Balance (Na + K - Cl) optimized between 200 - 250 mEq/kg to minimize metabolic acidosis.

3. Strict Ingredient Quality Control

- **Toxin Management**: Routinely screen incoming grains for moisture levels (keep below 12% - 13%) to stop mold growth.
- **Feed Additives**: Incorporate aluminosilicate or clay-based **toxin binders** into the feed mill mixer to lock up any trace mycotoxins.

Conclusion

Feed-borne metabolic disorders in poultry significantly reduce farm profitability by causing high mortality, poor feed conversion, and carcass condemnation. *These conditions occur when nutritional imbalances, poor feed formulation, or toxins disrupt the normal chemical processes in a bird's body. Managing these disorders requires strict quality control of raw materials, precise nutrient balancing, and targeted feed additives.*

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Smart Feeding Strategies for Dairy Calves Using Milk Replacers- A Practical Guide for Progressive Dairy Farmers

Dr. Surej Joseph Bunglavan and Dr. Megha A.P.



The long-term success of a dairy farm begins with the proper care and feeding of young calves. Every productive dairy cow starts its life as a healthy calf, and the management practices followed during the first few months play a crucial role in determining the animal's future performance. Adequate nutrition during this early period supports rapid growth, strengthens the immune system, and prepares the calf for a productive life within the herd.

For many years, dairy farmers have traditionally raised calves by feeding them whole milk obtained either from the dam or from the bulk milk produced on the farm. Although this practice has worked well historically, it may not always be the most profitable approach in modern dairy farming systems. Milk is a valuable product that generates income when sold in the market. When large quantities of saleable milk are diverted to calf feeding, the farm's potential revenue is reduced.

To address this challenge, dairy producers increasingly rely on calf milk replacers—nutritionally balanced feeds designed to replace whole milk in calf diets. These products supply essential nutrients required for growth while allowing farmers to market more of their milk. When used correctly, milk replacers provide a practical and efficient solution for raising strong and healthy calves.

The Importance of Proper Nutrition in Early Calf Life

The period immediately after birth represents one of the most critical stages in the life of a calf. During the first few weeks, the animal experiences rapid physiological development, but its immune defenses and digestive capacity are still immature. Because of this vulnerability, calves require carefully managed feeding to ensure optimal growth and health.

Providing balanced nutrition during the early growth phase contributes to several important benefits:

- Accelerated body growth and improved weight gain
- Development of strong bones and well-formed muscles
- Enhanced resistance to infectious diseases
- Proper maturation of the digestive system
- Earlier onset of productive maturity in adulthood

If calves do not receive adequate nutrition during this stage, their growth rate slows down and their resistance to disease may be compromised. Such animals may require more time to reach maturity and often perform poorly as dairy cows

later in life. Therefore, investing in proper calf nutrition is not simply a short-term management practice—it is a long-term investment in herd productivity.

What is Calf Milk Replacer?

Calf milk replacer is a carefully formulated powdered feed that is mixed with warm water and provided to calves as an alternative to whole milk. The product is designed to deliver all essential nutrients needed during the milk-feeding stage of a calf's life.

High-quality milk replacers typically contain a balanced mixture of:

- Highly digestible protein sources
- Energy-rich carbohydrates
- Fat for concentrated energy supply
- Essential vitamins and minerals
- Functional additives that support digestion and health

These ingredients are combined in proportions that meet the nutritional requirements of growing calves while ensuring good digestibility.

Milk replacers are generally marketed in powder form. This format makes them easy to store, transport, and handle on farms. Before feeding, the powder is dissolved in warm water to create a liquid mixture that resembles natural milk in consistency and nutrient availability.

Nutritional Components of Calf Milk Replacer

A well-designed milk replacer contains



several categories of ingredients that work together to support growth and health.

Protein Sources

Proteins are fundamental building blocks for the development of muscles, tissues, and organs in young animals. In milk replacers, proteins are obtained from both dairy and plant sources. Common ingredients include:

- Skim milk powder
- Whey powder
- Soy protein isolate
- Soy protein concentrate
- Wheat gluten

Among these, milk-derived proteins are considered highly digestible for young calves and are therefore widely used in premium milk replacer formulations.

Carbohydrate and Energy Sources

Energy is required for body maintenance, growth, and maintaining body temperature. The principal carbohydrate used in milk replacers is lactose, which is the natural sugar found in milk.

Some formulations may also include additional carbohydrate sources such as processed cereal derivatives or glucose-based ingredients to ensure adequate energy supply for growing calves.

Fat Sources

Fats serve as an important source of concentrated energy in calf diets. They help support efficient weight gain and provide essential fatty acids that contribute to overall health.

Common fat ingredients used in milk replacers include:

- Coconut oil
- Palm oil
- Soybean oil
- Blended vegetable fats

Fats also facilitate the absorption of fat-soluble vitamins such as vitamins A, D, and E.

Vitamins and Mineral Supplements

Micronutrients are essential for maintaining metabolic functions, bone growth, and immune responses. To ensure balanced nutrition, milk replacers are fortified with several vitamins and minerals, including:

- Vitamin A for vision and immune development
- Vitamin D for bone development
- Vitamin E for antioxidant protection
- B-complex vitamins for metabolism
- Vitamin C for immune development
- Calcium and phosphorus for skeletal growth
- Trace minerals such as zinc, copper, iodine, and selenium

These nutrients collectively support the overall development and disease resistance of calves.

Functional Additives for Calf Health

Modern milk replacers often include specialized additives that promote digestive efficiency and intestinal health. Examples of such additives include:

- Probiotics, which introduce beneficial microorganisms into the gut
- Prebiotics, which support the growth of helpful bacteria
- Digestive enzymes, which improve nutrient utilization
- Essential amino acids, which enhance protein synthesis
- Emulsifiers, which improve fat digestion

These functional components help maintain gut health and reduce digestive disorders commonly observed in young calves.

Advantages of Using Milk Replacers in Dairy Farms

Increased Economic Returns

One of the most important advantages of milk replacer feeding is its contribution to farm profitability. Instead of feeding valuable whole milk to calves, farmers can market the milk and use milk replacers as a cost-effective alternative.

This practice allows dairy producers to increase income without compromising calf nutrition.

Consistency in Nutrient Supply

Natural milk composition can vary depending on factors such as the cow's breed, stage of lactation, and health status. In contrast, milk replacers are manufactured under controlled conditions, ensuring that each batch contains consistent levels of nutrients.

As a result, calves receive a uniform and balanced diet throughout the feeding period.

Reduced Risk of Disease Transmission

Raw milk may sometimes carry harmful pathogens, particularly when cows suffer from conditions such as mastitis. Feeding contaminated milk can expose calves to infections.

Milk replacers are produced through controlled manufacturing processes and therefore reduce the likelihood of transmitting diseases through feeding.

Convenience in Storage and Handling

Another practical advantage of milk replacers is their ease of storage. Unlike fresh milk, powdered replacers have a longer shelf life and do not require refrigeration. This makes them convenient for farms managing multiple calves.

Improved Feeding Management

Milk replacers allow farmers to measure feed quantities accurately and maintain a consistent feeding schedule. Such control helps ensure that each calf receives the required amount of nutrients every day.

Feeding Management for Milk Replacers

Importance of Colostrum

The first feed given to a newborn calf is colostrum, the thick milk produced by the mother immediately after calving. Colostrum contains antibodies that protect the calf against diseases during the early stages of life.

Ideally, calves should receive sufficient colostrum within the first few hours after birth and continue receiving it during the first three days.

Starting Milk Replacer Feeding

After the colostrum-feeding period, milk replacer can be introduced gradually, usually beginning on the eighth day of life.

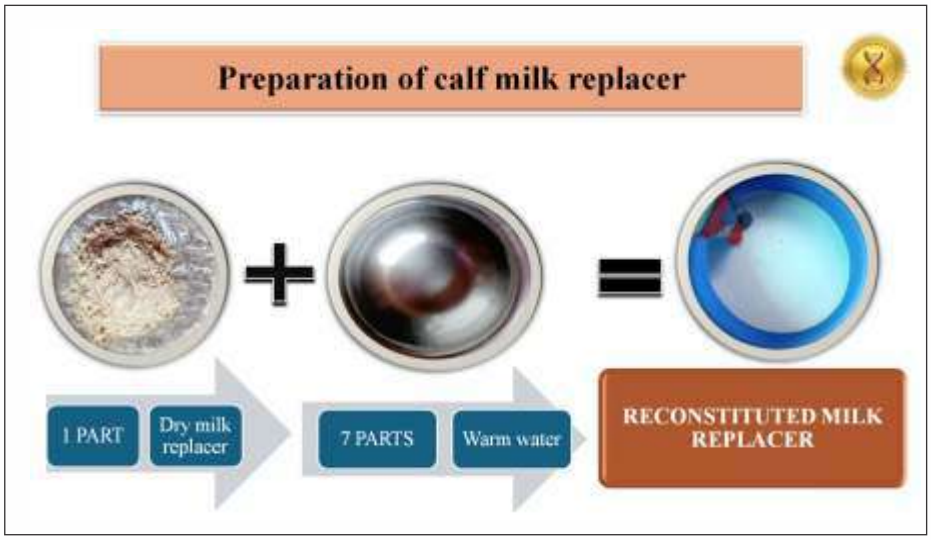
The powder is mixed with warm water, typically at a temperature of 40–45°C, to prepare the liquid feed. A commonly recommended mixing proportion is:

- 1 part milk replacer powder to 7 parts warm water
- Proper mixing ensures a uniform solution without lumps

Introducing Calf Starter Feed

While milk replacer supplies liquid nutrition, calves must gradually transition to solid feeds to develop a functional digestive system. Calf starter feed should be introduced at around two weeks of age.

Starter feeds stimulate the development of the rumen, the primary digestive chamber in adult cattle. Access to clean drinking water and small quantities of quality forage further supports rumen development.



Feeding Program for Dairy Calves

Although feeding schedules may vary slightly depending on farm management, a typical program may include the following schedule:

Week 1-2	Feed approximately 2–3 litres per day divided into two meals
Week 3-4	Increase the quantity to around 3–4 litres daily
Week 5-6	Provide about 4–5 litres per day depending on the calf's growth
Week 7-8	Gradually reduce liquid feeding to encourage solid feed intake
Week 9-10	Begin the process of weaning from milk replacer

Weaning the Calf

Weaning generally takes place between eight and ten weeks of age, once the calf begins consuming adequate quantities of starter feed. A gradual reduction in milk replacer feeding helps calves adapt smoothly to a solid diet.

Practical Feeding Tips for Farmers

Maintaining proper feeding hygiene and management practices is essential for raising healthy calves. Farmers should follow these guidelines:

- Use clean and safe water for preparing milk replacer
- Follow recommended mixing ratios carefully
- Feed the mixture at approximately body temperature
- Clean feeding equipment thoroughly after each use
- Prepare fresh feed before every feeding
- Observe calves regularly for changes in appetite or health

Simple management practices such as these can prevent many common health problems in young calves.

Conclusion

The future productivity of a dairy herd depends largely on the quality of calf management practiced on the farm. Proper nutrition during the early stages of life plays a vital role in raising strong and productive animals. Calf milk replacers provide a convenient and economically viable alternative to feeding whole milk. By allowing farmers to sell more marketable milk while still meeting the nutritional needs of calves, milk replacers contribute to improved farm profitability. When combined with good hygiene, balanced feeding programs, and careful management, milk replacers can help dairy farmers raise healthier calves and build more productive herds for the future.

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Reference Values for Blood Hematological, Biochemical, Physiological and Mineral Status in Dairy Cows

Aditya Singh, Harendra Singh Rajoriya and Chander Datt*

Introduction

Dairy cows undergo continuous physiological and metabolic changes driven by growth, gestation, lactation and environmental fluctuations. These dynamic processes significantly influence hematological profiles, biochemical constituents, physiological responses and mineral homeostasis. Systematic monitoring of these parameters yields valuable information regarding the health status of both individual animals and the herd as a whole. Hematological indicators reflect oxygen transport capacity, immune competence and fluid–electrolyte balance. Biochemical markers offer insights into metabolic function and organ integrity. *Physiological assessments deliver immediate clinical information* **during physical examination of the animal,** while mineral profiling helps evaluate dietary sufficiency and trace element status. Together, these complementary indicators form a comprehensive diagnostic framework for effective dairy herd management.

1. Hematological parameters in dairy cows

Hematological parameters serve as key indicators of overall health, immune function and physiological adjustment. They assist in identifying anemia, dehydration, infections, inflammation and changes related to stress. These parameters are especially helpful in detecting subclinical disease states in dairy cows

Commonly evaluated hematological parameters include hemoglobin concentration, packed cell volume (PCV), total leukocyte count (TLC), differential leukocyte count (neutrophils, lymphocytes, monocytes, eosinophils, basophils), mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH) and mean corpuscular hemoglobin concentration (MCHC).

2. Blood biochemical parameters in dairy cows

Blood biochemical markers offer insights into metabolic activities, liver & kidney health and nutritional conditions. These indicators are especially valuable for identifying metabolic issues like ketosis, fatty liver and protein-energy imbalance.

Key biochemical indicators consist of glucose, total protein, albumin, globulin, blood urea nitrogen, creatinine, cholesterol, triglycerides, bilirubin and enzymes like AST, ALT and ALP

Table 1. Normal range of hematological parameters in dairy cows

Haematological parameters	Normal range	Reference
Hb	8 – 15 g/dL	
RBC	5.0 – 10.0 ($\times 10^{12}$/L)	
MCV	40 – 60 fL	Merck's Veterinary Manual, 2018
MCH	11 – 17 pg	
MCHC	30 – 36 g/dL	
WBC	4 – 12 ($\times 10^{9}$/L)	
Lymphocytes	45 – 75 %	
Platelets	100 – 800 ($\times 10^{9}$/L)	

Note: Hematological values may vary with age, breed, nutrition, pregnancy and environmental stress

Table 2. Normal range of blood biochemical parameters in dairy cow

Sr. No.	Blood biochemical parameters	Normal range	Reference
Energy Parameters			
1.	Glucose	40 – 100 mg/dL	Merck's Veterinary Manual, 2018
2.	BHBA	9.90 ± 1.88 mg/dL	Kaneko et al. (2008). Clinical Biochemistry of Domestic Animals
Plasma proteins			
1.	Total protein	6.7 – 7.5 g/dL	
2.	Albumin	2.5 – 3.8 g/dL	Merck's Veterinary Manual, 2018
3.	Globulin	3.0 – 3.5 g/dL	
Kidney function variables			
1.	BUN	10 – 25 mg/dL	University of Minnesota, Veterinary Diagnostic Laboratory
2.	Creatinine	2.6 – 11.3 mg/dL	
Liver function			
1.	ALT	4 – 11 U/L	University of Minnesota, Veterinary Diagnostic Laboratory
2.	AST	60 – 125 U/L	Merck's Veterinary Manual, 2018

Note: Lactation stage and feeding practices significantly influence biochemical values.

Table 3. Normal range of physiological parameters in dairy cows

Sr. No.	Physiological parameters	Normal range	Reference
1	Rectal Temp	100.4-102.8^{0}F	Merck's Veterinary Manual, 2018
2	Heart Rate	48-84 beats/min	
3	Respiration Rate	26-50 breaths/min	
4	Rumen Motility	1-3 per min	Dukes' Physiology of Domestic Animals, 12th ed.

Note: Heat stress and physical activity can alter physiological readings.

3. Physiological parameters of dairy cows

Physiological measures offer a rapid clinical evaluation of the animal's functional condition. These are crucial during regular assessments and assist in detecting stress, infection and metabolic issues. Typical physiological parameters include rectal temperature, heart rate, breathing rate, and rumen movement. These values can vary because of environmental factors, handling, exercise and the production phase.

4. Blood mineral profile in dairy cows

Table 4. Optimum values of different mineral elements in blood plasma (Samokhi, 1982)

Major mineral	(mg/dL)
Ca	9.5-11.5
P	4.5-6.0
K	20
Na	320
Mg	3
Trace mineral	ppm
Cu	0.8-1.2
Zn	0.25-4.5
Mn	0.5-0.8
Co	0.3-0.6
Protein bound iodine	0.45-0.8
Inorganic iodine	0.2-0.3

Minerals are vital for metabolic processes, milk production, nerve transmission and skeletal system. An imbalance in mineral concentrations can cause metabolic disorders and decreased productivity.

Key minerals evaluated are: calcium, phosphorus, magnesium, sodium, potassium and chloride. Trace elements like copper, zinc, iron, selenium and manganese can likewise be assessed.

Interpretation of reference values

Proper interpretation requires consideration of multiple factors:

- Stage of lactation
- Age and breed
- Nutritional management
- Environmental temperature
- Health status

Evaluating hematological, biochemical, physiological and mineral parameters together improves diagnostic accuracy.

Practical applications in dairy herd health

Routine monitoring of these parameters helps in:

- Detection of anemia and infection
- Diagnosis of metabolic disorders
- Nutritional evaluation
- Monitoring transition period cows
- Assessing mineral deficiencies
- Improving milk production and reproductive performance

Such monitoring allows early intervention and better herd management.

Conclusion

The integration of hematological parameters, blood biochemical markers, physiological measurements and blood mineral profiles provides a comprehensive framework for evaluating dairy cow health. Establishing accurate normal reference ranges and applying correct interpretation of these values facilitates early disease detection, optimizes nutritional management and enhances overall herd productivity. Reference ranges serve as standardized benchmarks for identifying deviations associated with disease, stress or production-related metabolic disorders.

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Integrating Phytobiotics in Shrimp Culture: A Green Alternative to Antibiotics

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Abstract:

Aquaculture relies heavily on the production of marine shrimp, primarily *Penaeus monodon* and *Litopenaeus vannamei*. Growing marine shrimp contributes to the production of human protein, creates jobs, and brings in large sums of money for investors. The development of marine shrimp farming may be hampered by intensification farming methods that cause poor water quality, stress, and starvation in the farmed shrimp, which can lead to disease outbreaks and low productivity. In shrimp farming, antibiotics are frequently used as a temporary remedy for illnesses. Furthermore, consumer trust in aqua-products is damaged by the detrimental effects of antibiotic use on the environment and public health. Phytobiotic research as a preventative measure in aquaculture has gained a lot of attention more recently. The positive benefits of different phytobiotics on aquaculture species have been investigated. This article summarizes the sources of phytobiotics, their mechanisms, and their role in shrimp production, including boosting growth performance, antioxidant capacity, immune system enhancement, disease resistance, and resilience to abiotic stress.

Keywords: Medicinal plants, Seaweeds, Immunostimulants, growth promoters.

1. Introduction

Aquaculture is the fastest-growing food production sector, contributing nearly half of the global fish supply. Crustaceans like whiteleg shrimp (*Litopenaeus vannamei*), black tiger shrimp (*Penaeus monodon*), and crabs are highly valued worldwide (Fig. 1). Their rapid growth, nutritional value, and profitability attract significant investment. Shrimp farming, primarily in tropical regions, generates billions in annual revenue for countries in Latin America and Asia. *P. monodon* is the second most farmed shrimp globally, with 4200 MT produced in 2019 and a market value of USD 4.8 billion, employing around 1.2 million people. In 2016, global production of *P. monodon* and *L. vannamei* reached nearly 5 million tons. *L. vannamei* has become dominant due to its resilience, fast growth, and high yield, comprising over 51% of marine shrimp production in 2020 with 5.81 million tons (Wei *et al.,* 2024). Its low feed conversion ratio and adaptability make it a top aquaculture choice. Overall, marine shrimp farming offers high returns, employment, and nutritious seafood products. High-density crustacean farming leads to stress and poor water quality, causing disease outbreaks, mortality, and economic loss. As the industry intensifies, disease remains a major barrier to growth. Common infections include vibriosis, white spot syndrome virus (WSSV) disease, early mortality syndrome (EMS) or acute hepatopancreatic necrosis disease (AHPND), yellow head virus (YHV) disease, gill-associated virus (GAV) disease, infectious hypodermal and hematopoietic necrosis virus (IHHNV) disease, and microsporidiosis caused by *Enterocytozoon hepatopenaei*, with some causing severe early-stage mortality. While antibiotics have been widely used, their overuse poses health and environmental risks (Vaiyapuri *et al.,* 2021). As alternatives, probiotics, prebiotics, symbiotics, vaccines, and phytobiotics are gaining attention. Phytobiotics are affordable, accessible, and effective, like chamomile oil improves growth, antioxidant activity, and disease resistance in *P. indicus*. Many studies have revealed the potential of phytobiotics in shrimp farming. For example, chamomile oil, used as a feed additive in *P. indicus* farming, can elevate growth performance, increase antioxidant capacity, and stimulate disease resistance to *V. parahaemolyticus.*

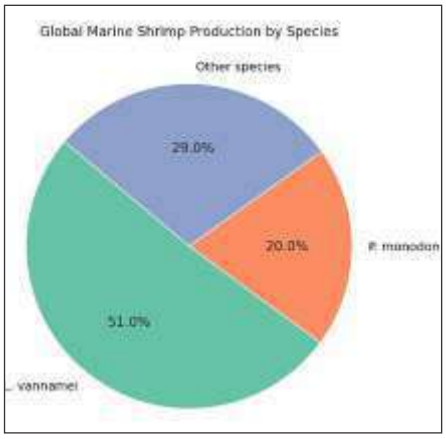


Figure 1. Percentage contribution of various shrimps to the global aquaculture

2. Phytobiotics: sources, mode of action

Phytobiotics encompass a wide range of plant-based materials, including herbs, fruits, vegetables, seaweeds, mushrooms, and agricultural by-products like fruit waste and rice bran. They also contain bioactive compounds such as tannins, alkaloids, saponins, essential oils, flavonoids, and polysaccharides, which provide antimicrobial, antioxidant, anti-inflammatory, and immunostimulant effects. Widely studied across species, phytobiotics are known to enhance growth, immunity, antioxidant levels, gut microbiota balance, and stress resistance in aquatic animals. They promote beneficial gut bacteria like *Lactobacilli* and *Bifidobacteria*, supporting immune function and defending against pathogens (Fig. 2).

3. Phytobiotics vs Growth performance

Microalgae are key live feeds in aquaculture, rich in protein, polyunsaturated fatty acids (PUFAs), vitamins, pigments, and sterols. They support growth, stress relief, disease resistance, and flesh quality in aquatic species. Similarly, macroalgae (seaweeds) like *Carpoblepharis flaccida*, *Ecklonia maxima*, *Gracilaria gracilis*, *Laminaria japonica*, and *Ulva* spp. have shown beneficial effects as feed additives (Wei *et al.,* 2024). Seaweeds used in crustacean farming, such as *G. tenuitipitata*, *G. fisheri*, and *Jania adherens*, contain essential fatty acids, amino acids, minerals, vitamins, and bioactive compounds. These contribute to improved growth, feed efficiency, immunity, and flesh quality. Their abundance and low cost make seaweeds attractive for aquafeed formulations (Fig. 3).

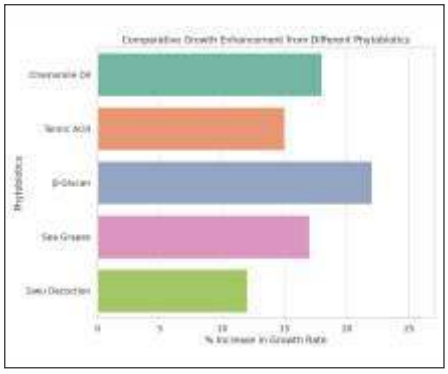


Figure 3. Growth performance of various phytobiotics in shrimp culture

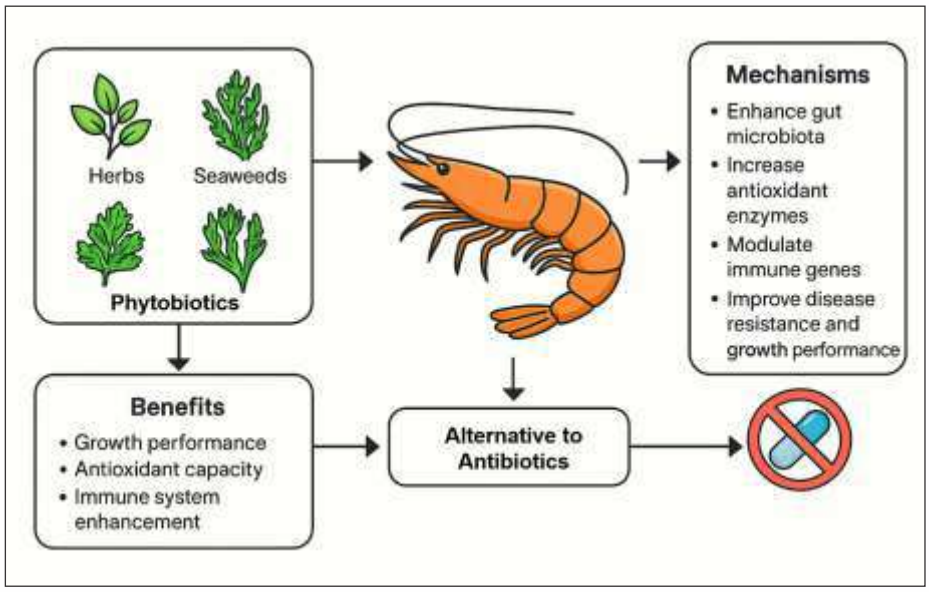


Figure 2. Sources and role of phytobiotics in aquaculture

Polyculture of macroalgae and shrimp offers mutual benefits. For instance, co-culturing *Caulerpa lentillifera* (sea grapes) with *L. vannamei* enhances the growth of both species. Native to tropical seas and widely farmed in countries like China, Vietnam, the Philippines, Taiwan, and Japan, sea grapes, also known as green caviar, are valued for their nutritional and health-promoting properties. Additionally, their high nutrient uptake capacity makes them effective in treating aquaculture, industrial, and heavy metal-contaminated wastewater.

4. Phytobiotics as immunostimulants

Medicinal plants are widely used as immunostimulants in aquaculture, improving growth, immunity, stress tolerance, and disease resistance (Prabu *et al.,* 2018). Herbs like *Andrographis paniculata*, *Allium sativum*, and *Petalonia binghamiae* have shown efficacy against pathogens in *P. monodon* and *L. vannamei* (Citarasu *et al.,* 2006). Other promising herbs include *Eclipta erecta*, *Agati grandiflora*, *Justicia tranquebariensis*, and *Cynodon dactylon*. Their effects are largely attributed to bioactive compounds such as polyphenols, alkaloids, flavonoids, and essential oils, which also promote gut health and metabolism (Corry *et al.,* 2018). Plants like *Forsythia suspensa*, rich in glycosides and lignans, enhance immunity in *P. monodon*, while *Syzygium cumini* and *Moringa oleifera* provide antimicrobial, antioxidant, and feed-attractant benefits. These have been used in shrimp, tilapia, carp, and trout to improve health and performance. *Salvinia cucullata* has shown efficacy against *Vibrio parahaemolyticus* in *L. vannamei* due to its diverse phytochemicals. Red seaweeds like *Sarcodia suae* and *Jania adhaerens* enhance disease resistance

in *L. vannamei* and tilapia via compounds like acetyl-xylogalactan and tannins. While Chinese herbs such as *Siwu decoction* offer anti-inflammatory benefits, fermentation is used to reduce potential toxicity and enhance bioactivity. Finally, β-glucans, especially from *Saccharomyces cerevisiae*, are proven immunostimulants that improve growth and resistance to pathogens like WSSV in *P. monodon* and *P. merguiensis* (Pooljun *et al.,* 2022).

5. Phytobiotics vs Abiotic stressors

Tannic acid, a plant-derived compound, benefits various aquatic species by enhancing their immunity and antioxidant capacity. In *L. vannamei*, it alleviates ammonia-induced stress, and as a feed additive, it improves growth, immunity, and disease resistance in mussels (*Unio tumidus*), grass carp, zebrafish, and Nile tilapia (Gong *et al.,* 2022). It also supports health and growth in livestock like chickens and piglets (Starčević *et al.,* 2015). Similarly, β-glucan enhances immunity and antioxidant defenses in *L. vannamei* under low salinity stress (Qiao *et al.,* 2022) and reduces stress in Golden pompano (*Trachinotus ovatus*) (Do Huu *et al.,* 2016). Due to its cost-effectiveness and availability, β-glucan is a valuable additive in marine shrimp farming.

6. Conclusion

Shrimp farming is economically vital in many tropical and subtropical regions but faces setbacks due to frequent disease outbreaks. While antibiotics have been effective, concerns over public health and environmental impact limit their use. Phytobiotics offer a sustainable alternative, being affordable, abundant, and environmentally friendly. Several commercial phytobiotics such as tannic acid, Polygain™ (PRSE), Wakame (*U. pinnatifida*), AquaImmu, β-glucan, and sea grape (*C. lentillifera*), are suitable for large-scale application. As practical feed additives, phytobiotics support immune health and disease resistance, though improper dosing may impair shrimp performance. Understanding the underlying molecular and cellular immune mechanisms is essential to optimize their use in combating pathogens and stressors.

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CALENDAR OF EVENTS

SEPTEMBER / OCTOBER 2026

Sept. 29
Oct. 02 WORLD DAIRY EXPO 2026
At Alliant Energy Center Madison,
Wisconsin, USA
Ph : +608-224-6455
Email: wde@wdexpo.com
Website: worlddairyexpo.com

OCTOBER 2026

16-19 DAIRY INDUSTRY EXPO 2026
At The Ramkrishna Lawns,
Shiroli Toll Naka, Market Yard,
Kolhapur, Maharashtra
Contact: Prachi Arora,
Managing Partner, Benison Media
Mobile: 86074 63377 / 98960 35006
Email: p.arora@dairyindustryexpo.com

NOVEMBER 2026

25-27 POULTRY INDIA 2026
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Office Administrator/ Poultry India
Mobile: 7997994331/34
Email: info@poultryindia.co.in;
office3@poultryindia.co.in
Website: www.poultryindia.co.in

10-13 EUROTIER 2026
At Hanover, Germany
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Sales Manager
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JANUARY 2027

18-20 BHARAT POULTRY EXPO 2027
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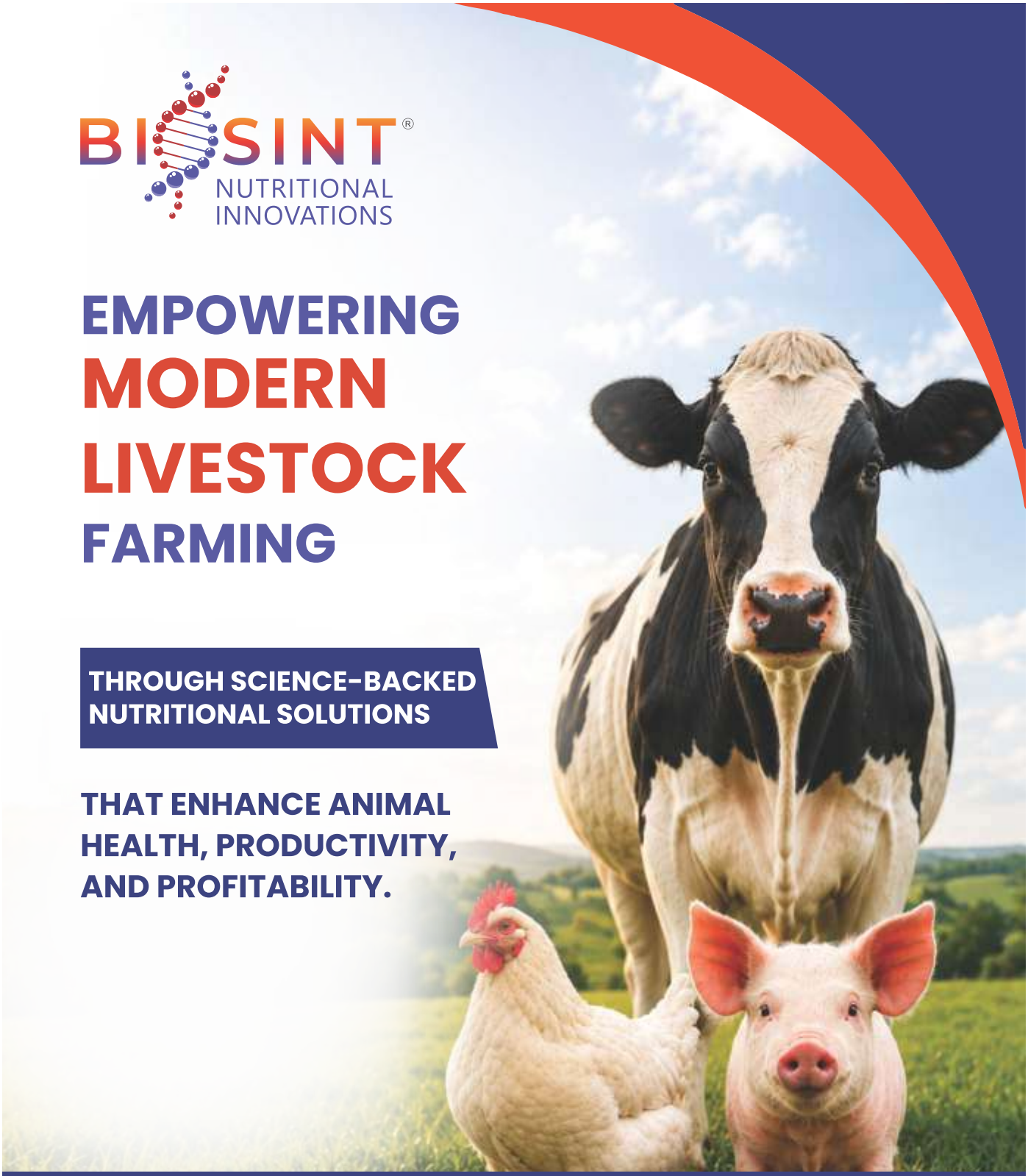
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