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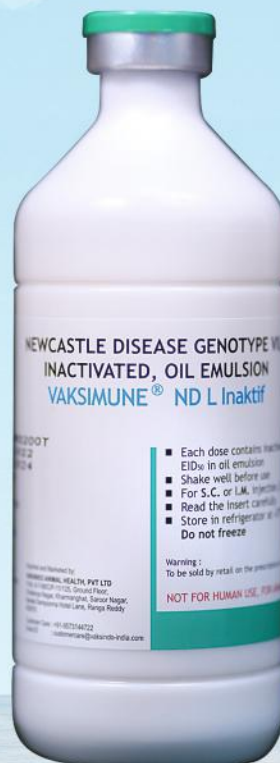


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Amid the fast-changing international trade landscape, INDIA is managing the situation appreciably well. A tight rope Defence against the extreme on the slot by the superpower has been handled remarkably by our current government.

Although not free from risk of extremities, Bharat managed to sign up FTA with Europe, Britain and several other countries of the Middle East, Far East and Africa. The unreasonable aggression by the current US administration has made India look for immediate and better alternatives and made it less prone to the onslaught of American policies. This indeed is a great achievement by any global standard. INDIA is also working on various short term long-term strategies that will continue to grow the Indian economy with impressive digits.

INDIA is yielding with more attractive and liberal bilateral terms to enable the free trade agreements - the fallout of this for the poultry industry is for reaching and needs serious attention. Wake-up call for the Indian farmers and the poultry industry. The current Indian government has done a great job of protecting the agriculture and livestock sector from free and open access, strongly demanded by the Americans. Will this protection last, and for how long? Any future change in government or liberation of the policies can put us in an unfair fight with the global market - are we ready for that? When it comes to food safety and food quality, the government will also have a policy in favour of consumers rather than farmers. It is of utmost importance that the farmers gear up with the use of Feed, safety, hygiene, and better quality controls, which will match the minimum standards required for acceptable human consumption. This will also help INDIA to gear up to the export standards.

The western neighbor cursed to live in falsehood, has yet suffered another humiliating defeat in the game of cricket. A lot of media hype and tall claims by their cricketers crashed to a natural consequence in the absence of merit. Bharat continues to be strong in the game of cricket and is a global favourite.

The current government continues to make fundamentals strong and is investing heavily in the digital economy, artificial intelligence, research development and innovation. The new joint ventures in the manufacturing of microchips, aircraft, drones, ammunition, and rockets will make INDIA a formidable economy in the globe.

The current AI INDIA IMPACT SUMMIT has attracted 20 Heads of state and more than 100 representatives from around the globe. 600 Start-ups have participated and kick-started a revolutionary approach to the future of AI. India leads this Mission with People, Planet & Progress for humanity!

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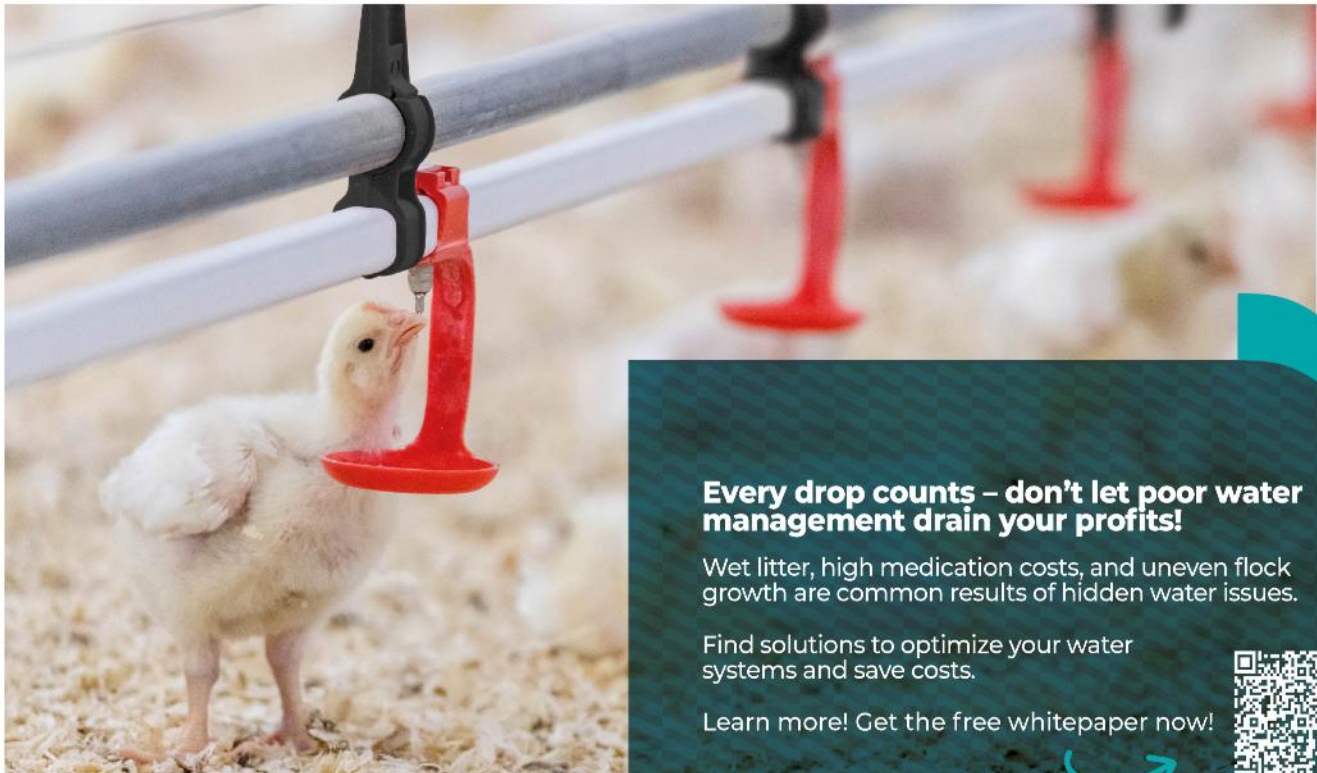
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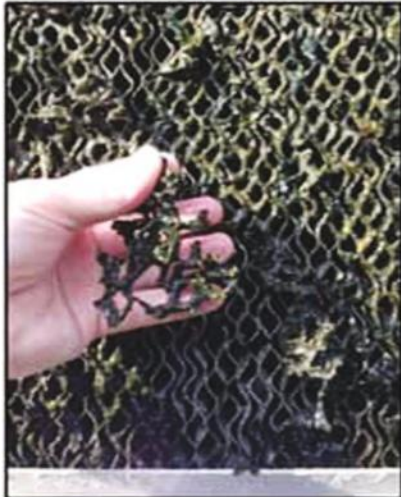
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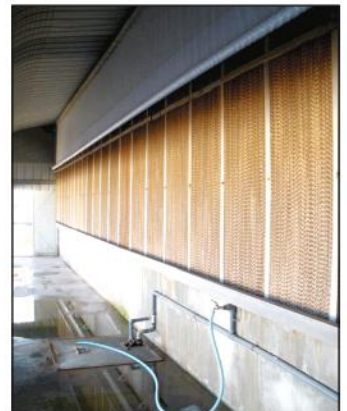
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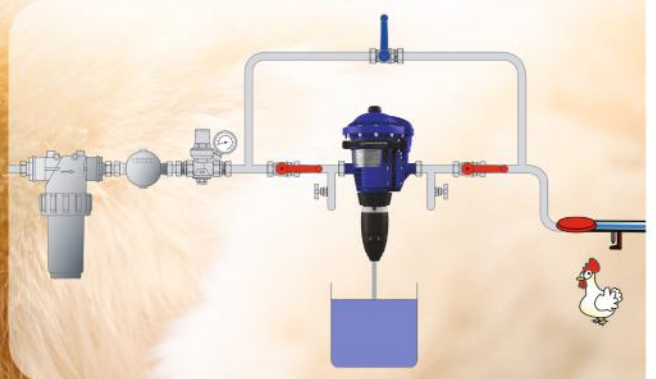
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एनकाउटर नं. 273 हवा पानी आवश्यक न्यूट्रिएंट - मुफ्त है पर इस पर हमारा विशेष ध्यान क्यों नहीं?

पोल्ट्री में हवा और पानी का महत्वपूर्ण स्थान है। किसी भी हालत में इसका महत्व अच्छी से अच्छी फीड से कम नहीं जिस पर लागत का 70% भाग हम खर्च करते हैं परंतु हवा पानी मुफ्त है अतः इसके महत्व को ना तो हमने जाना और ना ही हम जानने का प्रयत्न करते हैं। गर्मी आ रही है अतः पर्दे खुल जाएंगे जिस कारण हवा की कमी नहीं होगी अतः यहां हम पानी पर ही केवल चर्चा करते हैं। वैसे भी तापमान बढ़ने के साथ साथ पानी की तीन गुनी से चार गुनी तक खपत बढ़ सकती है। अधिक पानी की खपत, दोष युक्त पानी या घटिया पानी या कन्टीमीनटेड पानी की हुई तो समस्या पर समस्या खड़ी हो सकती है। यही नहीं किसी बीमारी की आउटब्रेक भी हो सकती है। मात्र ग्रोथ में कमी या उत्पादन में कमी ही नहीं होगी जिसका दोष हम तापमान या फीड पर डालकर निश्चित हो जाते हैं।

पानी सबसे महत्वपूर्ण न्यूट्रिएंट है जिसकी गुणवत्ता पर विशेष ध्यान देने की आवश्यकता है। फीड आपका कितना ही अच्छा हो पूरा बैलेंस हो यदि पानी सही नहीं तो आपको अपेक्षा से कम रिजल्ट मिलेगा। पतली बीट भी दूषित पानी के कारण हो सकता है जिसका इलाज आप गट हेल्थ के नाम पर करते रहेंगे या फिर शायद फीड को दोषी बनाकर फीड वाले से झगड़ते रहेंगे। अतः पानी की गुणवत्ता पर सदैव विशेष ध्यान रखें। जाड़े – गर्मी और बरसात के बाद पानी चेक करवाएं तो गुणवत्ता में अंतर मिल सकता है। इस लेख में ही आपको मिल जाएगा कि पोल्ट्री के लिए पानी की गुणवत्ता क्या होनी चाहिए। आमतौर से पोल्ट्री फार्मर यही समझता है जो पानी वह पी रहा है वही तो पिला रहा है अतः पानी बिल्कुल ठीक है परंतु वास्तव में सदैव ऐसा नहीं है। जब पानी आप टेस्ट करवाएंगे तब आपको वास्तविकता का पता चलेगा।

पानी फीड से भी क्यों ज्यादा महत्वपूर्ण है?

शरीर में लगभग 70% पानी सदैव बना रहना चाहिए। हैच निकलते ही यह मात्रा कुछ प्रतिशत अधिक हो सकती है जो हैचरी में होल्डिंग या ट्रांसपोर्ट से कम होती जाती है इसलिए कहते हैं कि चिक्स फार्म पर पहुंचते ही उन्हें उचित पानी पीने को दें। देरी न करें वरना डिहाइड्रेशन के कारण मोर्टिलिटी हो सकती है जिस कारण गलत ट्रीटमेंट आप देना शुरू कर देंगे। ध्यान रहे, हैचर में चिक्स लगभग 2 दिन पहले से ही निकलना शुरू हो जाते हैं। अतः जब तक चिक्स आप तक पहुंचते हैं उसमें कुछ कम से कम तीन या चार दिन से प्यासे होते हैं।

पानी की खपत फीड की खपत से सदैव ज्यादा रहती है आमतौर से फीड की खपत से दुगुनी होती है। परंतु जैसे तापमान बढ़ता जाता है फीड की खपत घटने लगती है और पानी की खपत बढ़ने लगती है। बढ़ते शोड के तापमान के साथ यह खपत तीन से चार गुना तक बढ़ सकती है।

जैसे पहले भी लिखा है कि फीड कितना ही अच्छा हो यदि पानी की गुणवत्ता ठीक नहीं तो आपको सही उत्पादन कभी नहीं मिल जाएगा।

- पानी केवल प्यास ही नहीं बुझाता है और मात्र शरीर को ही ठंडा नहीं रखता है।
- इसमें कोई शक नहीं की पानी शरीर की गर्मी कम करने या संयोजित रखने का महत्वपूर्ण कार्य करता है। इसके अतिरिक्त और भी बहुत से महत्वपूर्ण कार्य है जिसे पूरा करता है।
- सबसे बड़ी बात यह खून का मुख्य भाग है।
- जहां यह दाने के पाचन में काम करता है वही न्यूट्रिएंट के वाहन का भी काम करता है।
- जोड़ों के लुब्रिकेंट के रूप में काम करता है।
- शरीर के बाहर अनावश्यक पदार्थों को मल या यूरिन के रूप में बाहर निकलता है।
- बॉडी टिशु के पानी की कमी को पूरा करता है।
- जब भी पानी की खपत आवश्यकता से कम होगी तो नुकसान होगा:—
- कई कारणों से एकाएक या धीरे धीरे पानी की खपत कम हो सकती है जो नुकसान का कारण ही नहीं, मृत्यु दर बढ़ाने के साथ दूरगामी दुष्प्रभाव डाल सकता है।
- जब भी कोई दवा पानी के जरिए देते हैं ध्यान रखें कि वह पानी ठीक से पी रहे हैं कि नहीं? कभी – कभी कुछ दवाई इतनी कड़वी होती है जिस कारण फ्लॉक पानी कम पीता है। ऐसी दवाओं के साथ कुछ फार्मर सक्रीन पानी पिला देते हैं। आवश्यकता से अधिक दवा की खुराक से भी खपत कम होती है।
- पानी गंदला हो या किसी प्रकार की सड़न या बदबू हो तो भी पानी की खपत कम होगी। अक्सर जिन ड्रिंकर से पानी पी रहे हैं यदि उसकी सुबह शाम धुलाई ठीक से ना हो रही हो तो पानी की खपत कम हो सकती है।
- पीने के पानी का तापमान यदि मौसम के हिसाब से उचित न हो तो भी पानी की खपत कम होगी। जाड़े में पीने के पानी का तापमान शोड के तापमान से किसी भी हालत में कम ना हो, थोड़ा अधिक हो तो बेहतर होगा। इसके विपरीत गर्मी में पीने के पानी का तापमान शोड के तापमान से काफी कम होना चाहिए। लगभग 20 से 21 डिग्री सेल्सियस।
- दुर्भाग्य से अपने देश में जो वाटरिंग सिस्टम है उसमें इस तापमान नियंत्रण पर बिल्कुल ध्यान नहीं दिया गया है।

गंगा फीड का एक ही लक्ष्य - समृद्ध व सम्पन्न हो फार्मर हमारा ।

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- जाड़े में इतना ठंडा की पक्षी मुंह लगाते ही हटा लें और गर्मी में इतना— गर्म की बिल्कुल ही पी ही ना सके। हमने एनवायरमेंट कंट्रोल हाउसो की बस आंख बंद कर कर नकल कर ली। यह न सोचा फ्लाक के मौसम अनुसार उचित पानी कैसे प्राप्त होगा। सब कुछ पीवीसी का है जो तापमान शेड का है उसे वह ग्रहण करें। इस पर से जो सिस्टम जो पाइपलाइन का जाल बिछाया है शेड की छत के नीचे से वहां जाड़े में सबसे कम तापमान और गर्मी में सबसे अधिक तापमान होता है। जिसे वह ग्रहण करते हुए ड्रिंकर तक आता है। कुछ विद्वानों ने इसके ऊपर पीवीसी की टंकी चारों ओर से खुली छत पर रख दी है। कहां से उचित पानी फ्लाक को मिलेगा। इस पर ड्रिंकर बनाने वाली कंपनियों को कार्य करना होगा — शोध करना होगा। पाइपलाइन का यह जाल अंडरग्राउंड होता तो निश्चित रूप से काफी राहत जरूर मिलती। कुछ किसानों ने अपना जुगाड़ बना रखा है। जिससे राहत जरूर मिली है पर यहां लिखने में यह बहुत लंबा हो जाएगा।
- ड्रिंकर या निप्पल की ऊंचाई का पानी की खपत पर बहुत बड़ा रोल है। ड्रिंकर की ऊंचाई उनकी पीठ के बराबर हो एवं निप्पल में वह गर्दन को सीधा करके भी पी सके।
- जहां स्वच्छ पानी बहुत आवश्यक है वहीं कॉन्टैमिनेटेड गंदा पानी बहुत हानिकारक है।
- कॉन्टैमिनेटेड पानी से बहुत सी बीमारियां फैल सकती है। भले ही आपको पानी का स्रोत शुद्ध पानी दे रहा हो परंतु उसके स्टोरेज में यदि कोई कमी है तो भिन्न-भिन्न प्रकार की समस्याएं खड़ी हो सकती है जिसमें बैक्टीरियल बीमारी भी शामिल है।
- अक्सर एनकाउंटर हुआ है जहां में स्टोरेज टैंक लंबे अरसे तक साफ नहीं किया गया और उसका ढक्कन भी खुला हुआ था। जब समस्या पर समस्या आने लगी और पूरी जांच पड़ताल की गई तो स्टोरेज में **culprit** निकला। अगर स्टोरेज की सफाई हर सप्ताह नहीं तो कम से कम 15 दिन पर अवश्य कर दे। ढक्कन सदैव बंद रहे।
- कई और एनकाउंटर में हेड पंप और तालाब दोषी पाया गया। अक्सर गांव के छोटे किसान दो या तीन हजार बॉयलर का शेड तालाब के किनारे बना लेते हैं। नवंबर से जून तक अच्छा फ्लाक तैयार कर लेते हैं। बरसात शुरू होते ही समस्या शुरू हो जाती है और हर फ्लाक का एक बार नहीं दो-तीन बार इलाज करना पड़ता है। तब रो पीट कर फ्लाक तैयार होकर निकलता है। दो-तीन किसान काफी दिन गायब रहते थे परंतु बरसात में उनके फोन आने लगते थे। लगभग 2 साल बाद समस्या का कारण मिला जब फोन पर बातचीत के दौरान पता चला कि उनका फॉर्म तालाब के किनारे हैं और तालाब और शेड के बीच में उनका हैंड पंप लगा है।
- अक्टूबर में जब तालाब सूख जाता है तब फ्लाक अच्छे चलने लगता है और जुलाई में तालाब भर जाने के बाद समस्या शुरू हो जाती है। कारण मिल गया उन्हें समझा दिया किया तो इस दौरान फॉर्म बंद कर दे और अगर चलाना ही है तो सदैव वाटर सैनिटाइजर का उपयोग करें।
- पाइपलाइन और तरह — तरह के ड्रिंकर की हाइजीन की भी बात कर लेते हैं:—
- हम अपनी सुविधा अनुसार तरह — तरह के ड्रिंकर का उपयोग करते हैं। छोटे किसान आमतौर से प्लास्टिक टब का उपयोग करते हैं। और समय-समय पर उसमें पानी डालते रहते हैं। समझदार किसान उस पर एक जाल लगा देते हैं ताकि बर्ड अंदर ना जा सके। सुबह शाम उसकी ठीक से सफाई करते हैं और किसी अच्छे डिसइन्फेक्टेंट से उसे 'रिन्स' भी करते हैं।
- कुछ किसान बकेट एवं प्लेट वाला ड्रिंकर का उपयोग करते हैं और इसकी भी सफाई पहले ड्रिंकर की तरह से करते हैं।
- कुछ किसान या बड़े किसान बेल ड्रिंकर का उपयोग करते हैं। जिसे ऑटोमेटिक कहते हैं क्यों कि पानी जितना पी लेते हैं उतना फ्रेश उसमें आ जाता है। इसकी भी सफाई अंदर से ही कर लेते हैं और रिन्स भी कर लेते हैं। यह ऊपर बताये दोनों सिस्टम से बेहतर है।
- चैनल का भी उपयोग किया जाता है और सफाई और रिंसिंग आसानी से अंदर ही हो जाती है।
- अन्त में निप्पल ड्रिंकर की बात करते हैं जैसे ही पक्षी गर्दन ऊपर करके ठीक से निप्पल टच करता है पानी ड्रिप करने लगता है। यह सिस्टम सबसे अच्छा है।

निप्पल सिस्टम क्यों अच्छा है?

इसमें पानी बिलकुल बंद है। खुले बर्तन में कई बर्ड पानी पीती रहती है उसमें उनका सलाइवा भी जाता रहता है। कोई बीमार है तो बीमारी तेजी से फैलने की संभावना है। निप्पल सिस्टम में ऐसी कोई भी संभावना नहीं है।

हमें समय — समय पर डायरेक्ट ट्यूबवेल के पानी, मेंन टंकी का पानी, शेड के अंदर की टंकी का पानी, पहले बेल ड्रिंकर या पहले निप्पल का पानी, और अंतिम बेल ड्रिंकर और अंतिम निप्पल का पानी अलग-अलग लेकर किसी अच्छी लैब से माइक्रोब के लिए चेक करवाएं।

- इन पांच जगह के पानी में यदि बैक्टीरियल लोड बढ़ रहा है तो सचेत हो जाए। इसी प्रकार एक दो चैनल के शुरू का पानी और अंत का पानी भी चेक करवा लें।
- पहले दो प्रकार के ड्रिंकर के टेस्ट की आवश्यकता नहीं क्योंकि उसमें प्रायः बैक्टीरिया मिलने की पूरी संभावना है। यह उसी ड्रिंकर में उत्पन्न हुआ जिसे आप सुबह शाम धोकर समाप्त करते रहते हैं।



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Marek's Disease Vaccine Serotype 1, Live Herpesvirus Chimera PREVEXXION RN For the use only of Registered Veterinary Practitioner. **Composition:** Marek's Disease virus, Serotype 1, RN1250 strain at least 952 PFU/dose Excipient q.s. 1 dose. **Indication:** This vaccine is recommended for in ovo vaccination of 18to19-day-old embryonated chicken eggs. This vaccine is also recommended for subcutaneous vaccination of healthy one-day-old chickens. This frozen vaccine contains a Marek's disease chimera consisting of three Serotype 1 strains. **Dosage and administration:** Administer only as recommended. In Ovo Administration: Dilute vaccine at 4,000 doses per 200 mL diluent. Inject a 0.05 mL dose into each embryonated egg. Subcutaneous Injection: Dilute the vaccine at 1,000 doses per 200 mL diluent. Inject 0.2 mL per chicken. **Age-** This vaccine is recommended for in ovo vaccination of 18 to 19-day-old embryonated chicken eggs. This vaccine is also recommended for subcutaneous vaccination of healthy one-day-old chickens. **Pregnancy and Lactation:** Not applicable. **Contraindications:** None known **Special warnings and precautions:** Do not mix with other products, except as specified on the label. Use the entire contents of the vaccine container within one hour after mixing the vaccine with diluent. Use entire contents when first opened. Do not vaccinate diseased embryonated eggs or diseased chickens. Avoid contact with eyes, hands and clothes when using the vaccine. **Adverse reactions:** None **Withdrawal period:** - Do not vaccinate within 21 days of slaughter. **Shelf Life and Storage:** Shelf life is 36 months, AMPULES: Store in liquid nitrogen container, DILUENT: Store at room temperature. **MAH Holder:** - Boehringer Ingelheim India Pvt Ltd, Unit No. 202, 2nd Floor Godrej 2, Pirojsha Nagar, Eastern Express Highway, Vikhroli (E) | Mumbai 400079. **Last review date:** 09/08/2024 *Additional information is available on request.*

- इसलिए कहते हैं कि हमें वाटर लाइन की सफाई का पूरा ध्यान देना चाहिए माइक्रोबियल Contamination कभी भी कहीं भी हो सकता है हर 24 घंटे में इन की ग्रोथ इतनी तेज है कि हम सोच भी नहीं सकते। एक समय माइक्रोबियल लोड इतना बढ़ जाता है जिसके फलस्वरूप किसी भी बीमारी की आउट ब्रेक हो सकती है।
- इसका जवाब वाटर पाईप लाईन की सफाई है।

कैसे?

अक्सर फार्मर कहते हैं कि हम बराबर फ्लशिंग करते रहते हैं। उनकी फ्लशिंग है कैसी? आमतौर से आखिर में पाइप खोलकर पानी बहा देते हैं। और बेहतर किया तो मोटर लगाकर प्रेशर से फ्लशिंग कर देते हैं। दोनों में लाभ कम और पानी की बर्बादी ज्यादा है।

सही फ्लशिंग क्यों करें?

बैक्टीरिया या माइक्रोब अपने बचाव के लिए अपने ऊपर ऐसी कोटिंग कर लेते हैं जिसे हम बायो फिल्म कहते हैं। जिस पर ऊपर की हुई फ्लशिंग का कोई असर नहीं होता है। अब इस विशेष कार्य के लिए विशेष डिसइन्फेक्टेंट आ गए हैं। इसके घोल को पूरी पाईप लाईन में कुछ देर रोका जाता है। उसके बाद प्रेशर से फ्लश किया जाता है तब यह बायो फिल्म समेत माइक्रोब और बहुत सी गंदगी बाहर निकलती है। जिसे आप देखकर चौंक जाएंगे और आपकी आंखें खुल जाएंगी। जब इस प्रकार के प्रोडक्ट भारत में नए-नए आए तो इस का टैस्ट एक बड़े फार्म के एक शेड में किया गया। शेड की सफाई चल रही थी। उसकी पाईप लाईन में शाम को इसका घोल डलवा दिया गया। दूसरे दिन सुबह हम सभी अपने सामने फ्लशिंग करवाने पहुंचे। सारी बाल्टियां हरे, काले गंदगियों से भर गयीं। जब पानी बिल्कुल साफ आने लगा तब हम लोग संतुष्ट हुए। जो देखा इसके पहले कभी सोचा भी नहीं था। बहरहाल जो भी प्रोडक्ट आप इस्तेमाल करें उसका लिटरेचर ध्यानपूर्वक पढ़ लें।

इसी लिए वाटर ट्रीटमेंट क्यों बहुत आवश्यक है ?

वाटर ट्रीटमेंट के बहुत से प्रोडक्ट आ गए हैं जो अच्छे और कारगर भी हैं। इनका उपयोग निरंतर करते रहना चाहिए। वैक्सीन के 24 घंटे पहले बंद कर दे। पिलाने के 48 घंटे बाद पुनः शुरू कर दे।

हम लोग काफी समय से ब्लीचिंग पाउडर, क्लोरिन गैस, फिटकरी, ग्लैशियम एसिटिक एसिड, सोडियम हाइपोक्लोराइट का उपयोग करते आये हैं। जब से अच्छे ब्रांडेड प्रोडक्ट्स आ गए हैं इन सबका इस्तेमाल कम हो गया है।

इन सबके साथ एक प्रश्न सदैव उठता रहा है कि यदि इन प्रोडक्ट्स को सीधे मेन टंकी में डाल दिया जाये तो क्या फार्म स्टाफ इस पानी को पी सकता है? जवाब हाँ – न मिला जो दुविधाजनक है। अब एक नया तो नहीं परन्तु जिसे WHO ने काफी कारगर और सेफैस्ट बताया है पोल्ट्री और हम सब के लिए और पुरे विश्व के लिए इसे उपयोग करने की सलाह दी है, वह है Na DCC (Sodium Dichloroisocyanurate)। सौभाग्य से भारत में काफी समय से

उपलब्ध है जिसे भोपाल स्थित एक कंपनी फोन नम्बर 7999697189 देश विदेश में सप्लाई करती है। हम पोल्ट्री वाले इसके बारे में अधिक जानकारी नहीं रखते। इनका अधिक ध्यान "खास" पोल्ट्री दिग्गजों व 5 सितारा हॉस्पिटल, सरकारी पानी सप्लाई संस्थानों पर है। यह प्रोडक्ट जहां वाटर सैनिटाइजर है वहीं डिसइन्फेक्टेंट भी है साथ में फूड ग्रेड होने के कारण फल, सब्जी, मीट, मछली एवं अंडों को बैक्टीरिया वायरस, फंगस आदि से बचाने में कारगर है। हेचरी के लिए वरदान है।

सही प्रोडक्ट एवं सही तरीके से वाटर ट्रीटमेंट करके आप अनेको लाभ ले सकते हैं। बस ध्यान रहे जिसे भी आप उपयोग में लाये उसमें निम्न गुण मौजूद हो

- फ्लॉक और इंसान दोनों के लिए सुरक्षित हो।
- ब्रांड स्पेक्ट्रम हो।
- किसी भी प्रकार की टॉक्सिसिटी न हो।
- स्टेबल हो कम से कम 24 घंटे से 48 घंटे तक।
- पानी के टेस्ट को न बदलता हो।

पानी के ट्रीटमेंट के फायदे :-

यहन सोचे की पानी के ट्रीटमेंट से हम खर्चा बढ़ा रहे हैं। इस से जो आप लाभ अर्जित करेंगे उसके मुकाबले में इस पर खर्चन के बराबर है।

पानी द्वारा फैलने वाली सभी बीमारियां चाहे बैक्टीरियल वायरस, फंगस इत्यादि हो ट्रीटेड पानी से आप अंकुश लगा देते हैं। इसके द्वारा आप माइक्रोबियल कन्टीमीनशन को बिलकुल समाप्त कर देते हैं।

- गट हेल्थ का बाजार और चर्चा काफी गर्म है। ट्रीटेड पानी अधिकांश गट हेल्थ को बनाए रखने में सक्षम है
- गट हेल्थ अच्छा होगा तो फीड का पाचन बढ़ेगा एवं न्यूट्रेंट अधिकतम absorb होगा।
- ड्रोपिंग लगभग बंधी हुई होगी और लीटर सूखा होगा जिस कारण अमोनिया की मात्रा कम होगी।
- सबसे बड़ी बात उत्पादन क्षमता बढ़ेगी साथ ही बीमारियों से लड़ने की क्षमता बढ़ेगी।
- आजकल एंटीबायोटिक फ्री चिकन और एग की चर्चा बहुत है उसमें सैनिटाइज्ड पानी काफी सहायक होगा।
- जो पानी हम पिला रहे हैं उसका वैज्ञानिक विश्लेषण:-
- जब सही टेस्ट किसी लैब से पानी का होगा तब हमें पानी की गुणवत्ता का पता चलेगा।

फिलहाल हम दो ही पानी जानते हैं खारा या मीठा। यदि मीठा है तो उसे हम पोल्ट्री के लिए सही मानते हैं परन्तु यह सोचना वास्तविकता से परे है। अब तो पानी में कॅमिकल, खाद और पेस्टिसाइड भी मिलने लगा है। अंतः पोल्ट्री फार्म खड़ा करने से पहले वहां के पानी की पूरी जांच होनी चाहिए। हमने पानी को स्वयं दूषित कर दिया है।

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BENEFITS :

- Improves egg production
- Help in getting high quality egg with well balance albumin and yolk content
- Improves egg shell thickness
- Improves immunity
- Reduces stress and discomfort for better egg laying.
- Increases fertility, Hatchability in breeders
- Improves digestion of feed and helps in better absorption of nutrients.

Dosage :

Layers- 500 gm to 1 kg per tonne of feed

Breeders - 2 kg per tonne of feed

एक समय था जब गंगा जल इतना पवित्र था। कि कहीं से नदी का पानी बोटल से भर कर सालो घर में रख लें वह वैसे का वैसे ही रहेगा परन्तु अब आप जहां से गंगा निकलती है वहीं से पानी ले वह पवित्र है। जिसे आप लम्बे समय तक रख सकते हैं। किसी प्रकार से उसमें कोई मिक्रोबियल ग्रोथ नहीं होगी। शुद्ध बना रहेगा।

अंत: जो पानी हम पिला रहे है उसका समय पर लैब द्वारा टेस्ट करवाते रहना चाहिए।

हर फार्म की पानी की रिपोर्ट अलग – अलग हो सकती है। भले इलाका एक ही हो। रिपोर्ट पर पानी कितनी गहराई का है इसका भी असर पड़ेगा।

इस संदर्भ में बहुत ही अच्छा टेक्निकल बुलेटिन AVIAGEN जो विश्व की बहुत बड़ी ब्रॉयलर्स और लेयर ब्रीडिंग कंपनी है। सरल अंग्रेजी भाषा में है जिसमें ऐसे बिन्दुओं पर प्रकाश डाला है, जिसकी आमतौर से हम अवेहेलना करते रहते हैं। यह बुलेटिन सभी भारतीय पोल्ट्री किसानों के पास होना चाहिए। इसका प्रकाशन जनवरी 2026 में पोल्ट्री ट्रेड्स ने भी किया है। आप अनुरोध करे फोन नंबर 8295692653 शायद आपको इसकी कॉपी मिल जाये। AVIAGEN से भी बुलेटिन मिल सकता है।

हम अपनी मुर्गियों को किस प्रकार का पानी पिलाये, इसकी सम्पूर्ण जानकारी AVIAGEN ने टेबल में दिया है। यह टेबल बहुत ही महत्त्वपूर्ण है ध्यानपूर्वक पढ़े।

इस टेबल के अध्ययन के बाद एक महत्त्वपूर्ण बात जहन में आयी जब भी आप किसी विशेषज्ञ से फीड फॉर्मूला बनवाये अपने फार्म के पानी की नियमित रिपोर्ट साथ दें दे। अन्यथा एक अच्छा फॉर्मूला तो आपको मिल जायेगा पर इससे गट हेल्थ की समस्या जिससे पतली बीट एवं अन्य कई समस्याएं होंगी, जिससे मुख्य कारण आपको पता ही नहीं चलेगा और दवाओं पर पैसा फूंकते रहेंगे।

सारांश में पानी एक महत्त्वपूर्ण न्यूट्रिएंट है इसकी पवित्रता एवं शुद्धता का सदैव ध्यान रखना चाहिए।

- पानी के तापमान एवं खपत पर भी ध्यान रखेंगे। कुछ समझदार पोल्ट्री फार्मर हर शेड में वाटर मीटर लगाते है और रोज रिकॉर्ड करते है।
- समय – समय पर पानी पीने के लिए पर्याप्त जगह देना अत्यंत आवश्यक है विशेष रूप से गर्मी में।
- फीड की कीमत भले ही कुल खर्च का 70% हो परन्तु यदि पानी को नियंत्रण या मैनेजमेंट ठीक ढंग से किया जो लगभग मुफ्त है आपने 70% फतेह हासिल कर ली।



Mr. Shabbir Ahmad Khan

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Table 1: Water Quality Criteria for Poultry

Criteria	Concentration (PPM)	Comments
Total Dissolved Solids (TDS)	<1,000	Good
	1,000–3,000	Satisfactory: Wet droppings may result at the upper limit.
	3,000–5,000	Poor: Wet droppings, reduced water intake, poor growth, increased mortality
	>5,000	Unsatisfactory.
Hardness	<100 Soft	Good: No problems
	>100 Hard	Satisfactory: No problem for poultry, but can interfere with effectiveness of soap and many disinfectants and medications administered via water.
pH	<6	Poor: Performance problems, corrosion of water system
	6-0–6-4	Poor: Potential problems
	6-5–8-5	Satisfactory: Recommended for poultry.
	>8-6	Unsatisfactory.
Sulfates	<200	Satisfactory: May have laxative effect if sodium (Na) or magnesium (Mg) is >50 ppm.
	200–250	Maximum desirable level.
	250–500	May have laxative effect.
	500–1,000	Poor: Laxative effect (birds may adjust), can interfere with copper absorption; additive laxative effect when combined with chlorides.
	>1,000	Unsatisfactory: Increased water intake and wet droppings, health hazard for young birds.
Chloride	<250	Satisfactory: Maximum desirable level, levels as low as 14 ppm may cause problems if sodium is >50 ppm.
	250–500	Acceptable with caution.
	>500	Unsatisfactory: Laxative effect, wet droppings, reduced feed intake, increase water intake.
Potassium	<300	Good: No problems.
	>300	Satisfactory: Depends on alkalinity and pH.
Magnesium	50–125	Satisfactory: If sulfate level is >50 ppm magnesium sulfate (laxative) will form.
	>125	Laxative effect with intestinal irritation.
	300	Maximum desirable level.
Nitrate Nitrogen	10	Maximum (sometimes levels of 3 mg/L will affect performance).
Nitrates	Trace	Satisfactory.
	>Trace	Unsatisfactory: Health hazard (Indicates organic material fecal contamination).
Iron	<0-3	Satisfactory.
	>0-3	Unsatisfactory: Growth of Iron bacteria (clogs water system and bad odor).
Fluoride	2	Maximum desirable level.
	>40	Unsatisfactory: Causes soft bones.
Bacterial Coliforms	0 CFU/mL	Ideal: Higher levels indicate fecal contamination.
Calcium	60	Average level.
Sodium	50–300	Satisfactory: Generally no problem, may cause loose droppings if sulfates are >50 ppm or if chloride is >14 ppm.

*If there are issue with intestinal health, a more acidic water pH of 5-6 will be beneficial.

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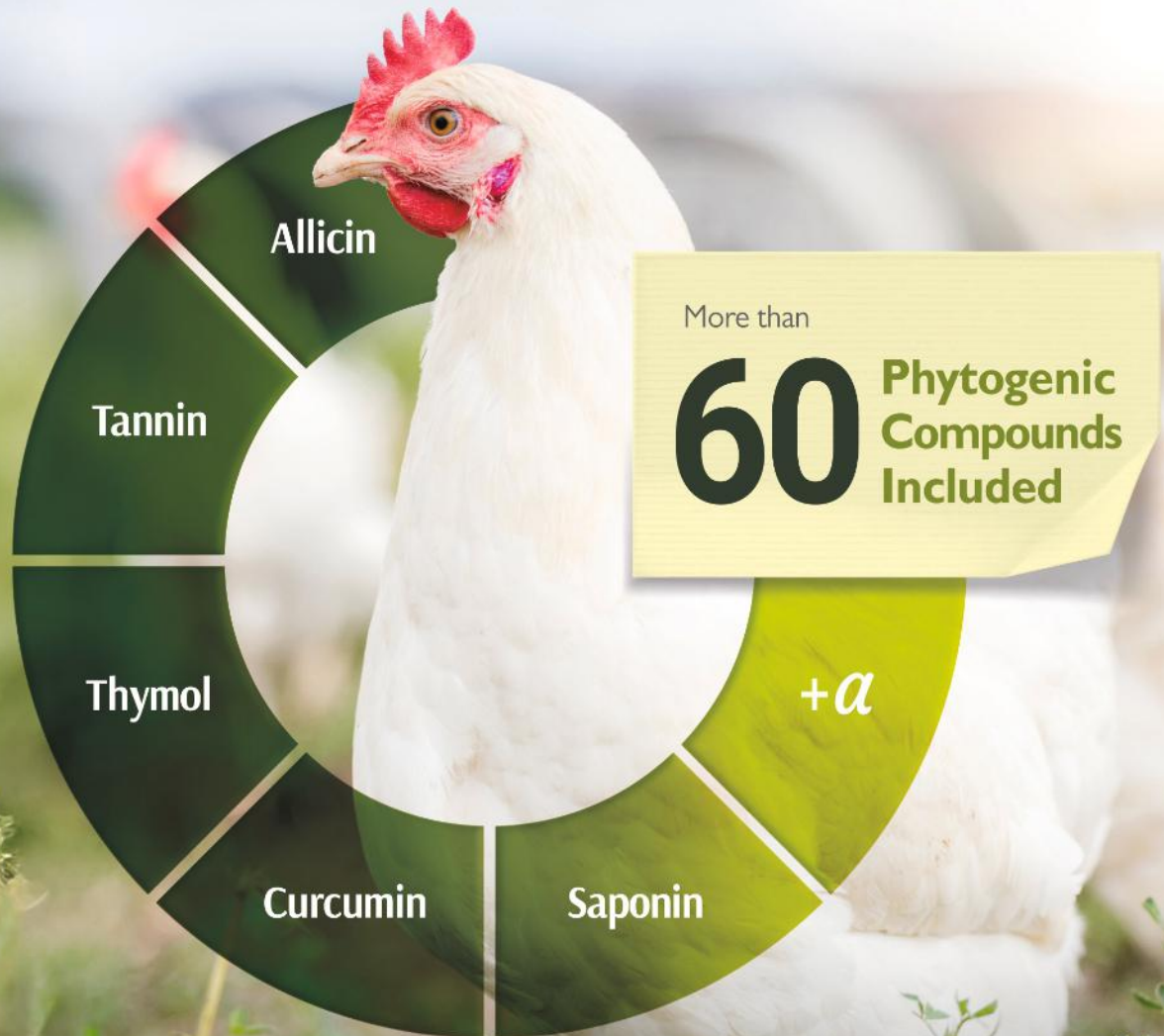


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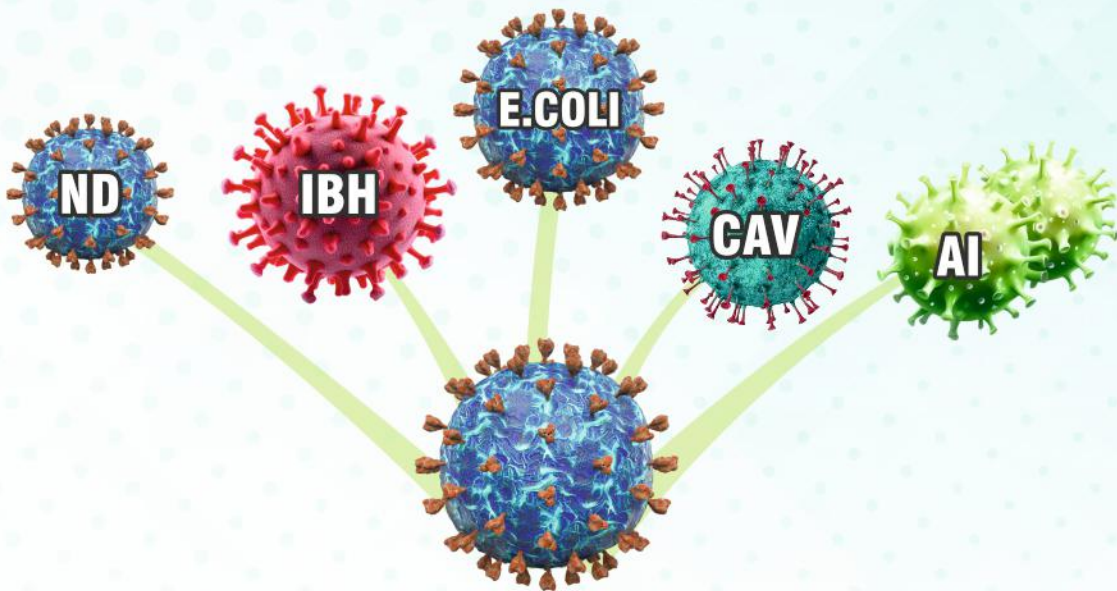
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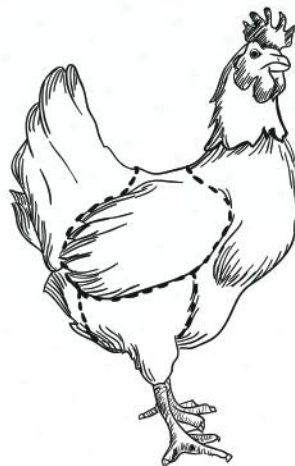
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Role of Veterinarian in Viksit Bharat

Prof. (Dr.) P.K. Shukla and
Dr. Amitav Bhattacharyya

Abstract

The vision of *Viksit Bharat* (Developed India) encompasses inclusive economic growth, social equity, environmental sustainability, and human well-being. Within this framework, the veterinary profession occupies a strategic and multidimensional role that extends far beyond animal treatment. Veterinarians contribute directly to food and nutritional security, public health, rural livelihoods, biosecurity, climate resilience, One Health implementation, and the overall sustainability of agriculture and allied sectors. This article comprehensively examines the evolving role of veterinarians in achieving the goals of *Viksit Bharat*, highlighting their contributions to livestock development, poultry and dairy industries, disease control, zoonoses prevention, environmental protection, innovation, policy support, and capacity building.

Introduction: Viksit Bharat and the Veterinary Profession

India's aspiration of becoming a developed nation by 2047 under the vision of *Viksit Bharat* requires a strong, resilient, and inclusive agricultural and allied sector. Livestock and poultry contribute significantly to agricultural GDP, rural employment, export earnings, and nutritional security. Veterinarians serve as the backbone of this sector by ensuring animal health, productivity, welfare, and biosecurity. In a country where a large proportion of livestock owners are small and marginal farmers, the veterinarian acts not only as a clinician but also as an extension educator, policy enabler, entrepreneur, and guardian of public health.

India's livestock and allied sectors form a critical pillar of *Viksit Bharat* by delivering economic growth, employment, and food security. The livestock sector contributed approximately 5.73 % to India's total Gross Value Added (GVA) in 2021-22 and has grown at a compound annual growth rate (CAGR) of over 13 % from 2014-15 to 2021-22.

Population data from the 20th Livestock Census show that India hosts a vast animal resource base, including:

- ~303 million bovines (cattle, buffalo, yak)
- ~148 million goats
- ~74 million sheep
- ~851 million poultry birds representing one of the largest aggregated livestock populations worldwide.

These figures highlight the magnitude of the animal population veterinarians must serve, spanning both commercial and smallholder production systems.

Contribution to Food and Nutritional Security

Veterinarians play a critical role in enhancing the availability, accessibility, and safety of animal-source foods such as milk, eggs, meat, and fish. India is the world's largest milk producer and among the top producers of eggs and poultry meat. These achievements are closely linked with veterinary interventions in breeding, disease control, nutrition management, and farm advisory services.



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Animal-source foods are rich in high-quality proteins, essential amino acids, vitamins (A, B12, D), and minerals (iron, zinc, calcium). By improving livestock productivity and reducing disease losses, veterinarians directly support national nutrition programs, including maternal and child nutrition initiatives. In the context of malnutrition and protein deficiency, especially among women and children, veterinary support to poultry and dairy sectors becomes a public health imperative.

Veterinarians support sectors that are essential to *Viksit Bharat* through improved health and productivity of livestock and poultry.

Milk Production:

- India retains its position as the world's largest milk producer, with nearly 248 million tonnes in 2024-25.
- Per capita availability of milk in India reached about 485 g per day in 2024-25, showing a sustained upward trajectory in national supply.

Egg Production:

- India ranks second globally in total egg production, estimated at 149.11 billion eggs in 2024-25.
- Per capita availability increased from 62 eggs per year in 2014-15 to 106 eggs per year in 2024-25.

Meat Production:

- Total meat production in India was about 10.50 million tonnes in 2024-25, and poultry meat accounted for approximately 5.18 million tonnes (~50%).

These production figures underscore why strengthening animal health through veterinary science is crucial for national food and nutrition goals.

Strengthening Rural Livelihoods and Farmer Income

Livestock is often referred to as the “living bank” of rural households. Veterinarians enhance this asset by reducing mortality, improving reproductive efficiency, and increasing productivity. Their role in artificial insemination, breed improvement, herd health planning, and preventive medicine significantly raises farmer income.

Veterinarians also support entrepreneurship in dairying, poultry, goatery, piggery, and integrated farming systems. Through scientific advisory services, they help farmers adopt cost-effective technologies, manage risks, and improve market linkages. In the vision of doubling farmers' income and inclusive growth under *Viksit Bharat*, veterinarians act as key change agents in rural transformation.

The livestock-based economy sustains millions of smallholder households in India. The dairy sector alone contributes ~5 % of the national economy (GVA) and employs over 80 million farmers directly in rural areas.

Growth in allied livestock production—milk, eggs, meat—has a multiplier effect on rural incomes and local markets, directly linking veterinary interventions

(health, nutrition, reproduction) to improved livelihoods.

Disease Prevention, Biosecurity, and National Animal Health

One of the most critical roles of veterinarians lies in the prevention and control of animal diseases. Endemic diseases such as Foot and Mouth Disease (FMD), Brucellosis, Peste des Petits Ruminants (PPR), Classical Swine Fever, and avian diseases cause enormous economic losses annually.

Veterinarians are central to the planning and execution of national disease control programs such as the National Animal Disease Control Programme (NADCP). Their responsibilities include vaccination, surveillance, outbreak investigation, quarantine, and reporting. Effective veterinary services strengthen national biosecurity, protect livestock wealth, and enhance India's credibility in international trade of animal products.

National animal health programs such as the National Animal Disease Control Programme (NADCP) rely on veterinarians to implement large-scale vaccination, surveillance, and reporting systems. The significance of such programs gains context from disease incidence patterns: for example, outbreaks of Ranikhet disease (Newcastle), PPR, and Haemorrhagic Septicaemia often underscore the need for proactive veterinary leadership.

Addressing these challenges at scale is essential for trade compliance, export competitiveness, and national food security.

Public Health and the One Health Approach

The concept of One Health recognizes the interconnectedness of human, animal, and environmental health. Veterinarians are indispensable partners in this framework, particularly in the prevention of zoonotic diseases such as rabies, brucellosis, tuberculosis, leptospirosis, avian influenza, and antimicrobial resistance (AMR).

Through meat inspection, milk hygiene, residue monitoring, and disease surveillance, veterinarians safeguard food safety and public health. Their involvement in AMR stewardship—promoting judicious use of antimicrobials, vaccination, and biosecurity—aligns with India's National Action Plan on AMR and global health security goals.

Veterinarians play a key role in food safety and zoonotic disease prevention. With over 850 million poultry birds and a vast dairy herd, ensuring milk and meat safety has direct implications for public health. Veterinarians conduct meat inspection, milk hygiene surveillance, and antimicrobial residue monitoring to prevent foodborne illnesses and protect communities.

Role in Poultry and Livestock Industrial Growth

India's poultry sector is among the fastest-growing segments of agriculture. Veterinarians contribute to this growth by ensuring flock health, biosecurity, vaccination programs, feed efficiency, and welfare standards.



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In commercial and backyard poultry systems, veterinary guidance is essential for productivity, disease prevention, and sustainable expansion.

Similarly, in dairy and meat industries, veterinarians support quality assurance, animal welfare, traceability, and value addition. Their role is crucial in meeting domestic demand as well as international standards for export of animal products, thereby contributing to economic growth under *Viksit Bharat*.

Environmental Sustainability and Climate Resilience

Livestock systems are both affected by and contributors to climate change. Veterinarians play an important role in promoting climate-smart livestock practices, including improved feeding strategies, disease-resilient breeds, efficient manure management, and reduction of greenhouse gas emissions.

By advocating balanced nutrition, herd health planning, and waste recycling, veterinarians help reduce the environmental footprint of animal agriculture. Their advisory role supports sustainable intensification, ensuring that productivity gains are achieved without compromising environmental integrity.

As India promotes sustainable development under *Viksit Bharat*, veterinarians support practices that reduce livestock emissions and improve feed and waste management. For example, balanced nutrition and herd health planning reduce methane output per unit of production, aligning livestock systems with environmental goals.

Animal Welfare, Ethics, and Social Responsibility

Animal welfare is increasingly recognized as an integral component of sustainable development. Veterinarians are ethically and professionally obligated to ensure humane treatment of animals in farming, transport, and slaughter.

By promoting welfare-friendly housing, handling, and health care practices, veterinarians enhance productivity while addressing societal concerns regarding ethical livestock production. Their role in disaster management, rescue operations, and control of stray animal populations further reflects their social responsibility within the *Viksit Bharat* framework.

Research, Innovation, and Capacity Building

Veterinarians contribute significantly to research and innovation in animal health, biotechnology, vaccines, diagnostics, and production systems. Their involvement in academic institutions, research organizations, and industry drives technological advancement and evidence-based policymaking.

Capacity building through training of farmers, para-veterinary staff, and youth is another crucial dimension. By disseminating scientific knowledge and best practices, veterinarians strengthen human capital in the livestock sector, which is essential for long-term national development.

India's animal science and veterinary research institutions contribute significantly to vaccines, diagnostics, and livestock management technologies. Veterinarians serve as educators and trainers, disseminating best practices to farmers and para-veterinary workers.

Policy Support and Governance

Veterinarians provide technical expertise in policy formulation, program implementation, and evaluation related to animal husbandry, dairy development, food safety, and public health. Their inputs ensure that policies are scientifically sound, practical, and aligned with ground realities.

Effective veterinary governance enhances service delivery, disease control, and regulatory compliance. In the journey toward *Viksit Bharat*, veterinarians act as vital advisors bridging science, policy, and society.

Future Outlook: Veterinarians as Nation Builders

The role of veterinarians in *Viksit Bharat* is expanding from traditional animal treatment to comprehensive sectoral leadership. Digital technologies, precision livestock farming, epidemiological modelling, and integrated health approaches are redefining veterinary practice.

India's livestock and poultry sectors are central to the *Viksit Bharat* vision—fuelling food security, rural prosperity, and economic resilience. With robust growth in milk, egg, and meat production, veterinarians are critical drivers in maintaining animal health, improving productivity, and protecting public health. Strengthening veterinary infrastructure, services, and education is indispensable to achieving India's 2047 development goals.

Empowering veterinarians through infrastructure, training, and policy support will amplify their contribution to national goals. As custodians of animal health, food safety, and public health, veterinarians are indispensable nation builders in India's journey toward sustainable and inclusive development.

Veterinarians occupy a strategic position at the intersection of agriculture, health, environment, and economy. Their contributions to food and nutritional security, rural livelihoods, disease control, public health, sustainability, and innovation make them central to the realization of *Viksit Bharat*. Strengthening veterinary education, services, and leadership will not only enhance livestock sector performance but also accelerate India's progress toward a resilient, prosperous, and developed nation.

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IPEMA-Poultry India Team

Visits Kesla, Madhya Pradesh, Reinforcing the Strength of Women-Led Smallholder Poultry Institutions

Kesla / Bhopal, Madhya Pradesh | 21-22 January 2026



IPEMA



The IPEMA-Poultry India team, led by its President Mr. Uday Singh Bayas, undertook a two-day field visit to Kesla village, Madhya Pradesh, on 21st and 22nd January 2026, to engage with KPS - Kesla Poultry Society and MPWPCL - Madhya Pradesh Women Poultry Producers Company Pvt. Ltd. The visit highlighted a nationally significant example of inclusive, community-owned poultry development that integrates grassroots empowerment with professional management and industrial-scale efficiencies.

The engagement reflected shared values of respect, mutual learning, and a strong commitment to the sustainable and inclusive growth of India's poultry sector. Discussions focused on the economics of smallholder and commercial poultry production, women-led cooperative institutions, governance of producer-owned enterprises, and pathways for effectively integrating smallholders into organised poultry value chains.

Understanding a Proven Smallholder Poultry Ecosystem

The Kesla poultry initiative traces its origins to 1993 in the tribal block of Kesla, Madhya Pradesh, where decentralised broiler farming was introduced as a livelihood intervention for landless and marginal

households, particularly women from tribal and Dalit communities. Over time, this intervention evolved into one of India's most successful women-led poultry cooperative models, culminating in the formation of Madhya Pradesh Women Poultry Producers Company Limited (MPWPCL) in 2006 as a federated producer company.

Today, this model demonstrates that smallholder poultry farming—when collectivised, professionally managed, and supported by strong backward and forward linkages—can be economically competitive with large commercial enterprises while delivering far-reaching social and livelihood impact.

Scale, Impact, and Backward Integration of MPWPCL

MPWPCL currently operates across 17 districts of Madhya Pradesh, engaging more than 9,000 women poultry producers organised into 17 producer collectives spread over 300+ villages. Collectively, these institutions have generated annual revenues exceeding ₹455 crore, with annual producer incomes surpassing ₹20-25 crore, while also creating dignified employment for over 1,000 community youth.





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During the visit, the IPEMA delegation received an in-depth walkthrough of MPWPCL's integrated operations, led by Mr. Deepak Tushir, Chief Executive Officer, MPWPCL, who guided the team through the enterprise's value chain, institutional architecture, and operational systems. The delegation also benefited from extensive knowledge sharing by Mridu Pawan Hazarika, Chief Operating Officer, MPWPCL, who shared insights on the economics of smallholder poultry, cooperative governance, risk management, and the balance between social impact and commercial viability.

The delegation also visited MPWPCL's modern, fully automated pellet feed manufacturing plant at Kiratpur Industrial Area, Itarsi, established in 2018. With a current production capacity of 200-250 metric tonnes per day, the facility ensures consistent feed quality for over 9,000 women producers and plays a critical role in strengthening productivity, cost efficiency, and resilience across the women-led poultry value chain.

IPEMA's Perspective and Way Forward

The visit was further enriched by the guidance of Dr. P. K. Shukla, President, Indian Poultry Science Association, whose perspectives reinforced the scientific, institutional, and economic robustness of the Kesla smallholder poultry model.

Speaking on behalf of IPEMA-Poultry India, Mr. Uday Singh Bayas, President, stated that the Kesla-MPWPCL experience stands as a living demonstration of how professionally managed, women-led smallholder poultry systems can complement commercial poultry enterprises while delivering deep and lasting social impact. He reiterated IPEMA's commitment to supporting such grassroots institutions and strengthening collaborations that advance inclusive growth, sustainability, and resilience in India's poultry sector.

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Strategic Immunomodulation

A Critical Strategy for Optimal Poultry Performance



Dr. Jayanta Bhattacharyya

Abstract

In the era of sustainable poultry farming, the focus has shifted from killing pathogens to empowering the bird's own natural defences. Modern poultry production faces a "double-edged sword": genetic selection for rapid growth has created high-performing birds, but often at the cost of a fragile immune system. This review explores how immunomodulatory formulation, a specialized nutraceutical supplement, addresses this gap. By targeting multiple immune pathways—from antioxidant Défense to cellular communication—this strategic intervention helps birds maintain health and productivity even under environmental stress. We examine the biological mechanics of the avian immune system and present field trial data demonstrating significant improvements in growth, feed efficiency, and mortality rates.

Introduction:

In today's poultry houses, a disease outbreak is rarely just about a "bad germ." It is usually the result of a "perfect storm": high metabolic demand, environmental stress (like heat), and a physical barrier—like the gut or skin—that has been weakened.

As the industry moves towards antibiotic free production, the pressure is on to find sustainable ways to keep flocks healthy. Modern broilers are like high-performance race cars; they grow incredibly fast, but their "internal cooling systems" (their immune response) can easily overheat and fail. Strategic immunomodulation is the practice of fine-tuning these defenses so the bird can fight off challenges without losing its edge in growth and performance.

How a Bird's "Immune System" Works?

To understand how to help a bird, we must understand its three layers of defense:

The Physical Barrier: The skin and the gut lining. Think of this as the "city wall." If the gut is damaged by poor feed or toxins, the wall crumbles.

Innate Immunity (The First Responders): These are cells like macrophages that patrol the body. They don't need a specific target; they attack anything that doesn't belong. They act within minutes of an infection.

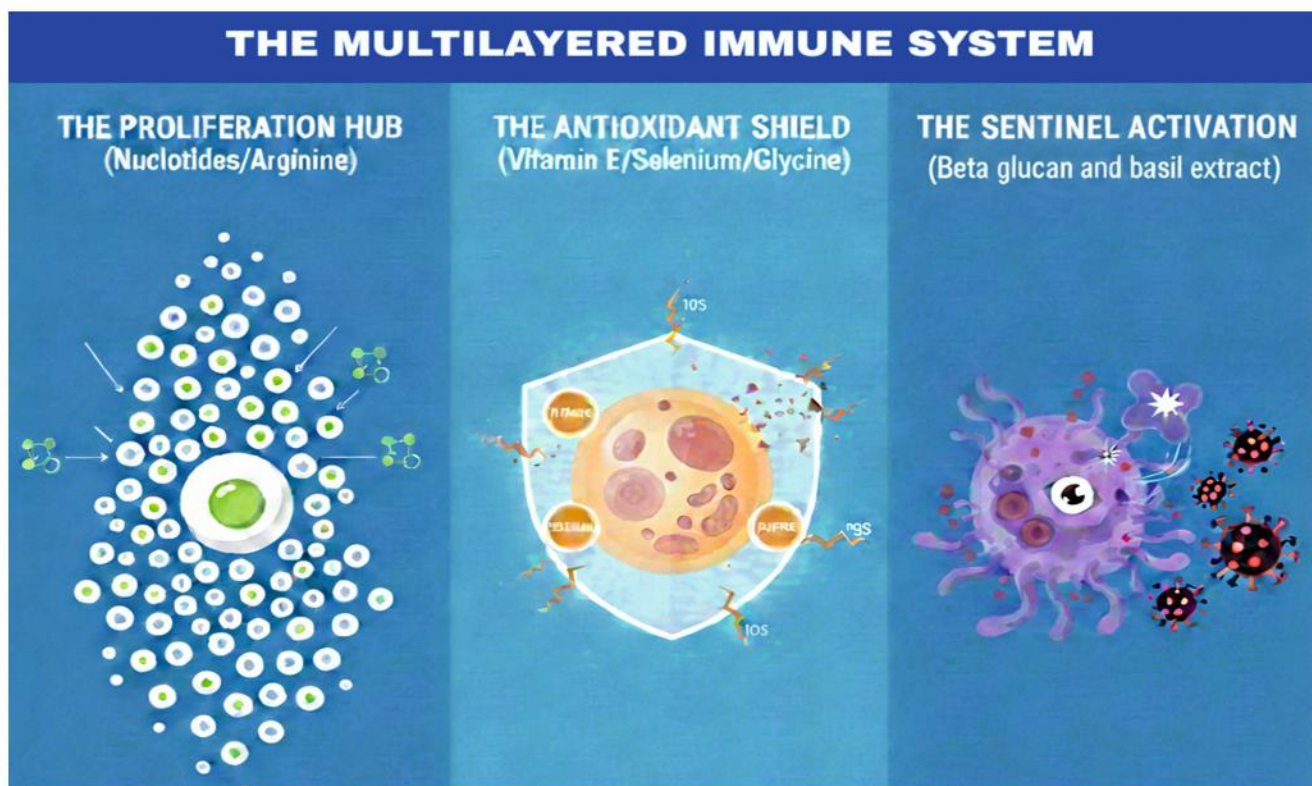


Illustration shows the mode of action of nutraceutical components module the multilayered

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Adaptive Immunity (The Specialized Forces): This includes B-cells and T-cells. They learn to recognize specific threats (like a specific virus) and remember them for the future. This is the biological "memory" that makes vaccines work.

Why Do Birds Get Infected?

Birds aren't always at 100% strength. Several factors can crash their "security system":

- 1. Oxidative Stress:** When a bird is stressed, it produces "free radicals"—unstable molecules that damage healthy immune cells.
- 2. Nutrient Diversion:** If a bird is growing at its maximum limit, it often "borrows" nutrients intended for the immune system to build muscle instead.

Environmental Pressure: Heat stress and poor air quality act as a constant drain on the bird's energy reserves.

What is the Suitable Nutraceutical Approach for Better Immunomodulation?

Beyond stringent biosecurity protocols, comprehensive immunization schedules, and balanced nutritional regimens, the strategic supplementation of immunomodulatory nutraceuticals is of paramount importance. Recent empirical studies have elucidated the potent immunomodulatory roles of various bioactive

Component	Mode of Action (How it Works)
Yeast Nucleotide	Acts as the building blocks for DNA/RNA. They accelerate the rapid proliferation of lymphocytes (white blood cells) during an infection, ensuring a faster response.
Beta Glucan	Functions as a "biological response modifier." It binds to specific receptors (Dectin-1) on macrophages, "priming" them to be more alert and effective at killing pathogens.
Vitamin E	A potent antioxidant that protects the lipid membranes of immune cells from oxidative stress, ensuring the cells remain intact and functional during an inflammatory flare.
Yeast Selenium	Incorporated into selenoproteins (like glutathione peroxidase) which neutralize free radicals, preventing damage to immune tissues and enhancing antibody production.
Arginine & Glycine	These amino acids serve as precursors for Nitric Oxide (NO) and glutathione. NO is a critical weapon used by macrophages to destroy invading bacteria.
Betaine	Acts as an osmoprotectant, keeping immune cells hydrated and stable under heat or metabolic stress, allowing them to continue their surveillance uninterrupted.
Basil Extract	Contains phytochemicals (like eugenol) that modulate cytokine production, helping to reduce excessive inflammation while stimulating the activity of Natural Killer (NK) cells.

compounds, including yeast nucleotides, beta-glucans, and specific micronutrients such as Vitamin E and organic yeast-derived selenium. Furthermore, functional amino acids—specifically glycine, arginine, and betaine—alongside botanical derivatives like basil extract, have been identified as critical mediators in enhancing systemic immune competence.

Field Evidence: Proving the Concept

A field trial conducted on Vencobb 430Y Commercial Broilers compared a control group, immunomodulator formulated based on yeast nucleotides, beta-glucans, and specific micronutrients such as Vitamin E and organic yeast-derived selenium. The result showed that better immunity led directly to better profits.

Parameters	Control	Immunomodulator	Impact
Body Weight (g)	2273g	2299g	+26g Increase
FCR (Feed Conversion)	1.43	1.37	Significant Efficiency Gain
Mortality (%)	2.31%	1.19%	~50% Reduction
Blood Glucose (mg/dL)	364.83	186.75	Better Metabolic Stability
Hemoglobin (mg/dL)	11.63	12.26	Improved Oxygen Transport
EEF (Efficiency Factor)	445.79	474.28	Superior Overall Performance

What does this tell us?

The significant drop in mortality and the improvement in FCR suggest that birds on formulated immunomodulators weren't just "surviving"; they were thriving. The lower glucose levels indicate a more efficient use of energy, and the higher hemoglobin suggests better overall physiological health.

Conclusion

Immunity is not an "on or off" switch. It is a complex balance that requires constant support. The trial data proves that when we support the immune system through multiple pathways—protecting cells, improving signalling, and providing building blocks—the birds reward the producer with lower mortality and better feed efficiency.

Formulated immunomodulator represents the shift from reactive medicine to proactive resilience. By strengthening immunity where it matters most, we ensure that poultry production remains sustainable, profitable, and antibiotic-responsible.



Dr. Jayanta Bhattacharyya
Director - Techno-Commercial

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SWISS VITAMIN - E

SWISS VITAMIN - C

SWISS VITAMIN - K

SWISS VITAMIN - D2

SWISS VITAMIN - B2

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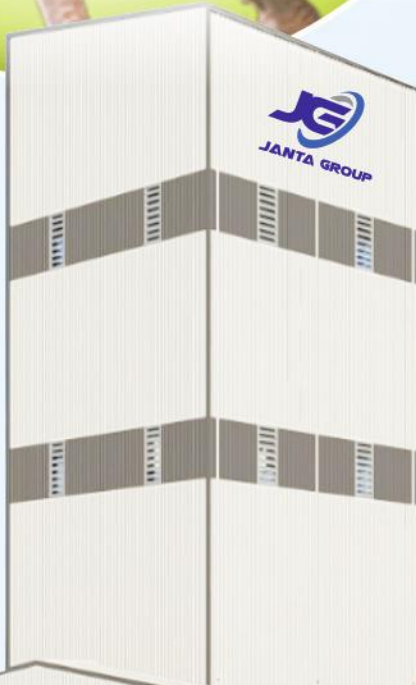
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International Layer Distribution GmbH (ILD), part of the EW Group, Germany, a global leader in animal genetics, today announced the incorporation of Lohmann Layers India Private Limited (LLI), reaffirming its long-term commitment to the rapidly expanding Indian poultry and layer industry.

EW Group is a global, family-owned agribusiness headquartered in Germany, operating across the poultry and animal nutrition value chain. With activities spanning genetics, breeding, nutrition, and food, the Group focuses on sustainable, science-driven solutions and long-term partnerships to support efficient and responsible animal production worldwide.

Lohmann Layers India Pvt. Ltd. has been established as an Indian subsidiary of International Layer Distribution (ILD) to strengthen Lohmann's presence in India through direct engagement with the layer industry and farmers. The company will focus on delivering world-class layer genetics aligned with Indian farming conditions, while ensuring reliable, efficient, and pan-India distribution of Lohmann Layer genetics.

India's poultry sector is witnessing strong structural growth, driven by population expansion, increasing urbanization, and growing awareness of protein-rich diets. Per capita egg consumption continues to rise, with eggs emerging as one of the most affordable, reliable, and hygienic sources of high-quality protein.

With these strong fundamentals, the Indian layer poultry sector is expected to grow significantly in the coming years, representing only the early phase of India's poultry growth journey. As egg quality and farm profitability become increasingly critical for layer farmers, Lohmann's genetics—recognized globally for superior egg quality, long laying cycles, and excellent feed-to-egg conversion—offer a strong foundation for sustainable and profitable egg production in India.

As part of this strategic development, Lohmann Layers India Pvt. Ltd. has taken over JK Breeders Pvt. Ltd. (JKB) and will now manage the commercial distribution of Lohmann Layer Day Old Chicks (DOC) across India. This transition ensures continuity of supply, improved customer engagement, and enhanced operational efficiency for poultry farmers and enterprises nationwide.



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With Lohmann Layers India Pvt. Ltd. directly managing commercial DOC distribution, the company aims to work more closely with Indian layer farmers, ensuring consistent access to genetically improved, high-quality chicks supported by Lohmann's global breeding expertise and technical excellence.

Commenting on the development, **Mr. Antonio Paraguassu, Managing Director - ILD Asia, Australia, & Director - Lohmann Layers**, said: *"India is one of the world's most important and fastest-growing poultry markets. The establishment of Lohmann Layers India Pvt. Ltd. reinforces our long-term commitment to Indian farmers. By combining proven genetics, consistent supply, and technical excellence, we aim to support sustainable and profitable egg production across the country."*

Adding to this, **Dr. Surendra K. Jangir, Managing Director - India, Lohmann Layers**, said: *"The formation of Lohmann Layers India Pvt. Ltd. reflects Lohmann Layers' broader vision to deepen market engagement in India, invest in breed development suited to Indian production systems, and build strong, long-term partnerships across the poultry value chain."*

He further added: *"Aligning with the vision of the Hon'ble Prime Minister of India, Shri Narendra Modi, to double farmers' income, Lohmann Layers India Pvt. Ltd. is committed to improving the profitability of Indian layer farmers by providing world-class genetics, reliable supply, and strong technical support, enabling better productivity and long-term economic sustainability."*

About Lohmann

Lohmann is one of the world's leading layer genetics companies under the EW Group, Germany, specializing in the development, breeding, and global supply of high-performance layer strains. With decades of scientific expertise and innovation, Lohmann focuses on genetic progress, animal welfare, sustainability, and profitability for egg producers worldwide. Lohmann supplies layer genetics (GP/PS) to customers in more than 100 countries.

About International Layer Distribution (ILD)

International Layer Distribution (ILD), part of the EW Group, is responsible for delivering EW Group layer genetics from breeding programs to commercial layer farmers (GP/PS commercial levels). ILD serves as a vital link between genetics and the commercial poultry industry, ensuring consistent supply, quality assurance, technical support, and customer service worldwide.

About Lohmann Layers India Pvt. Ltd. (LLI)

Lohmann Layers India Private Limited (LLI) is the Indian subsidiary of ILD and has been established to manage and strengthen the commercial distribution of Lohmann Layer Day Old Chicks (DOC) across India. LLI is responsible for pan-India commercial DOC distribution, aligning global Lohmann genetics with Indian farming conditions and requirements. The company is committed to supporting Indian poultry farmers through reliable supply, localized solutions, and long-term partnerships.

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Legend SERIES 25

In our journey we visited many faces with our poultry Sector legends, and one among them is

Mr. Selvan Kannan
Value Consultants

1. Are you originally from Hyderabad?

Yes, I was born in Hyderabad and educated in Bengaluru, Agra, Jodhpur, Pune, and Hyderabad. My father served in the Indian Air Force, which gave me the opportunity to travel extensively across the country. I finally settled in Hyderabad in 1980 and have been based here ever since.

2. What is the best aspect of your journey?

The most rewarding aspect of my journey has been the opportunity to continuously learn, lead, and introduce global best practices to India's livestock and poultry sector.

Over the years, I have strengthened my professional expertise through more than 14 international programs, including qualifying as a Sales Trainer from Gustav Käser Training International. I have been associated with the Poultry Federation of India from its early days and also continue to serve for over 22 years as Executive Council Member (South) of the Poultry Federation of India, and served as Ex-General Secretary of the India-Netherlands Business Association. I have actively participated in the industry activities at CLFMA (Compound Livestock Feed Manufacturers Association), past member of INFAH (Indian Federation of animal health companies)

I currently volunteer with PUM Netherlands, supporting Indian SMEs, and serve as a committee member of the Federation of Telangana and Andhra Pradesh Chambers of Commerce and Industry. I am also a permanent trustee of India Rising Foundation- a 1000 crore donor enabled fund to support research development and innovation as a non-profit organisation, I am a Qualified Independent Director certified by the Institute of Directors India, I am a professional moderator enabling several events on techno-commercial topic specifically related to our industry. I have also represented the Indian poultry industry at Wageningen University, the Netherlands, in a round table conference on Indian Poultry industry.

Some of the highlights of my career have been introducing global innovations to India, beginning with Rhône Mérieux's Imequil in 1982 and the Virkon range from Antec International in 1984. In 1989, I supported the launch of Bovans layers and Hypeco broilers. As GM at Pioneer Group, I was among the first to export table eggs from

Hyderabad to the Middle East and later shifted to Namakkal. Among the first to start large scale Hybro broiler integration in Tamil Nadu. In 2003, I am the founding Director of Trouw Nutrition to India (for 15 years) and in 2018 became a founding member of Noveltech Feeds Pvt. Ltd. (A Goldman Sachs company),

Looking back, I feel satisfied to have introduced many firsts in the industry that has contributed in its own small way in this humongous Poultry business.

Looking back on more than 40 years, building institutions, nurturing partnerships, and raising industry standards has been the most fulfilling part of my journey.

3. What motivates you the most in this journey?

Even after more than four decades, there is still immense scope for improvement in areas such as biosecurity, genetics, nutrition, and feed safety. This continuous opportunity to improve motivates me every day.

Extensive travel has also enriched my journey, allowing me to experience different cultures, learn languages, and build strong people-to-people relationships across the globe.

4. Why did you choose poultry or livestock?

My career began in 1980 with a business of Premixes at Rakshak Farm Aids Pvt. Ltd. Seeing the positive impact of these products on farmers' productivity and livelihoods gave me immense satisfaction. Their success and happiness motivated me to continue in this field and work towards improving the conditions of Indian farmers.

5. How does your organization differ from other major players in the industry?

With the experience gained over several decades, I founded Value Consultants in 2022 to support farmers and the animal health industry through international procurement, exports, and technology transfer.

Value Consultants acts as a bridge between India and global markets, helping introduce innovative products and companies. We also assist international firms with concept-to-commissioning projects in India. Additionally, we offer free guidance to small and medium enterprises, provide access to technology and subsidies, and conduct customized professional training programs.



We actively support the industry through sponsorships and partnerships with key sector organizations.

6. Please tell us about your family

I have been happily married to my wife for 34 years, and we are blessed with two children—a son and a daughter. I also have three siblings, and we come from a proud defence family, with my father having served in the Indian Air Force and my brother in the Indian Army.

7. What do you believe will help your organization become a leader in the livestock industry?

We are focused on developing the next generation of professionals through tailored training programs. Our goal is to raise Indian industry standards to global levels by introducing innovative technologies and high-quality feed additives manufactured in India. We strongly believe in the concept of Atmanirbhar Bharat and fully support Indian manufacturers to explore an established export markets and look for joint ventures with technically advanced collaborators.

By investing in people, knowledge, and quality systems, we aim to position India as a strong global player in the livestock sector.

8. What is your dream for the next generation entering this business?

Eggs, meat, and milk are essential components of human nutrition and have no real substitutes. The growth of this industry is directly linked to human health.

The next generation must focus on “safe nutrition” by producing products free from antibiotics, anti-nutritional

factors, and harmful chemicals. Quality must take priority over quantity.

There is immense potential in research, innovation, and the use of AI in genetics, nutrition, and farm management. I hope young professionals will explore these opportunities responsibly and ethically.

India holds the potential of becoming the future food basket of the world.

9. What is your favourite food?

Having travelled extensively to more than 25 countries, I've had the opportunity to experience many different cuisines, and I truly enjoy exploring new cultures through food. At the same time, I deeply appreciate simple, wholesome meals—especially dishes made with eggs, chicken, and fresh vegetables. They reflect both my love for good taste and my belief in balanced, nutritious living.

Indian cuisine is incredibly vast, with countless ways of preparing chicken. My personal preference is for healthy preparations that retain the food's natural flavour and nutritional value, rather than dishes overloaded with masala and spices. For me, good food is about balance, freshness, and respect for the ingredients.

10. What are your hobbies?

I enjoy drawing, painting, and writing and publishing articles. I also have a deep interest in spiritual studies and am a Grandmaster in Reiki. I enjoy exploring the Vedas, Puranas, Upanishads, cultural texts, and yoga, as they help me stay grounded and balanced. Travelling is another passion of mine, and I especially love driving and going on long road trips, which give me time to reflect and recharge.

11. Is there anything you would like to add?

India has made significant progress in egg, milk, and meat production in terms of volume, but there is still a considerable gap in quality. However, there is strong potential to better the standards through the adoption of advanced technology and greater industry awareness. As these are essential food products, safety and quality can never be compromised.

Upgrading genetics, feed, and farm management practices will help the industry achieve global benchmarks and open doors to major export opportunities. At present, branding and value addition in meat, milk, and eggs remain abysmal, and addressing this gap is critical for long-term growth and international competitiveness.



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Poultry Consultants Delegation Visits Stallen South Asia Manufacturing Facilities



A delegation of poultry consultant doctors from Andhra Pradesh and Telangana recently visited the advanced manufacturing facilities of Stallen South Asia Pvt. Ltd. in Palghar, Maharashtra. The visit included a tour of the Feed Additives Manufacturing Plant at Chahade and the Therapeutics and Formulations Manufacturing Unit at Vevoor. The purpose of the visit was to gain an understanding of modern practices in animal health and nutrition. The delegation included Dr. Sreenivas, Dr. Ramachandra Reddy, Dr. Shyam Bobde, Dr. Karnakar, Dr. Sai Teja, and Dr. Rajesh. They were warmly welcomed by the Stallen team and were given detailed information about the company's manufacturing processes, quality control systems, and new developments.

Stallen's Chahade facility is recognized for world-class infrastructure and manufacturing excellence, producing a wide range of feed additives and supplements for poultry and cattle, including antibacterial and mycoplasma treatments, dewormers, mineral supplements, toxin binders, acidifiers, anticoccidials, water sanitation, fly control products, and disinfectants.

The Vevoor (Palghar) unit manufactures general therapeutics and beta-lactam formulations under advanced GMP-compliant systems, serving domestic and international markets in over 65 countries.

During the visit, meaningful interactions were held with Dr. Amit Janbandhu (Product Manager - Nutrition), Dr. Kishor Gedam (Product Manager - Therapeutics), Mr. Rajendar Joginapally (RSM), Mr. Vijaykumar Menon (Factory Manager - Artevet LLP, Chahade), and Mr. Sunil Sonwane (Factory Manager - ATPL, Palghar).

They shared valuable information about Stallen's rich legacy since its founding in 1992 by Late Shri A.B. Parikh,

the company's strong global presence across North America, Europe, the Middle East, Asia, and Australia, its strategic collaboration with FATRO, Italy, for vaccine distribution in the Indian subcontinent. The team also highlighted that the Vatva, Gujarat facility manufactures Halquinol 98% as a high-purity chemical API a non antibiotic growth promoter produced in strict compliance with BP 80 (British Pharmacopoeia 1980) standards. This high grade product is supplied for veterinary formulations and feed additives, alongside the commonly used 60% and 12% variants.

We sincerely thank the poultry consultant delegation for their visit and for appreciating our hospitality, transparency, and quality-driven approach. This visit further reinforces our continued dedication to veterinary innovation, regulatory compliance, and global excellence.





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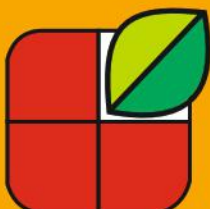
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OvoLogger™ by Petersime: The intelligent Egg data Logger



Petersime's cloud-based Eagle Trax™ hatchery software enables hatcheries to digitize, analyse and optimally use the valuable data they have available. With the launch of OvoLogger™, the company takes it one step further by presenting a device that logs vital data on the conditions experienced by the hatching eggs in all production phases. For the first time, hatchery managers can consistently acquire and analyse egg data without gaps, allowing data-based optimization of their production.

Hatcheries are dependent on breeder farms and logistics partners to preserve the genetic potential of the product they source, the hatching eggs. From oviposition until incubation start, the eggs need to be kept in optimal conditions. *“However, hatchery managers have no visibility into the egg storage conditions at the breeder farm and during transport. This blind spot can leave them struggling to gain insight into the causes of a disappointing hatch,”* explains Rudy Verhelst, Business Development Manager at Petersime. *“In answer to this challenge, Petersime has developed the OvoLogger™, an intelligent egg data logger that provides an easy way to get an overall picture of the conditions experienced by the eggs prior to incubation.”*

With OvoLogger™, Petersime presents the industry's first intelligent egg data logger that provides the ability to consistently collect vital data on the conditions experienced by the hatching eggs from breeder farm through to hatchery. Quick to set up, the OvoLogger™ logs the air temperature, humidity level and shock exposure history per egg batch along the entire breeder-farm-to-hatchery timeline.

Gathering data about relevant parameters is only half the job. The other half is having a set-up that allows hatchery managers to analyse the data effectively and efficiently. Petersime's solution covers both: At the end of the data acquisition period, the data is easily offloaded to the Eagle Trax™ software and available for further analysis. If the causes of a disappointing hatch are unclear, Eagle Trax™ allows to perform a batch-specific analysis to gain deeper insights into what went wrong. Alternatively, Eagle Trax™ can also issue a warning if the

values recorded by OvoLogger™ deviate from a pre-defined acceptable bandwidth, providing the option for incubation program adjustments before loading the setters and enabling quick responses to anticipate on lower chick numbers if needed.

The invention of the OvoLogger™ is an important step forward in allowing greater transparency between all parties involved. Improper egg storage or transport can be clearly localized and identified. Areas of improvement can be much more easily communicated to breeder farms and logistics partners. Petersime's Eagle Trax™ software currently consists of five powerful modules and new releases mark its continuous evolution, each bringing new features and functionalities. For more information, go to www.petersime.com.

About Petersime

Petersime provides world-leading incubators, hatchery equipment and turnkey hatcheries aligned with the expertise and support to maximize return on investment. For over 100 years, Petersime's mission has been to use nature as a reference to continue perfecting the incubation process and help customers reach maximum performance. Additionally, Petersime leads the way in the optimization of the poultry value chain through the use of big data. Headquartered in Belgium and with Regional Centers on strategic locations, Petersime's incubators, hatchery solutions and services are available worldwide.



Petersime's OvoLogger™ helps to gain visibility into an important poultry value chain blind spot: the conditions experienced by hatching eggs before incubation.



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LUMIS ENZYMES

AT IPPE, ATLANTA, USA

The International Production & Processing Expo (IPPE), Atlanta, USA, once again proved to be a resounding success, highlighted by the largest trade show floor in the event's history and bringing together industry leaders from across the globe.

Lumis Enzymes marked a successful and impactful participation at IPPE, reinforcing its growing presence in the global animal nutrition industry. The exhibition provided an excellent platform for Lumis Enzymes to showcase its innovative enzyme solutions and engage with industry professionals across the animal feed sector.

Lumis Enzymes' booth drew strong interest from nutritionists, integrators, feed producers, and other

industry professionals. Lumis presented insights from its latest global research and application developments, demonstrating its extensive R&D capabilities, worldwide field trials, and practical implementation expertise. The company highlighted how its enzyme solutions deliver quantifiable improvements in feed efficiency, nutrient utilization, and animal performance across diverse production systems.

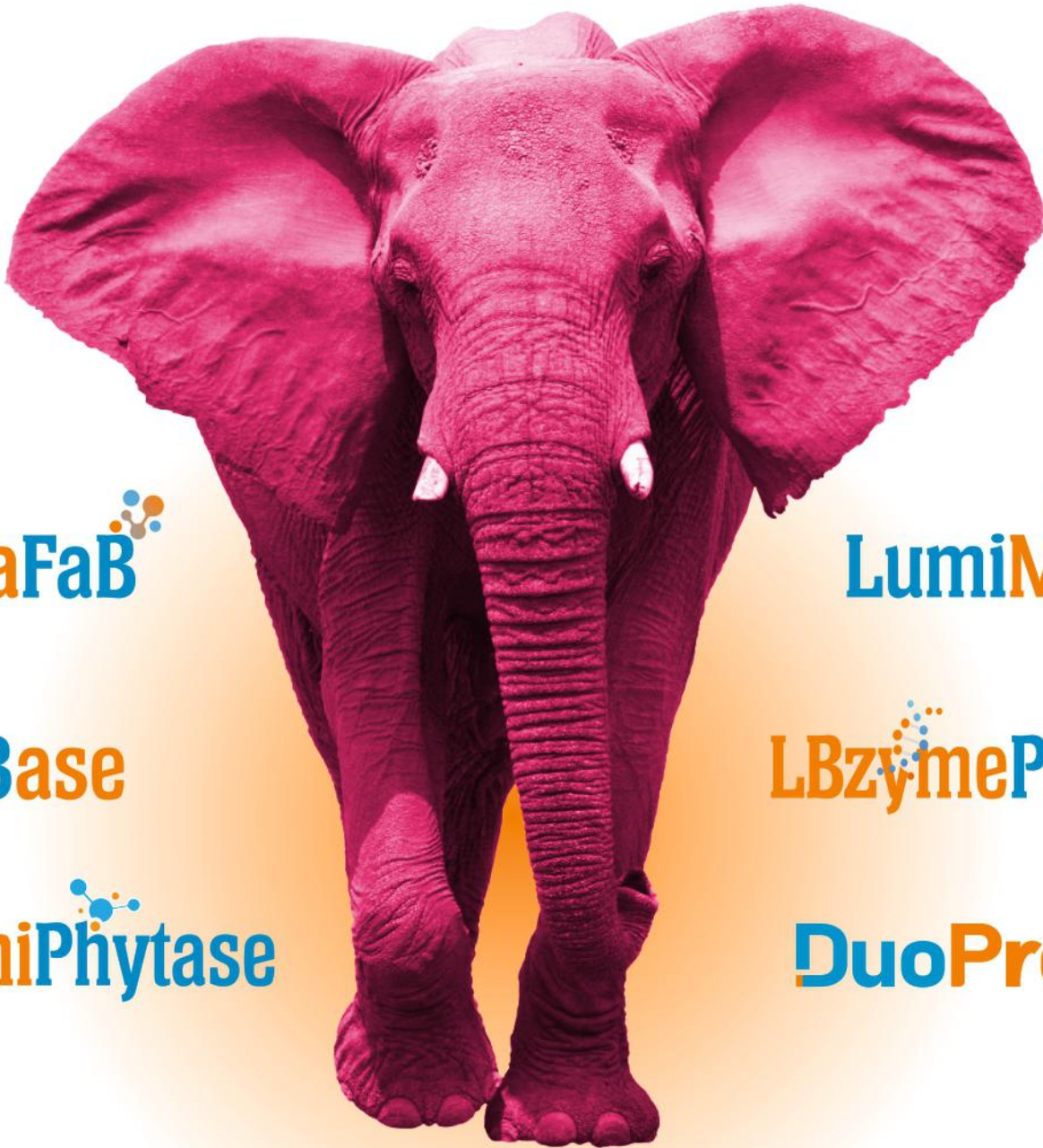
Reflecting on the event, Lumis Enzymes' successful participation at IPPE underscores the company's dedication to supporting the animal nutrition industry with effective, sustainable, and performance-focused solutions.



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A Sign of Togetherness

New Appointment



AB Vista, a leading global supplier of innovative feed ingredients and technical services, is delighted to welcome Mr Santu Nandy as our new Sales Manager for East India.

With more than 22 years of experience in the sales industry, he has built a strong track record of driving commercial growth and supporting clients across the poultry sector. His career progression from Sales Executive to Sales Manager reflects his strategic mindset, deep market understanding, and commitment to delivering practical, value-driven solutions.

In his new role, he will lead AB Vista's commercial activities in East India, working closely with our distributors, regional and global teams to strengthen customer support and expand our market presence.

He holds a Bachelor of Arts degree from Calcutta University.

Mr. Santu Nandy

Sales Manager - East India

AB Vista

E: santu.nandy@abvista.com.

M: +91-9635583129

सैंट्रल हरियाणा पोल्ट्री फार्मर्स एसोसिएशन द्वारा मासिक मीटिंग का आयोजन

सैंट्रल हरियाणा पोल्ट्री फार्मर्स एसोसिएशन, करनाल द्वारा दिनांक 25 जनवरी 2026 को होटल येलो सफायर, करनाल में मासिक मीटिंग का आयोजन किया गया। श्री सुभाष नरवाल, प्रेजीडेंट, सैंट्रल हरियाणा पोल्ट्री फार्मर्स एसोसिएशन ने आए हुए सभी फार्मर्स का स्वागत किया।

श्री सुरिन्द्र भुटानी, सेक्रेटरी, सैंट्रल हरियाणा पोल्ट्री फार्मर्स एसोसिएशन ने सभी फार्मर को संबोधित करते हुए कहा कि अण्डे का रेट ऑल टाइम हाई से एकदम नीचे आने का कारण ट्रेडर्स की साजिश है। हमें उम्मीद दें कि यह रेट आने वाले समय में फिर से मिलेगा और लम्बे समय तक चलेगा।

श्री सुरिन्द्र भुटानी ने फार्म पर समय समय पर किए जाने वाले जरूरी कार्यों के बारे में भी बताया और कहा कि फार्म पर बायोस्क्रियोरिटी का पूरा ध्यान रखें और किसी बाहरी व्यक्ति को फार्म के अन्दर जाने से सख्ती से रोका जाना चाहिए। उन्होंने कहा कि कमजोर बायोस्क्रियोरिटी के कारण फार्म पर तरह तरह की बीमारियां आती हैं और इस कारण फार्मर का बहुत नुकसान होता है। अंत में श्री नरवाल ने आए हुए सभी फार्मर्स भाइयों का तहेदिल से धन्यवाद किया और एसोसिएशन के मेंबर्स को नवीन सलूजा, नितेश जूनेजा, वरुण अरोड़ा व दिनेश कुमार अरोड़ा को सम्मानित किया।



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Misinformation about Hormone Use in the Poultry Industry Scientific Facts vs Myths

¹Dr. Dibyendu Kumar Dey, ²Dr. Nagesh Sonale

¹1. Introduction: origin and persistence of the hormone myth

One of the most widespread misconceptions surrounding poultry meat and eggs is the belief that growth hormones are routinely used in the poultry meat and egg industry to increase body weight, accelerate growth, or enhance egg production. This misconception persists despite enormous scientific evidence and strict regulatory bans across major poultry-producing countries. Consumer perception studies conducted in Asia and Europe report that 70-90% of respondents believe hormones are added to broiler chickens and laying hens, often associating poultry meat and eggs with health risks such as early puberty, hormonal imbalance, and cancer (Karasu & Öztürk, 2021; Verbeke et al., 2010). Unfortunately, this misunderstanding is amplified by misleading media narratives and the misinterpretation of naturally occurring hormones present in all living organisms. Both chicken meat and eggs naturally contain trace levels of endogenous hormones, but these are produced by the birds themselves and are not the result of external hormone administration (Courtheyn et al., 2002).

This misinformation negatively impacts consumer trust, poultry farmers, and allied industries while diverting attention from genuine food safety issues such as nutrition, sustainability, and antimicrobial resistance. International authorities including the FAO, WHO, FDA, and European Commission have repeatedly clarified that neither broiler chickens nor laying hens are given growth or production hormones (FAO/WHO, 2011; FDA, 2023). Addressing this myth with evidence-based communication is essential for informed consumer choice and public confidence in the poultry meat & eggs.

2. Scientific reality: hormones are not used in poultry meat or egg production

From a biological, practical, and economic standpoint, the use of hormones in poultry

meat or egg production is neither effective nor feasible. Comprehensive scientific reviews confirm that no hormone products are approved or used in broiler chickens or commercial laying hens (Esquivel-Hernández et al., 2016). Unlike cattle, poultry have a very short production cycle, and their endocrine systems respond poorly to externally administered growth hormones. Experimental studies evaluating somatotropin and steroid hormones in

24chickens have consistently shown no significant improvement in growth rate, feed efficiency, or egg production (Scanes, 2009). In laying hens, egg production is regulated by tightly controlled physiological mechanisms involving the hypothalamic pituitary gonadal axis, which cannot be manipulated safely or effectively through exogenous hormone supplementation (Johnson, 2015).

In this all controversy, even if protein-based hormones were administered, they would be degraded during digestion, making oral delivery ineffective, while injection is impractical in commercial systems housing thousands of birds (Esquivel-Hernández et al., 2016). Moreover, hormone compounds are expensive and incompatible with the low-margin economics of poultry and egg production. As a result, no scientifically rational or commercially viable pathway exists for hormone use in poultry sector.

2.1. Regulatory Prohibition of Hormone Use in Poultry Production

Regulatory agencies reinforce this reality. The U.S. FDA explicitly states that hormones are not permitted in poultry

or egg production, and no hormone-based drugs are approved for laying hens (FDA, 2023). Similarly, the European Union banned growth hormones in food animals decades ago, with strict monitoring programs ensuring compliance (European Commission, 2018). These regulations apply equally to meat- and egg-producing birds.

3. Genetics, nutrition, and management: the true drivers of broiler growth and egg production

The enhanced productivity of today's broilers and laying hens is the result of decades of systematic genetic selection, supported by precision based nutrition and advanced management practices, rather than hormone use. Early evidence for this genetic progress was demonstrated by Havenstein et al. (2003), who showed that modern broilers reach market weight nearly twice as fast as birds from the 1950s when fed the same diets, clearly confirming that genetics, not hormones driven growth improvements. Over successive generations, selective breeding programs have focused on birds with superior growth potential and efficient feed conversion ratio (FCR), enabling higher body weight gain from less feed consumption. Continued genetic selection has subsequently enhanced muscle fibre deposition efficiency, particularly in the breast muscle, leading to higher lean meat yield. These improvements are achieved using selection indices that integrate growth, efficiency, health, and welfare traits, ensuring sustainable productivity without compromising biological integrity (Havenstein et al., 2003; Zuidhof et al., 2014; Scanes, 2009).

Similarly, long term genetic selection has improved egg number, shell quality, and feed efficiency in laying hens, allowing modern layers to produce over 300 eggs per year without compromising health (Hunton, 2005).

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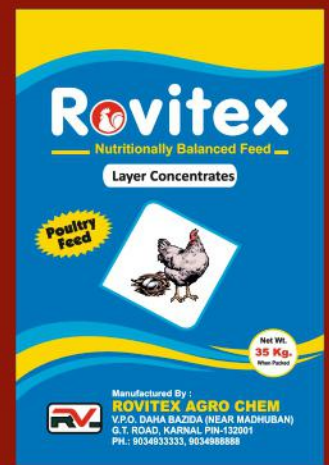
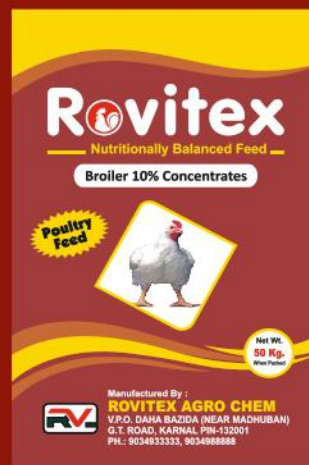
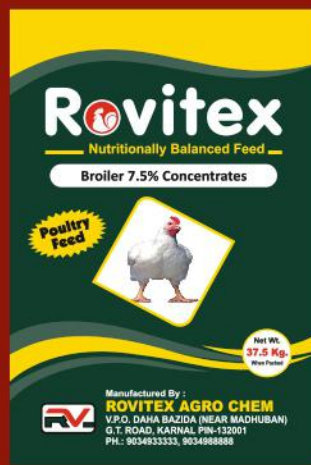
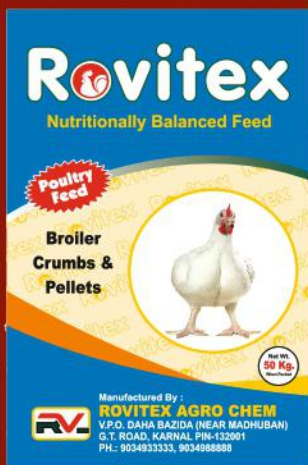
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These genetic gains are supported by precision based nutrition, with carefully balanced diets optimizing growth, reproduction, and egg production (Leeson & Summers, 2001; Pattison et al., 2008). In parallel, advancements in housing systems, automation, biosecurity, and environmental management have further enhanced bird welfare and productivity, collectively explaining modern poultry performance without the use of hormones.

4. Hormones in poultry meat and eggs: scientific context and safety

All animals, including poultry and humans, naturally produce hormones such as oestrogen, progesterone, and testosterone as part of normal physiology. Consequently, trace amounts of these hormones are naturally present in chicken meat and eggs, but they are not added externally (Stephany, 2010). These levels are extremely low and biologically insignificant when consumed. The FAO/WHO Joint Expert Committee on Food Additives (JECFA), during its evaluations of residues in foods of animal origin, concluded that naturally occurring hormone residues pose no health risk to consumers, including children and adolescents (FAO/WHO, 2011). Therefore, claims linking poultry meat or eggs to hormonal disorders lack scientific validity. Misleading marketing terms such as “hormone-free chicken/eggs” can unintentionally reinforce public fear by implying that hormones are normally used, when in fact they are legally prohibited (Verbeke et al., 2010). Clear, science-based communication is essential to correct this misunderstanding.

5. Role of social media in misinformation influencing Consumers psyche and its impact on poultry industry

In recent years, the rapid growth of social media has enabled the spread of unverified and misleading information, often driven by poorly informed influencers or non-expert online sources seeking digital attention through fear-based and sensational claims. Many people are aware that anabolic steroids are used by humans for bodybuilding or rapid muscle growth, and this awareness has led some influencers to wrongly associate various steroid use with the fast growth of broiler chickens. This misinformation has significantly influenced consumers especially household women and mothers who are responsible for family meals and concerned about their children's and family health, resulting in reduced broiler chicken consumption. In reality, broiler chickens are not grown using hormones or steroids. Their rapid growth is the result of decades of genetic selection, balanced and precise nutrition, and improved farm management practices. Thus, broiler growth is natural within genetic potential, not artificial or hormone-driven, underscoring the urgent need for science-based communication and digital literacy.

6. Conclusion:

The belief that hormones are used in the poultry meat or egg industry is scientifically incorrect, biologically implausible, and legally prohibited. Modern poultry and egg production rely on genetics (Selective Breeding), precision nutrition, health management, and environmental control not artificial hormones. Regulatory agencies worldwide strictly enforce these standards, ensuring food safety and consumer protection (FDA, 2023; European Commission, 2018). Continuing to spread hormone-related myths distracts from real challenges such as antimicrobial resistance, climate resilience, and sustainable production systems (WHO, 2017). Scientists, veterinarians, medicos, poultry industry allied professional and media professionals have a shared responsibility to communicate evidence-based facts clearly, responsibly and aware to public about rumours and misconceptions. By communicating accurate, evidence based information, stakeholders can first ensure that consumers are properly informed, which in turn builds trust and credibility for producers. Consequently, dismissing hormone related myths across the poultry meat and egg industries is essential for protecting public health, strengthening food security, and maintaining confidence on poultry industry.

¹Dr. Dibyendu Kumar Dey, ²Dr. Nagesh Sonale

¹Executive Director, Immeureka Animal Health Pvt. Ltd.

²Techno-Commercial Manager, Immeureka Animal Health Pvt. Ltd.

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India ranks as the world's third-largest egg producer and eighth-largest meat producer. The sector's ongoing modernisation efforts have been significantly enhanced by Embrex® Inovoject® devices, which we introduced seven years ago with installations among leading customers. In-ovo immunization offers biological and commercial advantages over subcutaneous vaccination, including up to 100% SOI (Site of Injection)¹ accuracy to chicken embryos at the age of 18 - 19 days of incubation, early immunity development, reduced bird stress, and optimized production outcomes. Research demonstrates that early placement facilitated by in-ovo vaccination improves bird health and producer profits².

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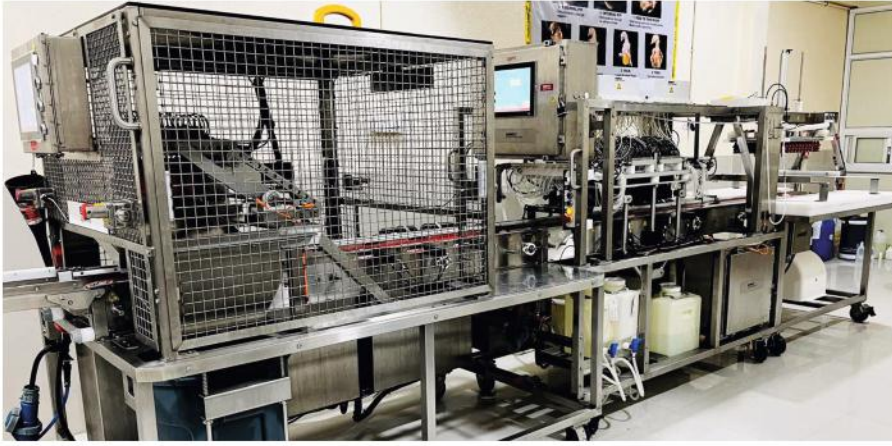
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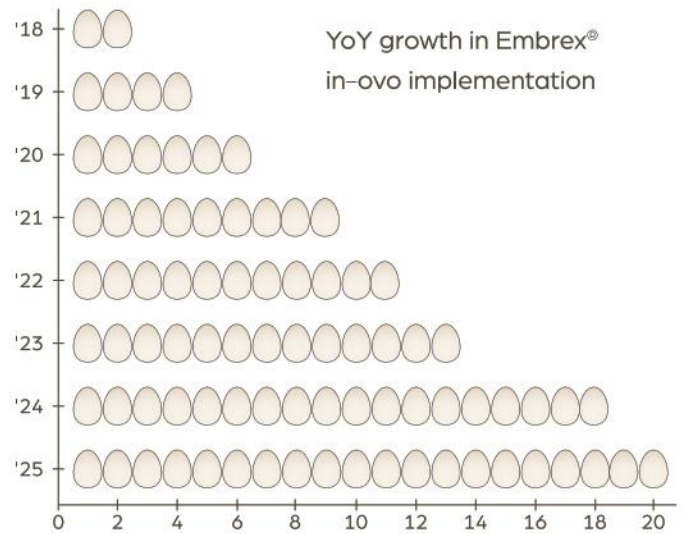
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Dr Renjith Nair, Business Unit Director, Poultry, Zoetis India



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References: 1. Avakian AP, Wakenell PS, Bryan T, Schaeffer JL, Williams CJ, Whitfill C. In ovo administration of Marek's disease vaccine: Importance of vaccine deposition site in the fertile egg. In Proceedings. 51st Western Poultry Disease Conference 2002; 119-121. | 2. Broiler performance improved with early placement, In-Ovo vaccination – Zoetis Technical Summary Article. | **As per Zoetis Data on File | All trademarks are the property of Zoetis Services LLC or a related company or a licensor unless otherwise noted. | ©2026 Zoetis Services LLC. All rights reserved. | Zoetis India Limited, 31, 3rd Floor, Katpataru Synergy Opp. Grand Hyatt, Santacruz (E), Mumbai-55



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Essence Natura Exhibits at IPPE 2026 in Atlanta, USA



Essence Natura, with its innovative photogenic products, successfully showcased its cutting-edge solutions at the IPPE 2026 exhibition in Atlanta, USA, from January 27-29. The company's participation was a resounding success, with a strong turnout of visitors from North, Central and South American countries.

The event provided a valuable platform for Essence Natura to connect with potential clients, partners and industry experts, generating significant interest in its product portfolio. The company received overwhelmingly positive feedback, with attendees praising its innovative approach and commitment to quality.

Key highlights of the exhibition included the establishment of new business leads, strategic partnerships and productive meetings with existing associates. The event also sparked exciting ideas for

future product development, further solidifying Essence Natura's position in the industry.

“We are delighted with the response to our participation in IPPE 2026,” said Dr Puneet Tripathi, Executive Director, Essence Natura Pvt Ltd. “The event exceeded our expectations and we are grateful for the opportunity to engage with our audience and showcase our expertise. We are excited about the new opportunities that have emerged and look forward to continued success and growth.”

Essence Natura's successful participation in IPPE 2026 has opened up new avenues for growth, collaboration and innovation, reinforcing the company's commitment to delivering exceptional products and services to its global clientele.





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DSM-Firmenich Inaugurates PoultrySafe Analytical Lab in Mohali to Strengthen Feed Safety in North India

dsm-firmenich

Mohali, February 3, 2026: Reinforcing its commitment to poultry health, feed safety, and farmer profitability, DSM inaugurated the PoultrySafe Analytical Lab on 3rd February 2026 at the premises of its channel partner, Mr Manoj Garg, Prop. M/s. M G Marketing, Mohali.

The facility has been established to benefit poultry farmers across North India, providing access to advanced, reliable mycotoxin testing services to safeguard feed quality and bird performance.

The lab was formally inaugurated by Mr Pradeep Yadav, Senior Vice President, Sampoorna Feeds, in the presence of senior representatives from DSM, including:

- Dr Tajdar Anwar - BM Poultry
- Mr Rohit Sethi - RSM, North East & Nepal.
- Dr. Sumeet Bagga
- Mr Manish Saini

Advanced Mycotoxin Testing Capabilities

The PoultrySafe Analytical Lab is equipped with advanced analytical technology to test for major mycotoxins affecting poultry health and productivity, including:

- Aflatoxins
- Ochratoxin
- Fumonisin
- DON (Deoxynivalenol)
- T-2 Toxin
- Zearalenone (ZEN)

Mycotoxin contamination remains one of the most critical hidden threats in poultry production, directly impacting feed intake, immunity, liver function, growth rate, egg production, and overall farm economics. With the establishment of this dedicated testing facility, poultry integrators, feed manufacturers, and farmers in North India can now access accurate, reliable, and timely analysis to make informed decisions about feed management.

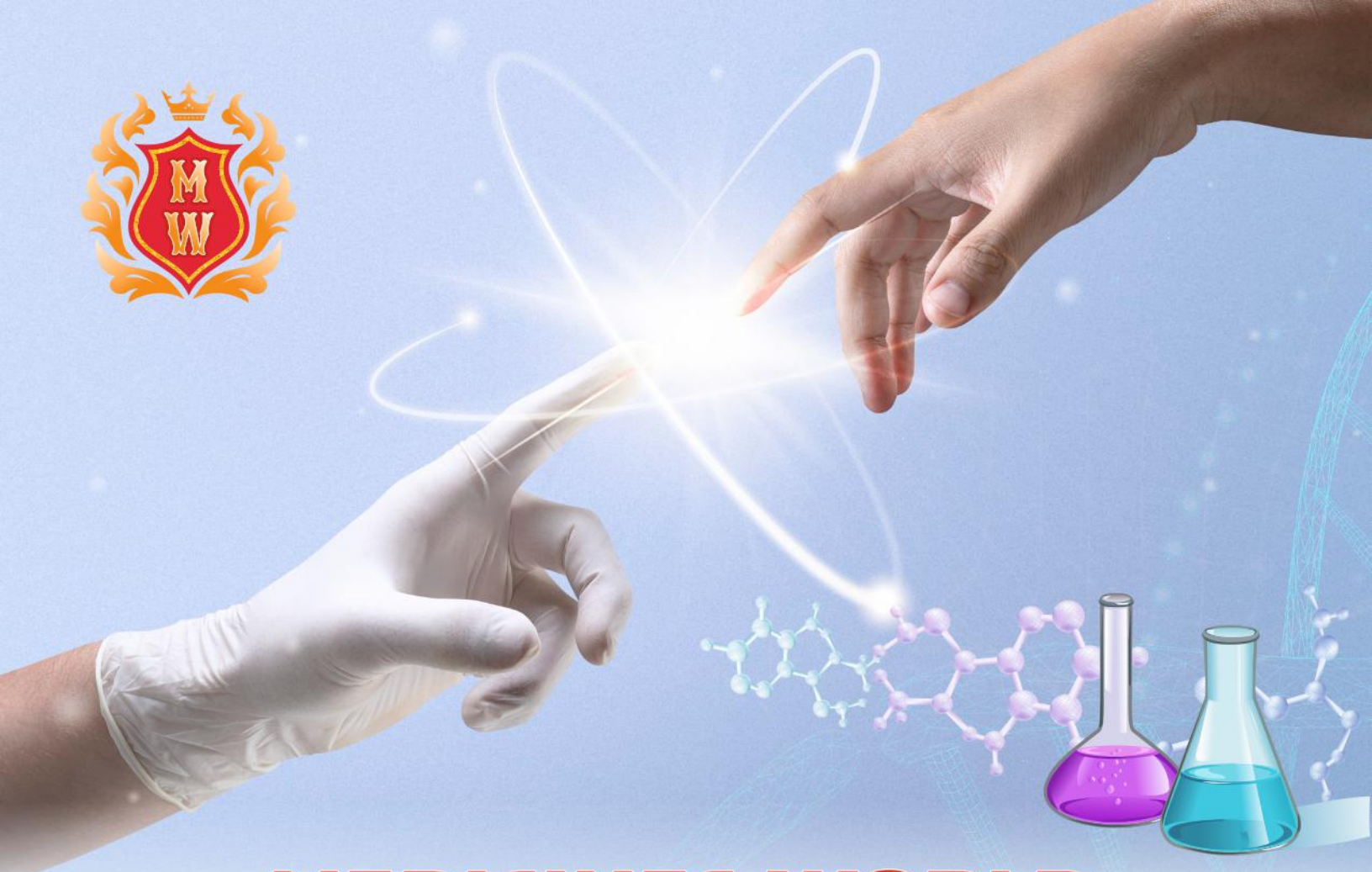
Commitment to Quality & Integrity

Speaking at the inauguration, Mr Rohit Sethi emphasised that the lab reflects DSM's ongoing focus on precision nutrition and risk mitigation through science-backed

solutions. By enabling early detection and quantification of mycotoxins, the PoultrySafe Analytical Lab aims to reduce production losses, enhance bird health, and support sustainable poultry farming practices.

The new facility is now operational and open to all poultry customers. DSM and Mr Manoj Garg, Prop. M/s. M G Marketing expressed its commitment to serving the poultry industry with quality, integrity, and technical excellence.





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The Role of Omphalitis in First Week Mortality of Poultry Chicks

¹Dr. Sayyed Mushtaque and ²Dr. Akash Wadal

INTRODUCTION

Omphalitis in poultry, or yolk sac infection, is a serious infection affecting the navel and yolk sac of newly hatched chicks, ducklings, or poults. It commonly occurs soon after hatching, especially in environments where sanitary conditions are poor or incubation management is suboptimal. Bacteria are the main culprits for this disease. The most common is *Escherichia coli*, responsible for about 70% of cases, but other types such as *Staphylococcus aureus*, *Salmonella*, *Streptococcus*, and *Enterococcus* can also cause Omphalitis. These bacteria infect chicks through an unhealed or improperly closed navel, allowing them to reach the yolk sac and multiply. Affected chicks start showing symptoms within the first few days post-hatching. Typical signs include lethargy, closed or mucus-covered eyes, poor appetite, and weak activity. Their abdomens often swell, some may struggle with diarrhea, and their navel might look scabbed or ooze liquid. Chicks may huddle under heat sources, avoid feed, and show stunted growth.

The term "mushy chick disease" comes from the noticeably soft, swollen appearance of infected chicks. This results from subcutaneous fluid buildup and the inflamed yolk sac inside their body cavity. If examined, these chicks often have a large, unabsorbed yolk sac that can release a foul odor due to the bacterial infection. Prevention remains the best strategy for controlling omphalitis. Good hatchery hygiene, careful control of incubation temperature and humidity, and proper egg cleaning help ensure the navel closes fully and remains uninfected. Sanitation of the brooding environment is equally important after hatching.

Etiology and Epidemiology

Omphalitis in poultry is predominantly caused by bacterial pathogens including *Escherichia coli*, *Staphylococcus aureus*, *Salmonella* species, and other bacteria such as *Streptococcus*, *Enterococcus*, *Pseudomonas*, and *Proteus* species. Numerous studies have identified *E. coli* as the leading causative agent, detected in 40 to 85% of cases depending on the farm conditions, followed by *Staphylococcus* and *Salmonella* species. Infection occurs primarily through the open or partially healed navel of newly hatched chicks, allowing bacteria from contaminated environments—such as soiled eggshells, hatchery equipment, or incubators—to invade the yolk sac. It is common for multiple bacterial species to co-infect individual chicks.

Several management and environmental factors increase susceptibility to omphalitis. These include poor regulation of incubation temperature and humidity, significant contamination of eggs, incubators, transport containers, and farm environments. Additionally, chilling or overheating during chick transportation or placement further exacerbates mortality risks. Inadequate nest cleanliness, the use of dirty floor eggs, and substandard breeder farm hygiene also predispose chicks to infection. Furthermore, insufficient sanitation and disinfection practices for hatchery tools and egg trays amplify the risk and spread of bacterial contamination.

Clinical Signs and Gross Pathology

- Clinical signs of omphalitis in poultry include observable symptoms such as a swollen abdomen, inflamed navel, lethargy, reduced weight gain, and abnormal yolk content. Affected chicks often appear listless, anorectic, and may huddle near heat sources due to weakness. On physical examination, the navel may show inflammation with wet spots or scabs, indicating an unhealed or infected state.

Pathogenesis	StageExplanation
Eggs laid in environment	Eggs can become contaminated with bacteria from feces, dirt, and nesting material.
Egg sanitation	Poor cleaning and disinfection allow bacteria to survive on eggshell surfaces.
Incubation conditions	Improper temperature and humidity can delay or prevent the chick's navel from closing, and increase moisture around the navel.
Hatching	Chicks hatch with an unhealed or partially healed (patent) navel.
Exposure to bacteria	Open navels come in contact with contaminated surfaces, such as dirty eggshells, hatchery equipment, incubators, and other infected chicks.
Bacterial entry and migration	Bacteria enter through the unhealed navel and migrate via the yolk stalk to infect the yolk sac.
Infection establishment	Bacteria multiply in the yolk sac causing inflammation and omphalitis.
Outcome	Clinical signs such as swollen abdomen, lethargy, and poor growth appear; mortality may occur, especially within the first week post-hatch.

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- Post-mortem findings typically reveal enlarged, unabsorbed yolk sacs that may be congested, malodorous, and contain solidified yolk material. Abdominal swelling is common, and severe cases show necrosis and peritonitis, which is inflammation of the abdominal inner lining. These pathological changes contribute to high mortality rates within the first two weeks of hatching. Such clinical and pathological features help diagnose omphalitis and distinguish it from other neonatal chick diseases

Diagnosis of Omphalitis in Poultry

Omphalitis in poultry is diagnosed through clinical signs, necropsy findings, and bacterial culture confirmation. Clinically, affected chicks show inflammation and swelling of the navel, sometimes with scabs or wet spots, along with listlessness, anorexia, and failure to gain weight. Mortality can be high, especially within the first two weeks after hatching. Necropsy reveals unabsorbed, discolored yolk sacs that may be malodorous and congested, and there may be extensive peritonitis. Bacterial culture isolates common pathogens like *Escherichia coli* and *Enterococcus* spp., confirming diagnosis.

Differential Diagnosis

Differential diagnosis includes neonatal diseases with overlapping presentation such as pullorum disease, yolk sac infection, septicemia caused by various bacteria, Marek's disease, and lymphoid leucosis. Clinical signs combined with age of onset and laboratory results help differentiate these conditions.

Treatment and Prognosis

Treatment involves antimicrobial therapy aligned with bacterial sensitivity, but efficacy is often limited due to antimicrobial resistance and the severity of infection. Supportive care and improved management practices, including hygiene and incubation control, are critical. Prognosis is poor for severely affected birds, with many dying before seven days of age.

These integrated measures can reduce early chick mortality by 20-50% in Indian hatcheries by targeting Omphalitis at every stage

¹Dr. Sayyed Mushtaque and ²Dr. Akash Wadal

¹General Manager-Breeder and Hatcheries

²Veterinary officer

Premium Chick Feeds Pvt. Ltd.

Prevention and Control of Omphalitis in Poultry

Aspect	Key Practices and Explanations
Sanitation	Thorough cleaning and disinfection of hatchery equipment; use clean, uncracked eggs; segregate dirty eggs at incubator bottom; use sanitizers correctly with attention to temperature (e.g., 40-45°C water for quaternary ammonium compounds) and concentration to minimize bacterial load—efficacy drops if conditions are off, so follow label instructions.
Incubator Hygiene	Clean and disinfect incubators between hatches; use formaldehyde fumigation (e.g., 40g KMnO ₄ + 80ml formalin per m ³ for 20-30 min) with proper ventilation to kill pathogens and avoid residue; maintain optimal temperature (37.5-37.8°C dry bulb) and humidity (55-60% RH early) to promote quick navel closure and prevent chilling or overheating.
Chick Brooding	Prewarm litter before chick placement; provide dry, clean brooding environment (initial 33-35°C, draft-free, low ammonia) to support navel healing and immune protection, ensuring the moist navel dries fast.
Pathogen Control	Apply strict biosecurity including hand hygiene, footbaths, and color-coded tools; prevent cross-contamination between clean/dirty eggs or chicks; control environmental contamination sources as the first line of defense.
Collaboration	Hatcheries and producers coordinate for high-quality eggs and post-hatch sanitary conditions; joint SOPs track metrics like egg shell cleanliness scores to bridge farm-to-hatchery gaps—poor egg quality undermines protocols.

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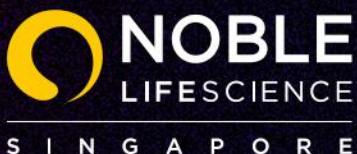
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An Interview with

Mr. George, President South Asia, FAMSUN Group

Q1 FAMSUN is a name synonymous with global agri-infrastructure. For those unfamiliar, could you walk us through the company's evolution?

FAMSUN has undergone a significant transformation. We began as a specialized equipment manufacturer but have evolved into a global integrated solution provider for the agri-food and feed industries. Today, our footprint covers everything from grain handling and storage to feed milling, farming systems, oil and fat, food processing, and even ethanol and environmental solutions.

Our journey has been about moving from machines to systems, and from systems to complete ecosystems. We don't just sell hardware; we deliver turnkey projects backed by advanced automation and digital platforms that create sustainable value across the entire agricultural chain.

Q2 In a country like India, with its diverse climatic zones, what is the realistic storage duration one can expect from modern silos?

Grain storage is a race against biology. Traditional systems often struggle beyond one season, but FAMSUN's modern silo ecosystems enable safe storage for 12-24 months, and up to 36 months too for strategic reserves.

We achieve this through advanced aeration, ventilation, and grain chilling to counter high temperatures; real-time monitoring of temperature and humidity for preventive aeration; and early detection using CO₂ sensors to identify infestations before visible damage occurs.

Q3 Post-harvest losses are a massive pain point. What specific protection systems are mandatory to mitigate this?

We treat silos as living warehouses requiring 360-degree protection.

Pre-cleaning: Protection starts at the intake. We integrate high-efficiency pre-cleaners and dust aspiration systems to remove "dockage"—fine dust, chaff, and broken grains. These impurities are breeding grounds for insects; removing them reduces the biological load before storage begins.

Active climate management: Our systems use automated aeration triggered by PLC controllers that compare

internal temperatures with the ambient dew point. We also provide fumigation recirculation systems that ensure even distribution of phosphine gas, eliminating pests without moving the grain.

Digital monitoring: With our precision Temperature Monitoring System and Moisture Monitoring system managers can easily figure out rate of change of temperature and moisture to take immediate corrective action. Besides we can provide CO₂ monitoring system also which enables early detection and intervention before any spoilage.

Q4 Speed and efficiency are critical during the harvest season. What loading and unloading technologies are you deploying?

In high-turnover facilities, the handling system is the pulse of the plant. At FAMSUN, we design our material handling system for "Gentle Handling" at high speeds.

We use heavy-duty and high capacity Bucket Elevators and En-masse Chain or Belt Conveyors. For delicate crops like pulses or high-grade paddy, we optimize conveyor speeds to prevent "impact damage" and kernel breakage

One of the biggest challenges in flat-bottom silos is the grain left at the centre. FAMSUN utilizes high-torque Heavy-Duty Sweep Augers that automatically clear the silo floor, ensuring 100% discharge without manual intervention. This is a game-changer for safety and manual cleaning reduction.

While we design systems reaching 2,000 TPH for major seaport terminals, our standard installations in India typically range from 50 to 350 TPH.

Q5 FAMSUN has been very active in the Indian market recently. What is the current scale of your footprint here?

India is a top-tier strategic market. We are currently executing massive projects that support India's mission to modernize its grain reserves. We have delivered several million tons of storage capacity across the country, serving the government's food procurement and storage agencies, private feed manufacturers, and the flourishing ethanol industry.

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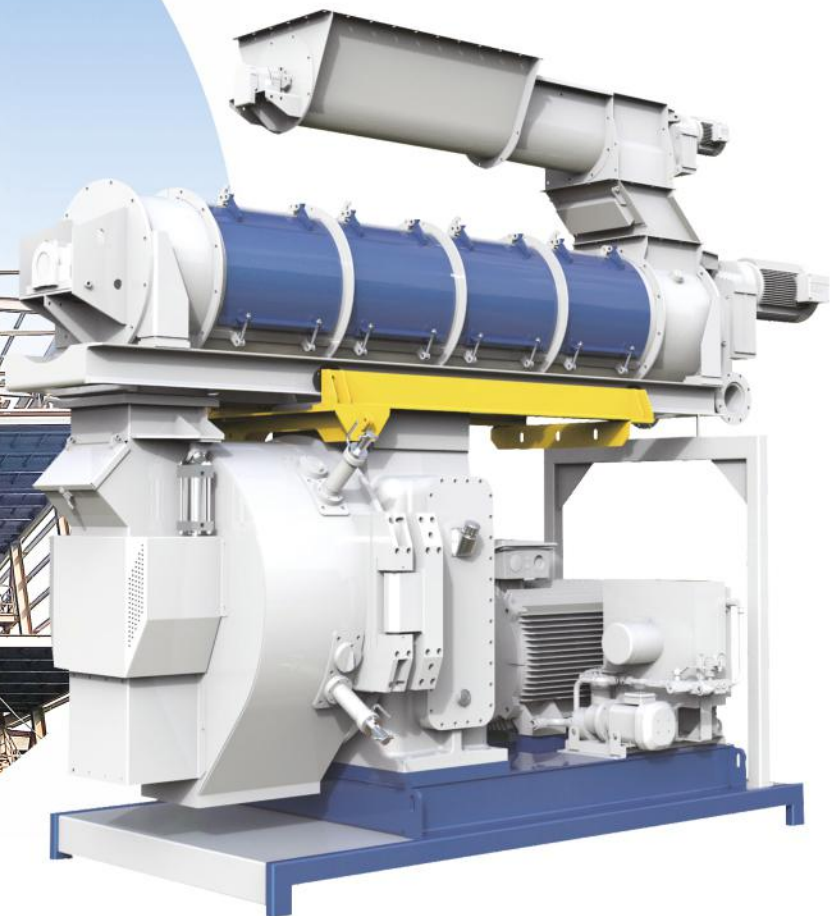
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The scale of our mission is clear: while total post-harvest losses are vast, the economic drain in the cereal sector (Rice, Wheat, and Maize) alone is approximately ₹65,000 Crore annually. FAMSUN by replacing unscientific "bag storage" with automated advanced silo ecosystems, we are helping save this national wealth. Every ton of grain we save is value created for the farmer, the industry, and the nation.

Q6 Beyond just "holding grain," what are the broader economic benefits of this infrastructure?

Storage is not a cost—it is an investment in security and profitability. Modern silos can reduce post-harvest losses from 10% to 0.25%, compared to traditional methods. This stabilizes market prices, prevents distress sales, ensures year-round raw material availability for processors, and directly boosts farmer income. Furthermore, it enhances India's export competitiveness by ensuring the grain meets international quality standards.

Q7 The market is crowded. How does FAMSUN differentiate its product portfolio and performance?

We don't focus on individual machines; we focus on integrated systems. Our portfolio includes Grain storage silos, Feed mills, Renewable Energy (Ethanol), Oilseed processing, and smart automation.

The market today rewards performance, not just price. For instance, our systems offer 8-15% lower energy consumption compared to conventional setups. When you consider that energy can account for nearly 30% of operating costs, that efficiency becomes a massive competitive advantage for our clients. And, our grain storage silos, all undergo finite element analysis and are manufactured using ZMA Steel which best in the industry. are strongest in the market. Also, our silos are strongest in the market.

Q8 Looking at the "South Asia" lens, where do you see the next big wave of growth coming from?

The scope is immense. India has reached a tipping point where performance outweighs price. Customers now prioritize lifecycle costs and energy efficiency. With energy accounting for 20-30% of operating costs, our systems deliver 8-15% savings through high-efficiency motors and intelligent automation. Demand for "Smart Factories" is rising rapidly, driven by reliability and faster ROI.

The future belongs to solutions that are smart, efficient, and sustainable.

Q9 What is the "FAMSUN Mantra" that has sustained your growth?

It's simple: Reliability is the strongest differentiator. In an industry that supports global food security, trust matters more than short-term gains. Our mantra is to combine

long-term thinking with customer-centric execution. When our customers grow with confidence, our success follows naturally.

A key differentiator is our investment in local talent—specialized engineers and project managers who ensure global technology is backed by immediate, on-ground support.

Q10 Could you elaborate on business expansion in India?

India's shift toward industrial-scale efficiency offers immense potential. With the animal feed market growing at 6-8% and strong policy support for ethanol blending, demand for modern infrastructure is surging. We are expanding our localized engineering footprint to serve both private and institutional clients.

Q11 How critical is quality in equipment designed to last decades?

Quality is the difference between a profitable asset and a mounting liability. In India's varied and often harsh climates, sub-standard equipment corrodes or fails long before it pays for itself. We mitigate this through superior metallurgy—using high-grade ZMA (Zinc-Magnesium-Aluminum) coated steel and precision manufacturing. This ensures our silos operate reliably for over 30 years. As the industry saying goes: "Quality is remembered long after the price is forgotten."

Q12 How do you navigate competition in India's agri-tech space?

We are seeing a sophisticated shift in the market: customers are moving away from simple machine-to-machine price comparisons toward "integrated system evaluations." Our edge is that we aren't just a vendor; we are a full-lifecycle partner. Through our Flawless Project Delivery (FPD) system and 24/7 local service teams, we provide something a lower-priced competitor cannot: peace of mind and guaranteed uptime.

Q13 What does your distribution and support network look like?

Our network is built not just to sell, but to support. We operate on the principle of 'customer proximity,' ensuring that we are never more than a phone call away from our project sites. In India and across South Asia, this infrastructure includes strategically located regional offices, a dedicated force of trained service engineers, and specialized project execution teams.

Beyond human expertise, we have prioritized a robust supply chain for genuine spare parts. This ensures that our clients experience maximum uptime and smooth plant operations. For us, long-term customer satisfaction is the only metric that truly matters, and our local network is the engine that drives that reliability.

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Kawi Unit: UNNAT BROILER FARM
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Q14 What are FAMSUN's future goals in India?

Modern Grain Logistics: Leading the nationwide transition from labour-intensive "bag" storage to scientific & efficient "bulk" silo systems.

Renewable Energy Security: Expanding our turnkey ethanol systems to directly support the government's ethanol blending mandates.

Provide efficient and hygienic processing solutions for edible oil, creating a healthy lifestyle for the people of India.

Smart Manufacturing: Deploying IoT-enabled automation and advanced extrusion technologies specifically for the high-growth aquafeed and pet food sectors. Provide more efficient and energy-saving solutions for livestock and poultry ruminant systems

Q15 What is FAMSUN's mantra for success?

The mantra of success for FAMSUN is long-term thinking combined with customer-centric execution and continuous improvement. In an industry that supports global food security, trust and reliability matter more than short-term gains. By prioritizing sustainable engineering, reliability, smart systems and strong partnerships, FAMSUN continues to build lasting value for all stakeholders.

About the Author

Mr. George - President
South Asia, FAMSUN Group Co., Ltd.

Mr. George is a veteran of the global agri-infrastructure industry, currently leading FAMSUN Group's strategic initiatives across South Asia. His journey with FAMSUN began in 2007, where he spearheaded major feed milling and grain handling installations in China and the Middle East, gaining deep expertise in the technical demands of varied climates.

He subsequently served as President for the Asia-Pacific region and led FAMSUN HUALI FARMING. Since taking the helm as President - South Asia in 2023, Mr. George has focused on aligning FAMSUN's global technological prowess with India's transition to bulk grain handling, overseeing turnkey silo projects for both government agencies and private MNCs. He is a key figure in the modernization of grain storage and feed production systems in the region.



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Bentoli Agrinutrition Signals "Year of Bold Moves" at 2026 Annual Business Meet in Tamil Nadu



Bentoli Agrinutrition, a global leader in animal nutrition and feed additive solutions, successfully concluded its Annual Business Meet 2026, held from January 18 to 21 in Trichy, Tamil Nadu. The flagship four-day event brought together cross-functional leadership, sales, and marketing teams to align on strategic priorities, review performance, and celebrate a year marked by innovation and growth.

The summit served as a critical platform to evaluate the FY 2025-2026 business performance and outline an ambitious roadmap for the future. By seamlessly blending strategic deliberations with team-building initiatives, the meet reinforced Bentoli's core values of Integrity, Innovation, and Impact.

Strategic Vision and Market Leadership

The proceedings commenced with a thought-provoking address by Dr. Victor Suresh, highlighting ongoing R&D advancements and the scientific rigor underpinning Bentoli's product innovation pipeline. This was followed by a keynote address from Mr. Edward Robinson, who reaffirmed Bentoli's mission-driven approach to sustainable value creation, anchored in the CIQQC framework – Customer Centricity, Integrity, Quality, Collaboration, and Courage.

Recognizing Excellence

A defining moment of the meet was the Awards Ceremony, which celebrated exceptional performance and unwavering commitment. Prestigious accolades presented included- Champion of Champions, Platinum and Gold Champions, Specialty and Premix Champion, Club 100, Best Marketing Support, Long Service Awards.

Cultivating a Culture of Collaboration

In line with Bentoli's belief in fostering strong team bonds, the event balanced strategic discussions with recreational activities. A spirited volleyball tournament energized participants, while the meet concluded with a rejuvenating team visit to Rameshwaram, offering opportunities for reflection, connection, and camaraderie beyond the boardroom.

Driving the Vision Forward

The summit concluded with a compelling leadership message, signaling a strong push for market expansion across Asia and global regions.

"2026 will be a year of bold moves," the leadership emphasized. "Let us lead with purpose, execute with precision, and deliver meaningful outcomes for our customers and communities."



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कैल्शियम टिटैनी – एक ऐसी मेटाबोलिक बीमारी है जिसमें अंडे वाली मुर्गी (26 सप्ताह से 35 सप्ताह अंडा शुरू होने से पीक प्रोडक्शन तक) ही मरती है।

डॉ. एच.के. रोहिला



जब आप शेड में जाते हैं तो सभी मुर्गियाँ देखने में अच्छी लगती हैं किसी भी किस्म की कोई भी बीमारी नजर नहीं आती। मुर्गियाँ फीड के समय या उससे थोड़ा पहले फड़ फड़ाकर मरती हैं। पोस्ट-मार्टम करने पर हम देखते हैं बर्ड की छाती सफेद है जैसे गर्मी के कारण बर्ड मरता है। उसके बाद हम सांस की नली को देखते हैं तो वह बिल्कुल साफ नजर आती है। बर्ड को आगे खोलने पर सब से पहले हमारी नजर अंडे बनने वाले गुच्छे पर पड़ती है जो काफी बड़े और लाल लाल नजर आते हैं। एयर सैक, जो फेफड़ों के ऊपर सफेद पारदर्शी झिल्ली होती है, वह भी साफ नजर आती है।

फेफड़ो और हृदय के पास कुछ पानी सा नजर आता है। लिवर ऐसे लगता जैसे बर्ड में टॉक्सिसिटी हो किडनी नार्मल नजर आते हैं। अबडोमिनल कैविटी में कुछ पानी सा नजर आता है। अण्डा बना हुआ Uterus में नजर आता है। बस यही कैल्शियम टिटैनी है।

मेरे किसान भाइयों, अब प्रश्न उठता है कि ऐसा क्यों होता है। इसका पहला कारण है Prebreeder राशन में कैल्शियम की मात्रा 1-2% से ज्यादा होना है। दूसरा कारण – जो मुर्गी अंडे



नहीं देती उसे भी जब कैल्शियम ज्यादा दिया जाता है तब ऐसा होता है। तीसरे कारण में Flock Non - Uniform होता है तब ज्यादा मोटे और हल्के bird ही मरते हैं। चौथा कारण फीड और Light एक दम से ज्यादा कर दी जाती है। पाँचवा कारण मार्बल पाउडर ज्यादा बारीक होता है

कैल्शियम टिटैनी के उपाय :-

1. अंडे वाली मुर्गी को 3 दिन 5gm/bird Marble chips देना है। फिर 3 दिन मार्बल चिप्स नहीं देना, फिर अगले 3 दिन मार्बल चिप्स देना है। यह क्रम जब तक bird पीक प्रोडक्शन तक न पहुँचे तब तक चलता रहेगा। मार्बल चिप्स शाम को दें यदि feed सुबह दी जाती है और यदि फीड शाम को दी जाती है तो मार्बल चिप्स सुबह के समय दें। साथ-2 कोई भी calcium liquid विटामिन D शाम के समय दें।

मेरे किसान भाइयों, यदि आप चाहते हैं कि आपके फार्म पर बर्ड में कैल्शियम टिटैनी भविष्य में ना आए तो

इन सावधानियों का पालन करें:-

1. बर्ड की यूनिफॉर्मिटी पर विशेष ध्यान दें।
2. Prebreeder राशन (22 wk से 5% अंडे तक) कैल्शियम फीड में 1-2% से ज्यादा न दें।
3. मार्बल चिप्स सिर्फ अंडे वाली मुर्गी को दें।



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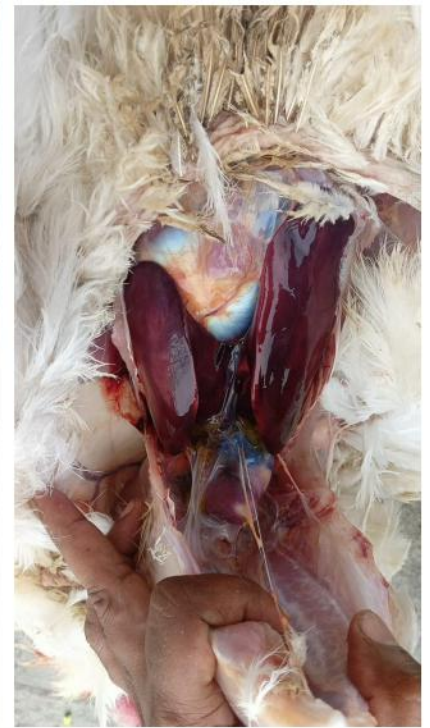
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4. 1/3 मार्बल पाउडर दानेदार और 2/3 मार्बल चिप्स के रूप में दें।
5. मार्बल चिप्स सिर्फ अंडे वाली मुर्गी को ही दें।
6. फीड बर्ड को सुबह दी जाए तो मार्बल चिप्स 5gm प्रति मुर्गी शाम को दें और यदि बर्ड को फीड शाम को दी जाए तो मार्बल चिप्स 5gm प्रति मुर्गी सुबह दें। यह क्रम 40 सप्ताह तक चलता रहेगा। तत्पश्चात मार्बल चिप्स सीधा फीड में ही दिया जा सकता है। ऐसा करने से आपकी मुर्गियों का कैल्शियम टिटैनी से पूर्ण रूप से बचाव रहेगा।

यह बीमारी मुर्गियों में चलती रहती है जो मुर्गियाँ अंडे देना बंद कर देती हैं उन्हें अलग करके 130 ग्राम Male की feed देने से बर्ड कुछ ही दिनों में दुबारा अंडे पर आ जाएंगे।



डॉ. एच.के. रोहिला

पोल्ट्री कंसल्टेंट, पूर्व टैक्नीकल हैड,
ब्रॉयलर ब्रीडर, वी.एच.-गुप, नॉर्थ इंडिया
मोबाईल: 8195940099
ईमेल: drrohila1947@gmail.com

BULLETIN

EW Nutrition and GRASP Strengthen Strategic Partnership



EW Nutrition and GRASP are pleased to announce a significant strengthening of their collaboration through a new agreement that will see EW Nutrition increase its ownership stake in GRASP from its current position to full ownership over the next four years.

This strategic move reflects both companies' commitment to long-term growth and their shared vision for expanding EW Nutrition's market-leading position in the industry. The phased transition will ensure business continuity while supporting GRASP's ongoing operations and development initiatives in Brazil.

"This agreement represents a natural evolution of our successful partnership," said Jan Vanbrabant, CEO of EW Nutrition. "We are excited to deepen our investment in GRASP and its exceptional team, products, and operations in Brazil."

GRASP's portfolio includes world-leading products for toxin mitigation (Mastersorb), gut health management (Activo) and other industry-recognized solutions. The company's dedicated team will remain focused on delivering the quality and innovation that have established GRASP as a trusted name in the market.

"We look forward to this next chapter in our partnership with EW Nutrition," said Alysson Hoffmann Pegoraro, GRASP Managing Director. "I am confident that this agreement will help to not only continue producing and delivering innovative solutions for our customers worldwide but further increase significantly the global footprint of GRASP."

The gradual transition to full ownership will be completed by the end of 2029, ensuring a smooth integration process that preserves GRASP's operational strengths and further solidifies EW Nutrition's market position.

About EW Nutrition

EW Nutrition is an animal nutrition company that offers integrators, feed producers, and self-mixing farmers comprehensive animal nutrition solutions for gut health management, feed quality, digestibility, and more. With production facilities, offices, and development centers on 6 continents, EW Nutrition researches, manufactures, markets, and services its products and programs to support customers wherever they are.

About GRASP

GRASP was founded in 2001 to provide the animal nutrition and health market with cutting-edge technological, natural, and functional products. Investment in industrial processes, manufacturing expansion, obtaining international certification (GMP+) and development and production units in Curitiba and in São Paulo ensure seamless quality and service for customers in around the world. Since 2011, it has been majority owned by EW Nutrition.

SANDIMET® MHA

Better Product, Better Nutrition

NHU now offers SANDIMET® MHA, providing you with easy cost control and a comprehensive solution, anytime, anywhere.

Items	Value/Describe
Appearance	Brown viscous liquid with special smell
Properties	Easily soluble in water
Assay	≥88.0%
Ammonium salt	≤1.5%
Cyanide	Not detectable
Heavy Metals (as Pb)	≤10mg/kg
Arsenic	≤2.0mg/kg



NHU will launch its MHA (liquid methionine) product in 2025, reinforcing its commitment to the global animal nutrition industry. With strong production capacity and a vast marketing network, NHU ensures a stable supply of high-quality, efficient, and environmentally friendly MHA, alongside comprehensive nutrition and technical support for customers worldwide.

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NARSIPUR

H5N1 VIRUS

A SERIOUS THREAT TO POULTRY FARMS

Avian Influenza (H5N1) spreads rapidly and can cause sudden, large-scale poultry losses.

Highly Pathogenic Avian Influenza (H5N1) is a viral disease affecting chickens and other birds.

The virus spreads through:

- Direct contact with infected birds
- Contaminated feed and water
- Farm workers and visitors
- Wild bird interaction

H5N1 can result in:

- Sudden high mortality
- Respiratory distress
- Drop in egg production
- Severe economic losses

WHY POULTRY FARMS MUST ACT FAST

Poultry farms must immediately report any unusual bird deaths, enforce strict entry control and limit visitor access, carry out routine disinfection of sheds and equipment, closely monitor and prevent wild bird interaction, and strengthen overall biosecurity protocols to minimise the risk of H5N1 spread and protect flock health.



PREVENT BIRD FLU WITH COMPLETE FARM SANITATION

ENCIKOL-PH

Multi-functional Broad Spectrum Disinfectant

- ✓ Cuts disinfection costs by half
- ✓ Very fast acting due to synergistic action
- ✓ Not harmful to birds or humans
- ✓ Non corrosive and non staining



CHLORAMINE-T

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- ✓ Highly effective even in organic load
- ✓ Ideal for shed spray & drinking water sanitation
- ✓ Optimum 0.5% sanitation solution



ENCIKON-S

Triple Salt Virucidal Disinfectant

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ENCIFUM-UD

Best Ultra Diffusion Smoke Fumigant

- ✓ Eliminates airborne pathogens
- ✓ Easy ignition application
- ✓ No residue, no staining
- ✓ Ideal for egg room, incubator, sheds n Silos



PREVENTION IS CHEAPER THAN CURE

NARSIPUR – ENGINEERED FOR POULTRY BIOSECURITY

Cellular & Metabolic Reset: A New Frontier In Broiler Breeder Production

Summary

GrinMicro Bioscience Pvt Ltd is introducing a new, easy-to-use “metabolic reset” program for broiler breeder hens. This approach helps the bird’s body regain its natural energy balance so Breeder hens stay healthy, active, and productive throughout the cycle.

By taking care of the bird’s metabolism early, farmers can unlock more of the flock’s genetic potential, improve performance, and avoid many common production losses.

GrinMicro’s program brings together:

- Special feed additives that support better digestion and energy use
- Metabolic boosters that help hens maintain strength and uniformity
- A simple monitoring system to track progress and catch issues early

The result is better production, more uniform flocks, and higher long-term profits for poultry farmers.

The Opportunity: Optimizing Breeder Performance

For the current Breeder performances and operations, we can easily raise certain questions as follows

- 1) Do current broiler breeders have capacity to lay more than breed standards?
- 2) Why some flocks in well managed farm have delayed laying?
- 3) Why the flocks not reaching peak and even if they reach peak does it maintain at that level?
- 4) Why there is drop of production post 45 weeks?
- 5) Why the breakages increase in spite of precision nutrition and proper Ca, P and Vit D3 levels?
- 6) Why do some flock eggs have EEM or LEM issues?

Broiler breeder performance has improved a lot thanks to better genetics, accurate feeding and strong management. But there is still one big area that can give farmers even more results: supporting the bird’s metabolism at the cellular level.

Even in well-run farms, helping the cells use energy more efficiently can lead to major benefits such as:

- More consistent egg production and better hatchability
- Improved flock uniformity and stronger peak performance
- Better feed conversion and higher chick output



These gains come from improving how the bird’s cells produce and manage energy especially the mitochondria, nutrient-signalling systems and energy-sensing pathways. When these internal systems work smoothly, nutrition and management practices deliver even better results.

Grinmicro's Broiler Breeder Focused Performance Insight Series

Initiative objective: Build industry confidence in metabolic reset science through a comprehensive knowledge-sharing programme especially for Broiler Breeders will be launching February 1st, 2026. This series will try to provide answers to these issues and how can a farmer get more economic benefits from their breeder operations.

Why this approach? GrinMicro understands that solving metabolic problems in broiler breeders is not only about new products, it’s also about sharing knowledge and talking openly with the industry.

That’s why we are starting the Broiler Breeder Insight Series. This series will:

- Build confidence by explaining the science in a practical way
- Strengthen trust with farmers, hatcheries and integrators
- Create a space for honest discussion about challenges and new opportunities



GrinMicro® have created a world of quality innovation and excellence in feed supplement production with the commitment to deliver quality while driving down production costs for end consumer goods.

We redefine feed supplement industry standards by enhancing nutrient bio availability, improving assimilation, and guaranteeing superior absorption.

Our solutions foster optimal nutritional balance at the cellular level.

OUR CORE VALUES

Assay Services | Disease Solutions | Nutrition Costs | Navigate market Dynamics

PRODUCT DEVELOPMENT OBJECTIVES

- Our primary goal is product quality.
- Our strategies are aimed at increasing productivity throughout the product development lifecycle.
- Our commitment is to innovate new applications that not only meet market demands but also leverage the latest technological advancements.



The goal is simple: help the entire industry move forward together with better understanding and better results.

KNOWLEDGE SERIES STRUCTURE

Starting February 1st, 2026, GrinMicro will begin sharing short, practical insights for everyone working with broiler breeders. These updates will focus on topics that directly affect farm results, including:

- How to improve breeder reproductive performance and the key metabolic factors behind it
- Ways to boost hatchery output and reduce variation between farms
- How to build stronger cellular metabolism and what that means for commercial performance
- Common breeder farm challenges and proven, field-tested solutions
- Economic factors that influence long-term, sustainable breeder production

Every post will be based on field experience, solid science and real industry learnings. The aim is to encourage meaningful discussion and show GrinMicro's strong expertise in broiler breeder biology and performance in a way that farmers and field teams can use immediately.

Building Confidence & Partnership

Through this knowledge-sharing initiative, GrinMicro aims to support every part of the broiler breeder value chain:

- For breeder farmers: Sharing simple, practical and science-based insights that help identify the metabolic issues holding back flock performance and profits.
- For veterinarians: Providing deeper technical understanding and evidence-based tools to strengthen breeder health, fertility and overall production management.
- For industry partners: Becoming a reliable, informed voice in breeder performance improvement, backed by real farm experience and scientific clarity.
- For all stakeholders: Creating an open, collaborative platform to discuss the cellular and metabolic challenges that feed and management alone cannot fully address.

For editorial enquiries, insight series participation or technical discussions:

Contact Grinmicro Bioscience Pvt. Ltd.

+91-7887889187

BULLETIN

Phytobiotics GmbH

Welcome to the team, Dr. Anant Deshpande!

We are very pleased to welcome Dr. Anant Deshpande to Phytobiotics Futterzusatzstoffe GmbH!

A veterinarian with over 30 years of experience in the poultry industry, Dr. Deshpande has worked extensively with commercial broilers, layers, breeders, and feed mills, gaining deep insight across the entire value chain.

Later in his career, he moved into product management and marketing of feed additives. In his most recent role, he served as Regional Manager APAC and also gained valuable exposure to the Middle East market.

At Phytobiotics, Dr. Deshpande will take on the role of Technical Consultant for India and the Middle East.

With his strong technical background and international experience, we are confident he will contribute significantly to our mutual success.

Welcome aboard - we're excited to work together!



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GLOCREST Cup 2026 Unites the Poultry Industry in Mysore

GLOCREST[®]
Pharmaceutical Pvt. Ltd

GLOCREST Pharmaceutical Pvt. Ltd. successfully hosted the GLOCREST Cup 2026 on 24th and 25th January 2026 in Mysore, bringing together key stakeholders from across the Indian poultry industry for two days of competitive sport, collaboration, and camaraderie. The tournament was held in the fond memory of Shri Krishna Setty and Shri Ramesh Babu, Promoters of Krishna Group, whose vision and leadership have left a lasting impact on the industry.

Conceived as more than just a sporting event, the primary objective of the GLOCREST Cup was to create a common platform where professionals across the poultry value chain could connect beyond routine business interactions. The initiative aimed to foster stronger relationships, mutual respect, and long-term collaboration within the industry.

The tournament saw enthusiastic participation from teams representing poultry farmers, integrators, feed manufacturers, veterinarians, and trade partners, reflecting the diversity and scale of the Indian poultry sector. Matches were played in a highly competitive yet disciplined spirit, highlighting values such as teamwork, leadership, and sportsmanship—principles that resonate deeply with the legacy of the leaders in whose memory the tournament was dedicated.

Beyond the cricket field, the event served as an informal networking forum, offering participants valuable opportunities to exchange ideas, share experiences, and strengthen professional bonds in a relaxed and engaging environment. Attendees widely appreciated the initiative as a refreshing and meaningful approach to industry engagement.

The tournament concluded with a formal Award Ceremony on the evening of 25th January 2026, where winning teams and outstanding individual performers



were felicitated. The ceremony marked a fitting culmination to the event, celebrating excellence, participation, and collective achievement.

Key takeaways from the GLOCREST Cup 2026 included:

- Strengthening professional relationships across the poultry industry Encouraging collaboration and industry unity
- Promoting teamwork, leadership, and healthy competition
- Creating a positive and engaging platform for industry interaction

Through initiatives such as the GLOCREST Cup 2026, GLOCREST Pharmaceutical Pvt. Ltd. reaffirmed its commitment to building a connected, progressive, and sustainable poultry industry in India, while honouring the enduring legacy of Shri Krishna Setty and Shri Ramesh Babu. The event was widely appreciated by participants and stands as a compelling example of how sport can bridge professional boundaries and inspire collective growth.





GLOCREST[®]
Pharmaceutical Pvt. Ltd

Innovation for a Better Health

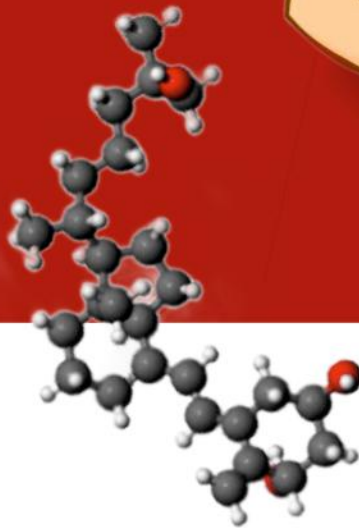
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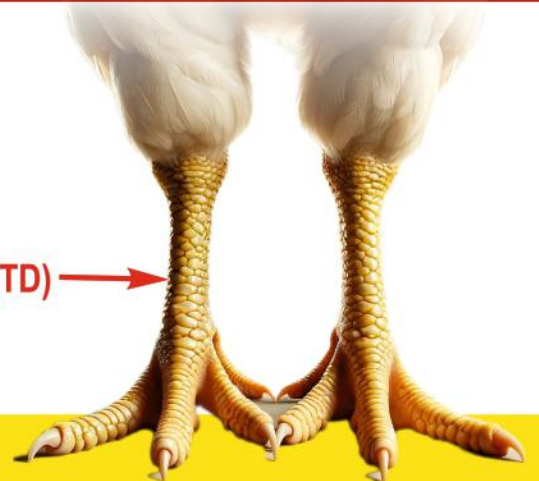
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Strong Skeleton and **Strong Egg Shell**



- Reduces incidences of **Tibial Dyschondroplasia (TD)** →



CALCITRIOL-DTM - The Nutritional Revolution

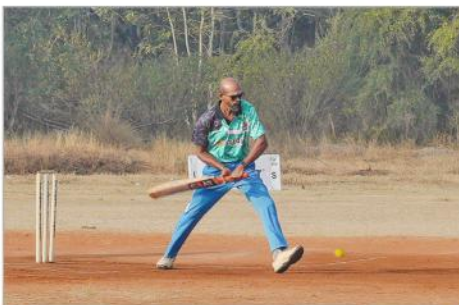
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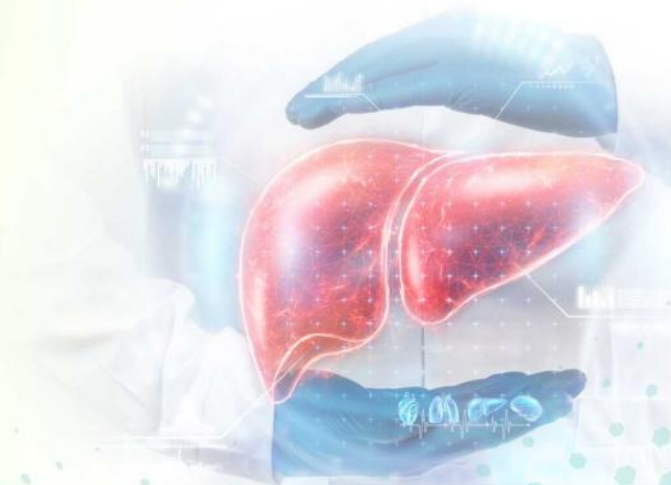


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 **Reduces cortisol**
-13.22%

 **Reduces mortality**
Lower by 7-10%

 **Improves EPEF**
+15.43%

 **Improves body weight**
(+2.80%)

 **Improves IBV titres**
+42.73%

 **Improves FCR**
Lower by 1.55%

FEED INCLUSION RATE

100g of HERBAL C can be used in place of 100g synthetic Vitamin C with higher stability and better activity. 100-200g per ton of feed is recommended as depending upon severity of stress.

WATER INCLUSION RATE

10ml per 100 birds or as advised by the poultry consultant. To be given orally, mixed with drinking water, once daily. Double quantity is recommended for breeders.

PRESENTATION

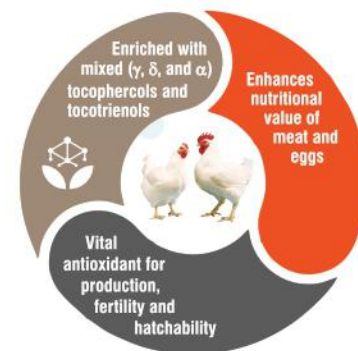
1 Kg, 10 Kg & 25 Kg
1 Ltr and 5 Ltr



E Sel POWER

Natural vitamin E and organic selenium complex

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USAGE

- ♥ Provides optimum activity of Vitamin E and selenium
- ♥ Improves fertility and hatchability in breeder birds
- ♥ Improves broiler and layer performance
- ♥ Optimizes antioxidant defense against reactive cytotoxic free radicals
- ♥ Overcome stress and reduces load of heavy metals from the body
- ♥ Prevents exudative diathesis, muscular dystrophy, crazy chick disease

FEED INCLUSION RATE

100 gm per ton of feed or as advised by the poultry consultant

WATER INCLUSION RATE

E Sel POWER Liquid (per 1000 birds)

Broilers	Layers	Qty
0-2 weeks	0 - 8 wks	10 ml
3-4 weeks	9 -20 wks	20 ml
5 th week & onwards	21-72 wks	40 ml

To be given orally, mixed with drinking water, once daily.
Double quantity is recommended for breeders.

PRESENTATION

1 Kg, 10 Kg & 25 Kg
500 ml & 1 Ltr



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- ❖ Vitamin B₁₂ 98%
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- ❖ Vitamin H (Biotin) 2%
- ❖ Vitamin K₃
- ❖ Vitamin AD₃ 5lac/1 lac I.U.
- ❖ Vitamin D₃
- ❖ Vitamin E Acetate Oil (Liquid)
- ❖ Vitamin E 50%
- ❖ Niacin
- ❖ Niacinamide

- ❖ Folic Acid
- ❖ D-Calcium Panthothenate 98%
- ❖ D-Calcium Panthothenate 45% (Feed Grade)
- ❖ Vitamin 'C' Plain
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- ❖ B-Complex (Single Strength)
- ❖ B-Complex (4 times)
- ❖ Choline Chloride 50% (Silica Base)
- ❖ Choline Chloride 60% (Ceral Base)
- ❖ Choline Chloride 98%

ANTIBACTERIALS

- ❖ Furazolidone 98%
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ANTIBIOTIC GROWTH PROMOTERS

- ❖ Chlortetracycline 15%
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- ❖ B.H.T.
- ❖ REDOX-T

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- ❖ Ciprofloxacin Hcl.
- ❖ Pe-Floxacin
- ❖ Enrofloxacin Hcl.
- ❖ Doxycycline Hcl.
- ❖ Streptomycin
- ❖ Tetracycline Hydrochloride
- ❖ Lincomycin B.P.
- ❖ Oxytetracycline Hydrochloride

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- ❖ D.O.T. 98%
- ❖ Maduramycin Ammonium 1%
- ❖ Clopidol 98%
- ❖ Amprolium Hydrochloride B.P.
- ❖ Salinomycin Sodium 12%

C.R.D.

- ❖ Tylocin Tartrate (Pure)
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Northern Region

COMPANY: Sampoorna Feeds FARMER NAME: Mr. Ratnesh Kumar Patel	JANUARY-2026	Top #1
	Farm Type	Open House
	State	UTTAR PRADESH
	Chicks Placed	2520
	Mean Age	32.2
	Avg Body Wt	2576
	FCR	1.400
	cFCR	1.272
	Livability%	95.5
	Daily Gain	79.9
EPEF	545.3	



Eastern Region

COMPANY: IB Group FARMER NAME: Mr. Kanailal Maiti	JANUARY-2026	Top #1
	Farm Type	Open House
	State	WEST BENGAL
	Chicks Placed	1827
	Mean Age	37.0
	Avg Body Wt	2805
	FCR	1.431
	cFCR	1.252
	Livability%	97.4
	Daily Gain	75.8
EPEF	515.8	



Central Region

COMPANY: Japfa FARMER NAME: Mr. Omkar Jalinder Jadhav	JANUARY-2026	Top #1
	Farm Type	EC House
	State	MAHARASHTRA
	Chicks Placed	10171
	Mean Age	32.1
	Avg Body Wt	2440
	FCR	1.372
	cFCR	1.274
	Livability%	97.4
	Daily Gain	76.0
EPEF	539.4	



South Region

COMPANY: IB Group FARMER NAME: Mr. Gudi Venkateshwara Rao	JANUARY-2026	Top #1
	Farm Type	EC House
	State	ANDHRA PRADESH
	Chicks Placed	19962
	Mean Age	34.0
	Avg Body Wt	2463
	FCR	1.408
	cFCR	1.305
	Livability%	97.4
	Daily Gain	72.4
EPEF	501.2	



JANUARY-Top PERFORMANCE BY AREA

Area	Chicks Placed	Mean Age	BW	FCR	cFCR(2Kg)	Livability%	Daygain	EPEF
North EC House	15564	40.0	3100	1.464	1.220	95.3	77.5	504.5
North Open House	2520	32.2	2576	1.400	1.272	95.5	79.9	545.3
East EC House	9980	38.0	2934	1.473	1.265	96.1	77.2	503.9
East Open House	1827	37.0	2805	1.431	1.252	97.4	75.8	515.8
Central EC House	10171	32.1	2440	1.372	1.274	97.4	76.0	539.4
Central Open House	1891	34.0	2480	1.441	1.334	95.0	72.9	481.0
South EC House	19962	34.0	2463	1.408	1.305	97.4	72.4	501.2
South Open House	9969	34.0	2405	1.391	1.301	95.4	70.7	484.9

JANUARY-Top 10 FIELD PERFORMANCE

Flock	Farm Type	State	Chicks Placed	Mean Age	BW	FCR	cFCR	Livability%	Day Gain	EPEF
Flock 1	OPEN HOUSE	PUNJAB	2520	32.2	2576	1.400	1.272	95.5	79.9	545.3
Flock 2	OPEN HOUSE	PUNJAB	5478	35.6	2802	1.400	1.222	96.2	78.8	541.7
Flock 3	OPEN HOUSE	HIMACHAL PRADESH	3574	32.1	2453	1.380	1.279	97.5	76.4	540.1
Flock 4	EC HOUSE	MAHARASHTRA	10171	32.1	2440	1.372	1.274	97.4	76.0	539.4
Flock 5	OPEN HOUSE	MAHARASHTRA	5102	34.2	2661	1.430	1.283	97.5	77.8	530.7
Flock 6	OPEN HOUSE	PUNJAB	1655	34.6	2640	1.400	1.258	97.2	76.3	529.2
Flock 7	OPEN HOUSE	MAHARASHTRA	1657	34.0	2592	1.400	1.268	96.7	76.2	526.8
Flock 8	OPEN HOUSE	PUNJAB	4596	35.0	2720	1.410	1.250	95.5	77.7	526.6
Flock 9	OPEN HOUSE	MAHARASHTRA	8615	35.0	2497	1.330	1.220	97.2	71.4	521.6
Flock 10	OPENHOUSE	PUNJAB	5488	35.1	2659	1.390	1.244	95.5	75.8	521.0

The Unsung Hero of Poultry Gut Health-A Natural Biopolymer

Dr Chandramohan CS
Chief Technical Officer

Indian Poultry industry has been showing robust growth over the years including the Covid inflicted period. The value of poultry products produced in the country during 2021-22 was Rs. 2.31 lakh Crores and its contribution to the value of total livestock products including milk has gone up from 17% in 2011-12 to 19% in 2021-22.

The major problem faced by the industry currently is the increasing incidence of impairment of gut health that impacts general immunity among the birds and consequent drop in production performance and its efficiency in both layers and broilers. The response of the industry so far to combat this issue has been the usage of Antibiotic Growth Promoters (AGPs) in poultry feed. However, the growing concern on the potential of such a practice on building anti-microbial resistance (AMR) among microbes in the environment and consequent import regulations of different countries has compelled the industry to look for alternatives to the usage of AGPs. Natural biopolymers display the desired qualities for such an alternative and could potentially benefit the poultry industry.

Several natural biopolymers exhibit antibacterial properties, making them valuable in fields like food preservation, biomedicine and agriculture. Various such biopolymers derived from versatile sources such as crustacean shells, insect exoskeletons, fungal cell walls and plant-based biopolymers exhibit antibacterial, anti-inflammatory, bio-compatible, and bio-degradable properties making them best suited for preventing bacterial infections in poultry and maintaining poultry gut health.

Such types of natural biopolymers have gained recent attention in poultry production as promising feed

additives for supporting gut health, particularly due to their antimicrobial, prebiotic and immune-boosting properties. Here is a closer look at how those biopolymers can positively influence poultry gut health and the mechanisms behind their potential benefits.

1. Antimicrobial Properties:

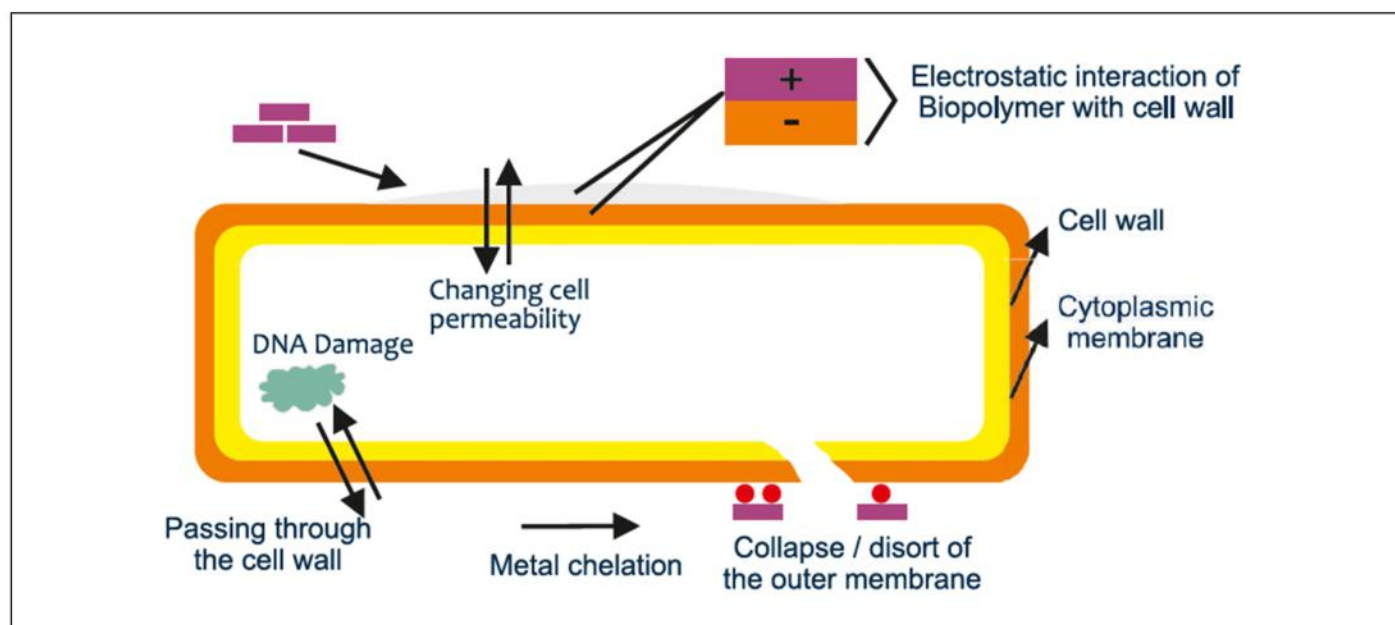
Description: Natural polymers have broad-spectrum anti-microbial effects against various pathogenic bacteria such as *E. coli*, *Salmonella*, and *Clostridium perfringens* which mostly cause harm to poultry gut health. They work by disrupting bacterial cell membranes, thereby inhibiting growth of such bacterial pathogens without negatively affecting beneficial bacteria.

Benefits for Gut Health: By reducing harmful bacterial populations, they help in maintaining a balanced gut microbiome of beneficial bacteria, which can prevent dysbiosis and related issues like necrotic enteritis and thereby ensure optimum performance of the birds matching their genetic potential.

2. Prebiotic Effects:

Description: Natural biopolymers can act as prebiotic, serving as substrates for beneficial bacteria like *Lactobacillus* and *Bifidobacterium*, which promote gut health by producing short-chain fatty acids (SCFAs).

Benefits for Gut Health: SCFAs like butyrate support intestinal health by serving as an energy source for intestinal cells, reducing inflammation, and enhancing gut barrier function. This can improve nutrient absorption and feed efficiency.



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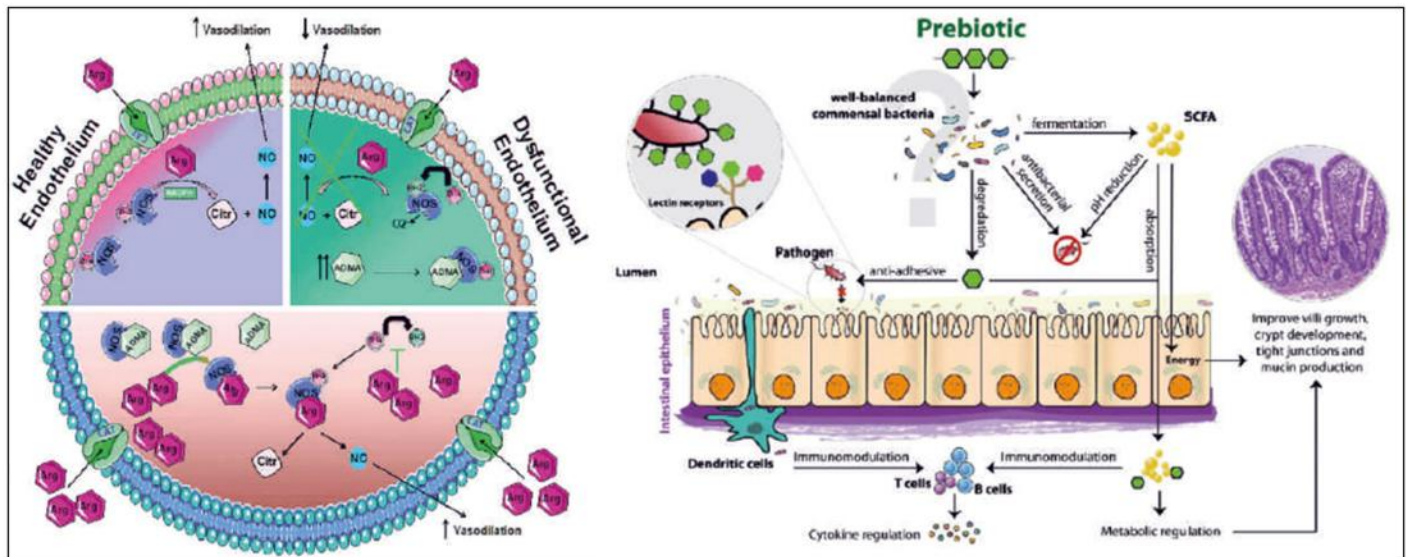
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For Technical Enquiries:

✉️ chandramohan@neotle.com

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3. Immune Modulation:

Description: Natural biopolymers have shown their ability to enhance immune responses in poultry by stimulating the activity of macrophages, T-cells, and cytokines. They also help in reducing inflammatory responses.

Benefits for Gut Health: A stronger immune system helps birds to resist infections, reducing the risk of gut inflammation caused by pathogens. This can lead to fewer disease outbreaks and lower use of antibiotics in flocks.

4. Enhanced Gut Barrier Integrity:

Description: Natural biopolymers have been shown to strengthen the gut barrier, helping to prevent the entry of harmful pathogens and toxins from gaining entry into the bloodstream through the gut.

Benefits for Gut Health: A more robust gut barrier reduces the risk of systemic infections and chronic inflammation, leading to healthier and more productive birds.

5. Antioxidant Properties:

Description: Natural biopolymers also exhibit antioxidant activity, which helps in neutralizing free radicals and reducing oxidative stress in poultry. Oxidative stress is known to damage the gut lining and impair immunity.

Benefits for Gut Health: By reducing oxidative stress, they help to protect intestinal cells, promoting a healthier gut environment conducive to efficient digestion and nutrient uptake.

6. Improvement in Production Performance:

Description: Due to the combined antimicrobial, prebiotic, and immune-boosting effects, natural biopolymers improve feed efficiency and growth and egg production performance in poultry.

Benefits for Gut Health: Healthier birds with better gut health can convert feed more effectively into body mass/egg number, which is particularly beneficial for fast-growing broiler germplasm. In addition, improved

gut health in laying hens can lead to higher egg production and egg quality.

Practical Applications of Natural Biopolymers in Poultry Production:

- **Dosage and Formulation:** Natural biopolymers are typically added to feed in concentrations ranging from 50-500 mg/kg, depending on the formulation and specific poultry needs.
- **Use in Antibiotic-Free Systems:** They are particularly useful in antibiotic-free poultry systems, where they can serve as an alternative to traditional growth-promoting antibiotics/antibacterials.
- **Combination with Other Additives:** They can be used alongside probiotics, prebiotics, and organic acids to create a synergistic effect, enhancing gut health benefits.

Economic Benefits of Using Natural Biopolymers:

- Reduced Feed Costs:** Natural biopolymers can improve feed efficiency, meaning less feed is required per unit of weight gain/per dozen eggs.
- Lower Healthcare Costs:** By reducing the incidence of gut-related diseases, they can help lower costs associated with veterinary treatments and medications.
- Improved Product Quality:** Healthier birds produce higher-quality meat and eggs, which can fetch better market prices.

Conclusion:

Thus, natural biopolymers offer multiple benefits to the fast-growing poultry industry by ensuring robust poultry gut health, enhancing growth/egg production performance, supporting immune function, improving profitability and providing an alternative to antibiotics. Their antimicrobial, prebiotic, and immune-boosting properties make them valuable feed additives in modern poultry production, particularly for producers aiming to maintain good poultry gut health and looking for an effective alternative to antibiotics.

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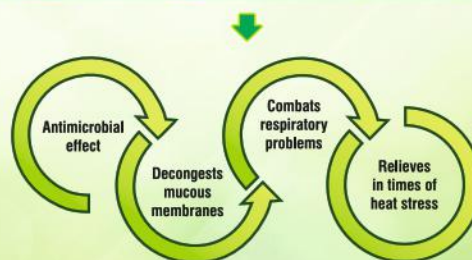
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DR. WILMER JAVIER PACHECO

Extension Specialist and Associate Professor, Department of Poultry Science, Auburn University

Dr. Wilmer Pacheco was born in Honduras where he obtained a BS in Food Science in 2005. Shortly after graduation, Dr. Pacheco began a feed mill manager training program with Murphy Brown, LLC in Laurinburg, North Carolina where he was responsible for overseeing the production of approximately 10,000 tons of pellet feed per week. In June 2009, Dr. Pacheco was awarded a fellowship in the Department of Poultry at North Carolina State University, where he earned his Master's in Poultry Science and his Ph.D. in Physiology and Nutrition. Currently, Dr. Pacheco is an Associate Professor and Extension Specialist at Auburn University in the State of Alabama. His research activities are focused on understanding the interrelationships between feed processing and nutrition on broiler performance. Additionally, Dr. Pacheco conducts research on nutrition strategies to reduce production costs, improve broiler performance, and nutrient digestibility. Dr. Pacheco is lead or supporting author of 32 research articles and 88 news articles primarily in Feedstuffs magazine, which is the leading source of news for animal agriculture in the United States with 12,500 accredited subscribers. Dr. Pacheco has been invited to give more than 165 presentations in 16 countries, has served as chair or member of 25 graduate student committees, and has mentored 21 visiting scholars from 12 countries.

YOUR WEEKLY CHECK-IN NATIONAL EXPERT



DR. ALI-APPA SHIVAPPA DARUR

ALLAPPA SHIVAPPA DARI-JR (Dr. Darur) - has 34 years' experience in areas of broiler breeding, hatchery management and commercial layers. He worked on long term and short-term inputs for operations and design and also has executed efficiencies for breeding and building hatchery infrastructure. He worked for Godrej Tyson Foods Limited as a 'Breeding and hatchery operation Head' at pan India level. He created long term and short-term planning and budgets for assessing operational performances. He lead business operations, inputting strategic vision and long-range planning. He is well versed with statistical analyses of data used for operational purposes and helped forecast team needs. At Godrej Agrovet he also served as a senior officer in-charge of a broiler breeder unit and took care of South India breeder and hatchery operations.

Before joining Godrej Agrovet he served as a technical expert for commercial layers in Hospet, Koppal and Bellary area (Karnataka) for Sri Krishnadevaraya Hatcheries. Key responsibilities involved health and performance aspects of both broiler and layer breeders. With his interventions he helped reduce process bottlenecks by training and coaching employees on practices, procedures and performance strategies. At Bangalore Fort Farms he was responsible for performance and resource management of 125,000 commercial layers and helped formulated least cost feed thus reducing table egg cost. He was also responsible for health and performance of 70,000 commercial layers at the Fort Farms. His other assignments were managing Poona Pearls Samrat 2000 breeder and hatchery operations; providing tech sales services to help chick sales at South West Pearls Hatcheries.

He has attended two weeks of Cobb School training at Springdale in 2010 and was honoured with IVPI's Best Veterinarian award for the service to poultry industry. He has a Bachelor's degree in Veterinary Sciences & A.H from Veterinary College, Bangalore in 1988 and also holds a Master of Business Administration degree in Human Resources from Indira Gandhi National Open University in 2000.

What SEC Members Have to Say



Dr. Karthiga K, M.V.Sc. Product Manager Nanovet Nutrition Pvt. Ltd.

Soy Excellence is a very good platform to understand the concepts of the courses undertaken. The program is well structured, with clear and effective communication, which truly reflects the team's sincerity, commitment, and professionalism. Managing online learning in a meaningful way is not easy, but Soy Excellence executes it exceptionally well, making the learning experience engaging, smooth, and motivating. The team's approachability, timely support, and well-curated learning resources are highly helpful and encourage continuous engagement with the content. Their structured modules, expert-led sessions, and strong focus on quality evaluation further enhance my technical perspective and strengthen my understanding of the subject. I strongly feel this opportunity is important, and I am grateful to be a part of Soy Excellence and to utilize this platform for my professional development and long-term career growth.



Chinmaya Pedgaonkar Export & Business Development Professional Poultry & Agri-Export Sector

As a professional engaged in the poultry and agri-export sector, I joined the India SEC Poultry Production & Management Course to strengthen my technical understanding and align it with commercial strategy and global best practices. The program exceeded my expectations by seamlessly integrating scientific fundamentals with practical field insights. The emphasis on nutrition, management, biosecurity, and industry benchmarking significantly enhanced my ability to evaluate production efficiency, bird performance, and profitability from both technical and business perspectives. The course has strengthened my analytical approach, improved my stakeholder communication, and reinforced my confidence while engaging with domestic and international partners. I sincerely appreciate the USSEC / SEC India team for delivering such a high-quality and industry-relevant learning experience.

International Health Care Ltd (PVS Group) Marks Successful Participation At IPPE 2026, Atlanta, Usa



International Health Care Ltd. (PVS Group), successfully participated in the International Production & Processing Expo (IPPE) held in Atlanta, Georgia, USA (27-28-29 Jan 2026). The three-day global event provided a strong platform for IHC to showcase its innovative and sustainable veterinary solutions to an international audience.

During the exhibition, PVS Group presented its comprehensive range of products catering to Poultry, Pig, Ruminants, Aquaculture, and Equine segments. The company's stall attracted significant attention from customers, distributors, and industry professionals from Latin America, the United States, South-East Asian countries, the Middle East, CIS nations, Africa, and other global markets.

The company was successfully represented by Mr. Arun Pamulapati, Director, and Dr. Ajit Jadhav, Head - Technomarketing, who actively engaged with visitors, technical experts, and business partners throughout the event. Their presence strengthened PVS Group's global relationships and reinforced its commitment to innovation and sustainable animal health solutions.

A major highlight of IHC's participation at IPPE was its strong focus on unique alternatives to Antibiotic Growth Promoters (AGPs) and chemical-based products traditionally used in the poultry and pig industries. PVS

Group has consistently advocated the replacement of antibiotics and chemicals with safe, effective, and sustainable solutions to support a healthy and responsible food chain for human consumption.

IHC prominently promoted its flagship range of "Phytobiotics", a completely natural and effective alternative to antibiotics and veterinary drugs. These products were positioned as a next-generation solution addressing key industry concerns, including:

- No antibiotic resistance
- No withdrawal period
- No adverse effects
- Enhanced food safety
- Safe and healthy for human consumption

Through focused technical discussions and product demonstrations, IHC successfully communicated the importance of phytobiotics in maintaining animal health while ensuring compliance with global food safety standards.

The successful participation of International Health Care Ltd. (PVS Group) at IPPE 2025 further strengthens its position as a global leader in antibiotic-free, sustainable veterinary solutions and reflects the company's long-term vision of promoting responsible animal nutrition and safer food systems worldwide.



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Customer Care : +91 863 2341300 Website: internationalhealthcare.in





EVENT CALENDER

APRIL 2026

VIV SELECT INDIA 22-24 APRIL 2026

Venue : Yashbhoomi Convention Centre,
Delhi, Sector 25, Dwarka,
New Delhi- 110077

Contact Person : Mr. Rajeevan Vattakat

Phone : +91 98100 33187

Email : Rajeevan@sphereconnect.in

Web : www.india.viv.net



JUNE 2026

2-4 JUNE – VIV EUROPE 2026

Venue : Jaarbeurs, Utrecht, The Netherlands

Contact Person : Natalie Taylor

Phone : +31 6 21 31 61 82

Email : natalie@vnueurope.com

Web : www.europe.viv.net



28-30 JUNE – MIDDLE EAST POULTRY EXPO

Venue : Riyadh, RICEC, Saud Arabia

Phone : +966542804924 / +966114824876

Email : info@mep-expo.com

Web : www.mep-expo.com



JULY 2026

13-17 JULY – WORLD'S POULTRY CONGRESS

Venue : Metro Toronto Convention Center,
Toronto, Canada

Phone : +1-416-585-8120

Email : info@wpc2026toronto.com

Web : www.wpc2026toronto.com



AUGUST 2026

4-6 AUGUST – SIAVS

Venue : Anhembi District - São Paulo - Brazil -
Av. Olavo Fontoura, 1209

Phone : +55 (11) 3095-3120

E-mail : siavs@abpa-br.org

Web : www.siavs.com.br



NOVEMBER 2026

25-27 NOVEMBER – POULTRY EXHIBITION

Poultry India Expo 2026 | Knowledge Day - 24th Nov. 2026

Venue : HITEX Exhibition Complex, Hyderabad

Contact Person : Ms. Radhika

Phone : 7997994338/1/2

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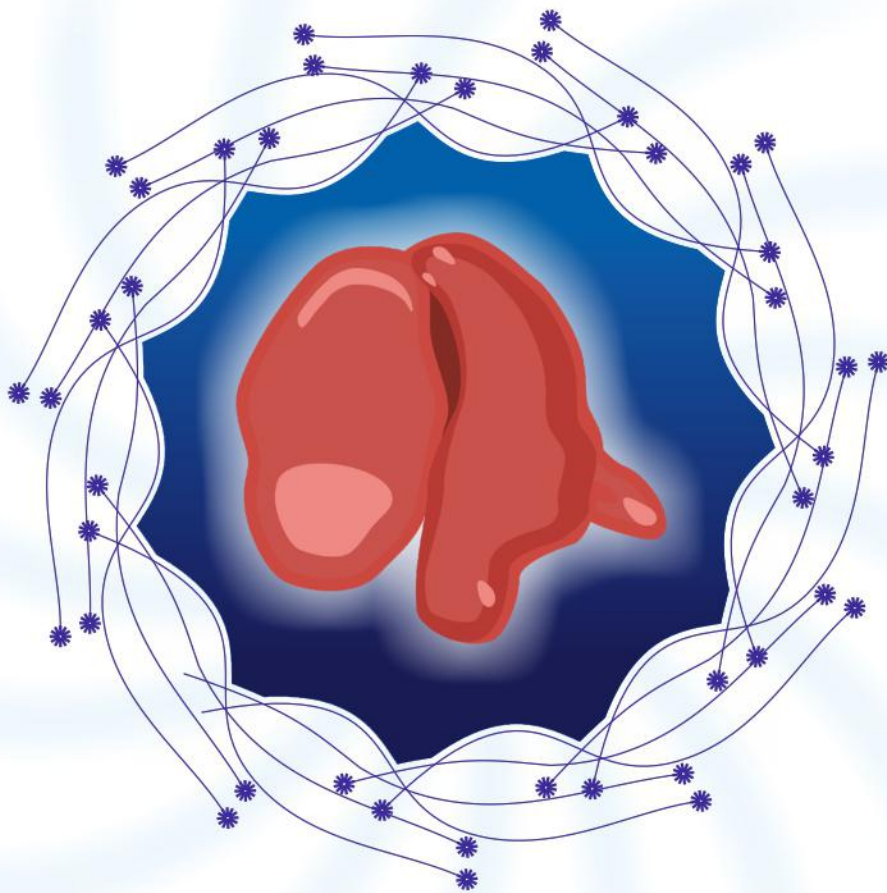
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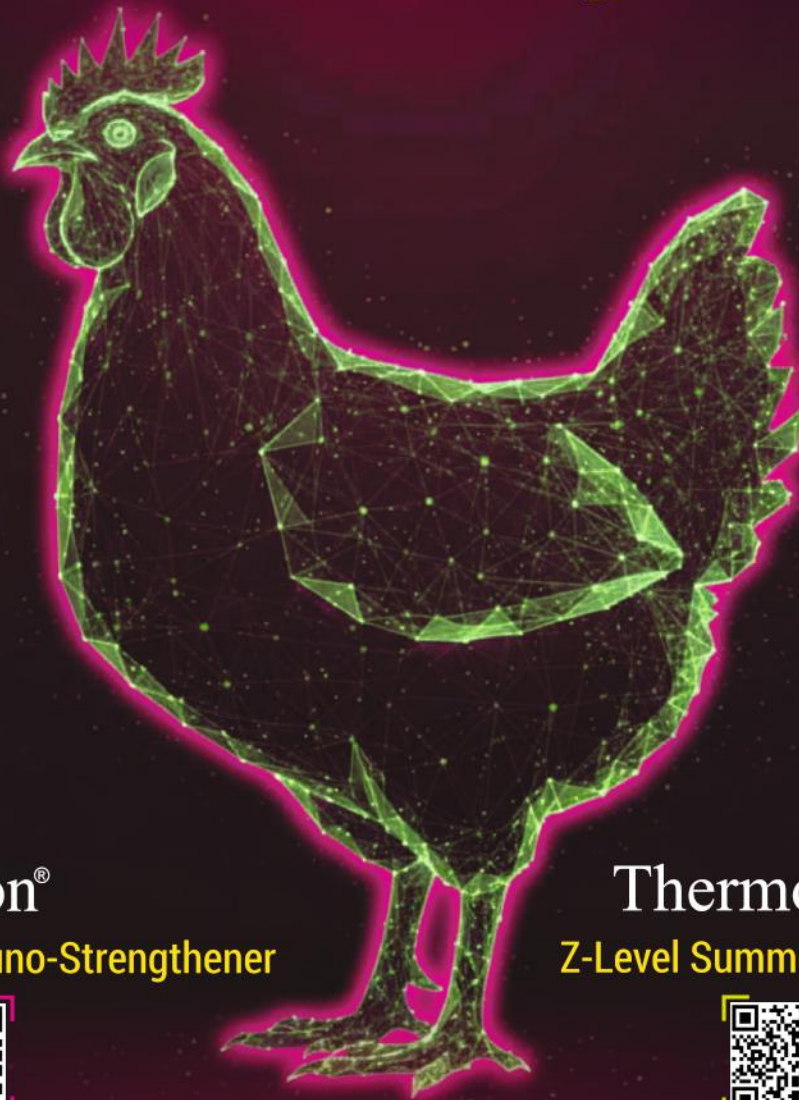
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IPPE 2026 Setting New Milestones for the Global Poultry, Meat & Animal Food Industry

Ricky Thaper



www.rickythaper.com

International Production & Processing Expo (IPPE) 2026, a collaborative effort of the International Poultry Expo, International Feed Expo and International Meat Expo, was successfully organized by the U.S. Poultry & Egg Association, American Feed Industry Association (AFIA) and North American Meat Institute at the Georgia World Congress Center, Atlanta, USA, from January 27-29, 2026. Another remarkable edition, IPPE 2026 attracted attendees from more than 130 countries, reaffirming its position as the world's largest annual poultry & egg, meat and animal food industry event. The expo featured more than 1,380 exhibitors across 6,65,000 square feet of exhibit space, showcasing the latest technological advancements, services and products focused on poultry, meat and animal food production.

International participation remained strong, with significant representation from North America, Latin America, Europe, the Middle East, Africa, South Asia and Southeast Asia, enabling meaningful business interactions and cross-border collaborations. More than 80 educational sessions were conducted during the expo, covering critical themes such as poultry health management, biosecurity, sustainability, artificial intelligence, plant efficiency, market intelligence and industry innovation. Key knowledge platforms included the International Poultry Scientific Forum, Tech Talks, and industry-focused summits, offering practical insights, research-driven solutions and future-ready strategies for poultry and animal food professionals.

The exhibition showcased cutting-edge advancements in poultry processing equipment, automation and robotics, animal health products, nutrition solutions, feed

ingredients and sustainable production technologies. IPPE 2026 once again proved to be the premier global platform for unveiling next-generation innovations shaping the future of animal agriculture, while also facilitating meaningful interactions among poultry industry leaders from around the world.

This year Indian Pharmaceutical and Equipment Companies Strengthen Global Presence at IPPE 2026, reflecting India's growing influence in the global poultry, feed, equipment and animal health industries. By showcasing innovation, sustainability and cost-effective solutions on one of the world's most prestigious international platforms, these companies strengthened their global footprint and enhanced Indian brand visibility on the world stage.

The U.S. Soybean Export Council (USSEC) played a key role at IPPE 2026, showcasing the importance of U.S. Soy in advancing global animal nutrition and sustainable feed solutions. At the USSEC booth, board members and senior management engaged with visitors, sharing insights on industry trends, modern feed formulations and success stories across poultry, dairy and aquaculture sectors. The Soy Excellence Center (SEC) was also highlighted for its role in building technical expertise and strengthening the global soy value chain.

The industry now looks forward to the next edition of IPPE, scheduled to be held at the Georgia World Congress Center, Atlanta, USA, from January 26-28, 2027, promising even greater opportunities for advancement across the poultry, meat and animal food sectors.



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THE SHOCKING TRUTH ABOUT INDIA'S SILENT PROTEIN CRISIS



Protein deficiency doesn't just harm individuals - it quietly drains corporate India. In a knowledge - driven economy where productivity depends on mental agility, nutrition is no trivial issue.

The Hidden Hunger in India's Metros

India's big cities - Bengaluru, Mumbai, Delhi, Hyderabad, Pune - appear prosperous from the outside. Cafés are crowded, restaurants packed, and food-delivery apps buzzing with orders. Yet behind this abundance lies a lesser-known crisis: millions of urban Indians are eating more than ever, but not eating right.

Unlike hunger, protein deficiency is invisible. It doesn't show up as an empty plate, but as low energy, weak immunity, irritability, poor concentration, and early fatigue. It's the kind of malnutrition that hides behind crisp formal wear, high-performing job titles, and corner offices.

Doctors say it's becoming increasingly common among working professionals who eat frequently but without nutritional intention - skipping breakfast for a latte, grabbing quick carbs between meetings, and ending the day with heavy, comforting, low-protein meals. The result: a full stomach but a protein-starved body.

The Carbohydrate Trap

The average Indian consumes just about 47 grams of protein a day, far below recommended levels. In cities, where convenience dictates food choices, the intake is even lower.



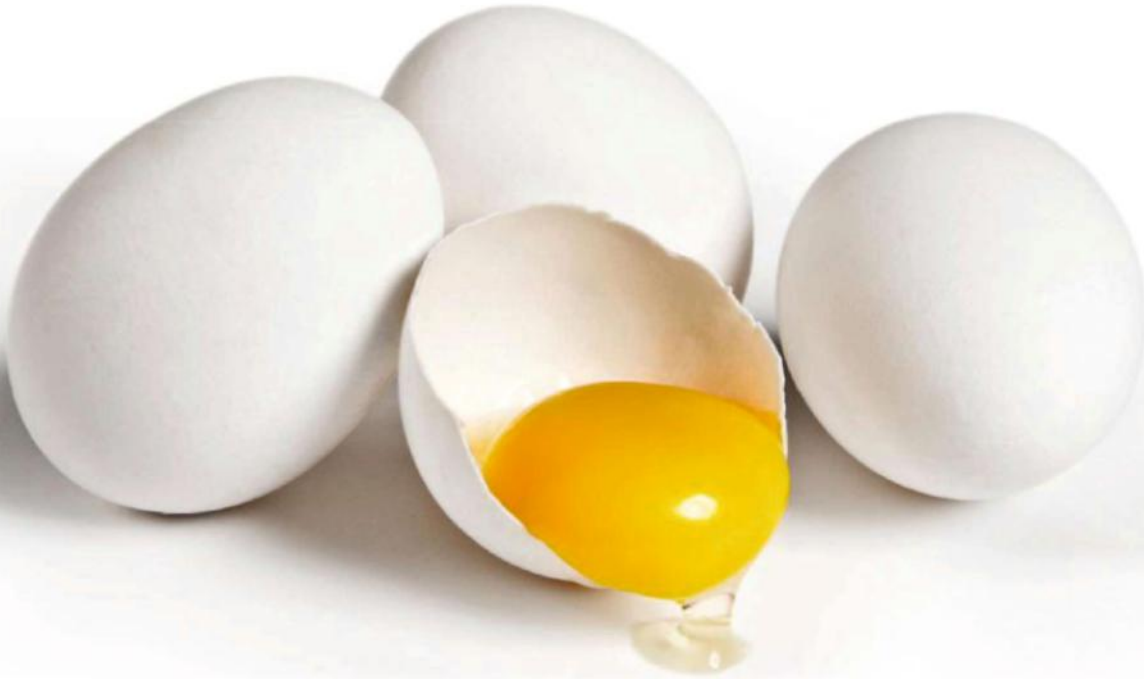
A large percentage of Indians are protein deficient. Many follow a predominantly vegetarian diet, and even those who are non-vegetarian do not consume protein-rich foods regularly.

Mrs. Medha Patwardhan, senior Dietician.

Urban diets lean heavily on refined carbohydrates - rolls, noodles, rice, pav bhaji, pizzas, fried snacks, sugary beverages. Protein-rich foods, whether animal or plant-based, get sidelined. For many professionals, caffeine & sugar have become quick substitutes for real energy.

The impact shows: afternoon fatigue, frequent cravings, sluggish focus - often mistaken for burnout, but rooted in biochemical imbalance.





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The Economic Cost of Poor Nutrition

A protein-deficient workforce is a slow workforce. Research shows that low protein intake leads to poor concentration, impaired decision-making, reduced immunity, more sick days, and slower recovery from fatigue.

The Indian corporate world talks a lot about mental wellness but rarely about nutritional wellness," says Ravi Natarajan, a Bengaluru-based HR head. "You can't expect high performance from a body running on caffeine and carbohydrates.

A National Mission: Hello Protein



At the forefront of addressing this crisis is Mr. O.P. Singh, Founder of Hello Protein, who has embarked on a mission to transform India's relationship with protein. His vision goes beyond business; it is a national call to action - to recognize protein as a fundamental driver of health, productivity, and economic resilience.

To bring this vision alive, Mr. Singh is spearheading a countrywide initiative called "Hello Protein". The movement aims to spark conversations, debunk myths, and encourage Indians to consciously incorporate more protein into daily diets.



The initiative is designed to reach diverse segments - from urban professionals and students to homemakers and fitness enthusiasts - by simplifying scientific information and converting it into practical, culturally relevant advice, Mr. Singh explains. Supported by expert insights, public-awareness campaigns, and collaborations with nutritionists, Hello Protein strives to make protein education both accessible and engaging.

The movement is expanding through digital content, community outreach, and partnerships with healthcare providers, food brands, and educational institutions. "With Hello Protein, we hope to catalyze lasting behavioral change - helping millions shift from carbohydrate - heavy patterns to balanced, protein - rich habits that build stronger bodies, sharper minds, and a more resilient nation," Mr. Singh says.



He believes nutrition is inseparable from progress. **"Nutrition, sustainability and national enrichment go hand in hand. Every unit of protein is a unit of national wealth. When a country achieves protein sufficiency, it strengthens not just its people - but its prosperity."**

Expanding on his philosophy, Mr. Singh argues that protein is not merely a dietary component but a strategic resource. Healthier children learn better, Healthier adults work better, Healthy communities power economies. Mr. Singh's vision states that ; India's journey toward becoming a stronger nation begins with a stronger plate.



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Dr. Avinash Bhondwe, General Physician and Past President of the Indian Medical Association, explains: "In India, a vast majority of people suffer from protein deficiency. Our daily meals are heavily dominated by carbohydrates and fats - rotis, chapatis, rice, and other staples often prepared with generous amounts of ghee and oil. What's missing from the plate is adequate protein, which is the fundamental building block for growth, repair, and strong immunity. Without sufficient protein, the body's ability to fight infections weakens, making Indians far more susceptible to illnesses. Addressing this nutritional gap is critical if we want to build a healthier, more resilient population."

Why Protein Matters



Protein is not a fitness fad - it is the building block of life. Every cell, enzyme, muscle fibre and hormone depends on it. It repairs tissues, builds immunity, supports cognitive function, and provides sustained energy.

Every line of code, every boardroom presentation, every business negotiation - all require a body fueled by adequate protein. When protein falls short, energy dips, clarity blurs, and long-term health deteriorate.

While India is obsessed with expensive health supplements, the simplest answers lie in affordable, accessible foods: eggs and chicken.

A single egg provides high-quality, complete protein with all nine essential amino acids. A serving of chicken offers nearly 27 grams of lean protein — one of the most efficient and economical sources available.

Yet myths persist. Many avoid eggs fearing cholesterol; others label chicken "unhealthy." Nutritionists call these fears outdated.

Moderate egg and chicken consumption is perfectly safe, says Dr. Pooja Menon, a Delhi-based dietician. They remain among the cleanest and most complete protein sources.

For vegetarians, paneer, lentils, soya, and millets offer strong alternatives - though animal proteins remain the most complete sources.

Dietician Mrs. Patwardhan adds that traditional Indian diets already offer abundant natural protein - if only we return to them. Eggs are accessible and affordable. Milk, curd, buttermilk, paneer, and cheese are excellent protein sources. Even adding milk powder to recipes can significantly boost protein content. Fermented dairy like curd acts as a natural probiotic, supporting gut health, digestion, and immunity.

India's Poultry Ecosystem: A Backbone of Nutrition

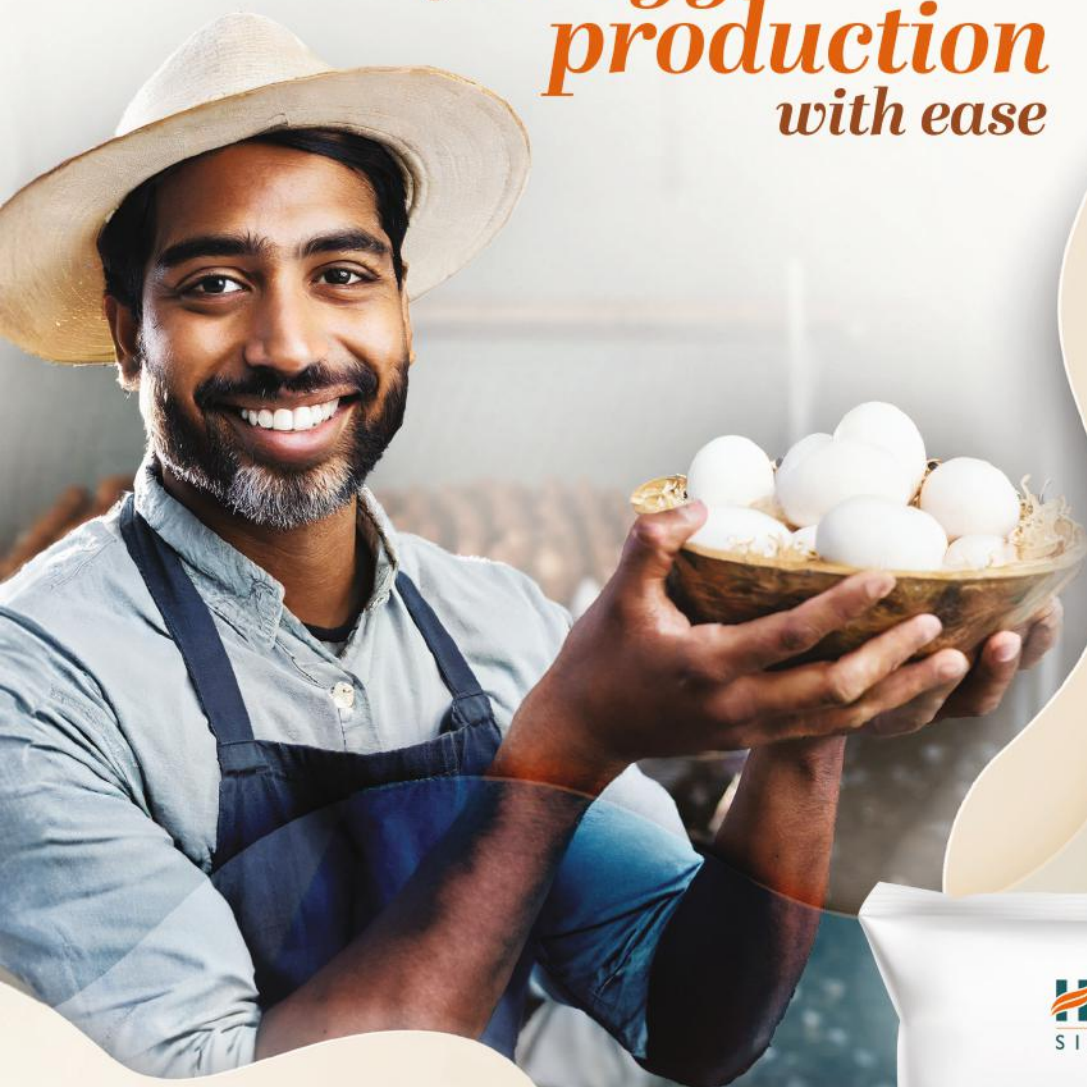
Behind every egg and chicken dish is an ecosystem connecting producers, processors, and consumers.



Producers - poultry farmers - ensure healthy, well-fed flocks through climate-controlled sheds, automated systems, and precision nutrition. Processors maintain hygiene, safety, and packaging standards that bring clean, ready-to-cook products to customers. Consumers, increasingly conscious of hygiene and traceability, are driving demand for safer, processed poultry.



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Dr. Mahesh Shivankar,
Vice President,
Japfa India.

Valued at over ₹2 lakh crore, the sector matches global benchmarks in productivity and operational excellence. India now ranks third globally in egg production and fourth in chicken production - a testament to the dedication of farmers, integrators, and industry stakeholders working to feed a growing population.

The Way Forward: Building a Stronger, Sharper India

Government nutrition programs like Mid-Day Meals and Anganwadi centers have improved protein intake among children. But working adults — the backbone of the economy — remain outside most nutrition policies.



Here, corporate India has a crucial role to play.

Company cafeterias can serve balanced, protein-rich meals. HR teams can organize nutrition-literacy sessions. Food-delivery platforms can highlight healthier, protein-forward options. Wellness programs can move beyond gym memberships to include dietary education.

A healthier workforce isn't merely a welfare goal - it is a business advantage.



Protein is not a luxury; it is the fuel of human potential. India's hidden hunger may not show on the streets, but it reveals itself in its fatigue, its reduced productivity, and its rising lifestyle disorders.

The solution is simple and affordable. It begins on the plate - perhaps with something as small as an egg, as familiar as a bowl of dal, or as comforting as a cup of curd.

In a fast-paced urban world, **protein is strength - and a well-nourished India is a stronger, sharper, and more productive India.**

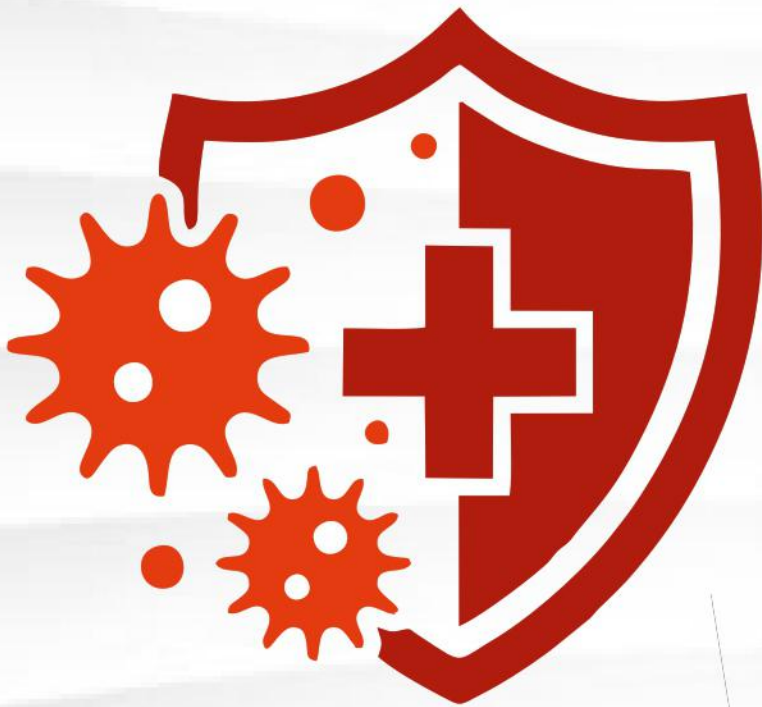


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GPGR in Poultry Nutrition: The High-HLB Nutritional Emulsifier Redefining Fat Utilization

By Inge Peeters, Sopaphan Pruekvimolphan

Fat digestion remains one of the most persistent challenges in poultry production. Whether in fast-growing broilers or long-cycle layers, birds must emulsify dietary fats efficiently within a digestive system dominated by water. Young birds struggle with limited bile and lipase secretion, while layers face constant metabolic pressure from egg production. Emulsifiers help bridge these physiological gaps—but their chemistry determines how effectively they perform inside the bird.

Among the various emulsifier options available, Glycerol Polyethylene Glycol Ricinoleate (GPGR) stands out: its physicochemical behavior aligns closely with the actual conditions of the small intestine.

What is GPGR?

GPGR, also known as E484, is a non-ionic emulsifier produced through ethoxylation of castor-oil-derived glycerol esters. Its hydrophilic-lipophilic balance (HLB) is defined by the way the molecule is engineered. High-HLB GPGR typically falls within the 16-18 range, assuring it as a strongly hydrophilic molecule optimized for forming oil-in-water emulsions.

Scientifically, GPGR is defined by three core properties:

- **Strong hydrophilicity**, enabling dispersion in the intestine's aqueous environment.
- **Non-ionic behavior**, meaning its functionality does not depend on bile concentration or conjugation.
- **High emulsion stability**, allowing consistent smaller droplet formation across a wide range of pH and temperatures.

Why does the Aqueous Gut Favors GPGR?

The small intestine is fundamentally water-rich, regardless of dietary fat levels. Emulsifiers that perform well in this environment must favor oil-in-water systems. Lecithin, with its low HLB, is better suited for feed processing roles than intestinal emulsification. Lysolecithin can perform more effectively inside the gut, however, it still depends heavily on adequate bile salt secretion and quality.

In contrast, GPGR's high HLB allows it to disperse rapidly in the aqueous lumen and form fine, stable droplets that persist longer as digesta moves along the gut. This stability is critical because it preserves fat surface area for enzymatic attack and improves downstream steps in digestion. An *in vitro* study (Figure 1) conducted by Northwest A&F University in China showed a significant smaller fat droplet size ($P < 0.0001$) of GPGR-based, compared to Lysolecithin-based emulsifier, over all Water:Oil ratios (30:1 to 15:1) and temperatures (22 °C and 42 °C, mimicking chicken body temperature).

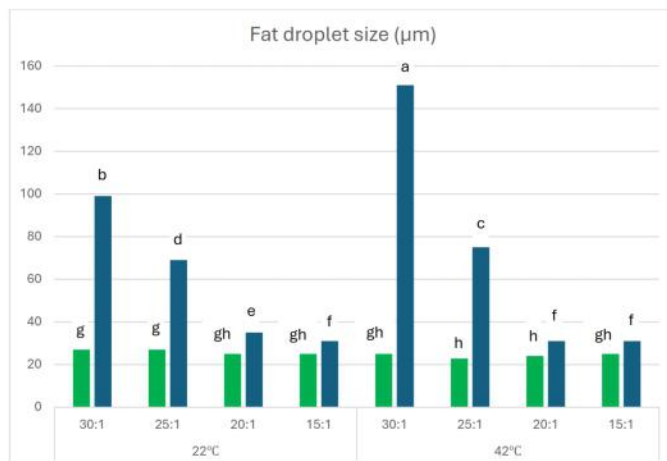


Figure 1: *In vitro* comparison of fat droplets size of emulsifiers across Water:Oil ratios and temperatures. Green bars: GPGR-based emulsifier. Blue bars: Lysolecithin-based emulsifier.

What GPGR Changes in the Digestive Process

Once GPGR contacts dietary fats, interfacial tension drops sharply, enabling fats to disperse evenly throughout the lumen. This fine droplet structure remains intact despite fluctuations in pH or temperature that naturally occur during digestion.

As lipolysis progresses, GPGR supports the formation of mixed micelles—tiny carriers that transport fatty acids and fat-soluble nutrients across the intestinal wall. This micellar support is essential for efficient absorption and becomes increasingly important in birds with limited endogenous bile or lipase.

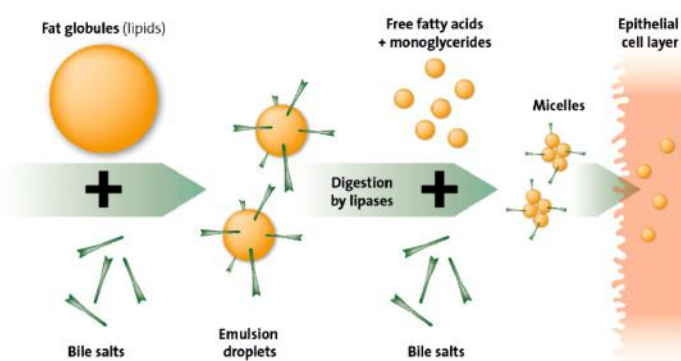


Figure 2: Fat digestion in 3 steps: (1) formation of small emulsion droplets, (2) hydrolysis by lipase and (3) formation of micelles and uptake in epithelial cell layer.

To emphasize this digestibility pathway, GPGR strengthens all three rate-limiting steps:

- **Emulsification:** Creating small, stable droplets in the aqueous lumen.
- **Lipolysis:** Prolonging enzyme access to fat surfaces.



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- **Micelle formation:** Stabilizing transport of lipolysis products for efficient absorption.

This coordinated improvement explains why GPGR often outperforms emulsifiers with lower HLB values or bile-dependent mechanisms.

Reliability Under Challenging Conditions

Modern poultry systems face digestive variability, particularly in antibiotic-free (ABF) environments. Microbial populations often produce bile salt hydrolase, which deconjugates bile salts and reduces their emulsifying power (Figure 3). Under such conditions, lecithin-based or lysolecithin-based emulsifiers lose efficiency.

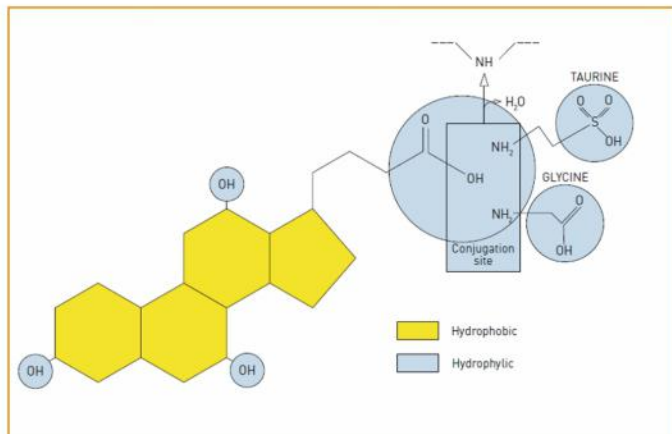


Figure 3: Conjugation with taurine or glycine to form a conjugated, active form of bile salt. *Clostridium perfringens*, for example, was shown to express high levels of the bile salt hydrolase enzyme. When hydrolyzed, unconjugated form of bile salt loses its ability to act as a natural emulsifier, resulting in a decreased fat digestion.

GPGR avoids this weakness because it is **non-ionic** and bile-independent, it remains functional regardless of bile status. Its performance also remains stable when diets contain higher-saturated fats, when temperatures fluctuate, or when energy density is intentionally reduced. Even pelleting and processing stresses do not significantly impair GPGR's functionality. This stability is one of the reasons GPGR works predictably and consistently across farms, feed mills, fat sources, and microbial environments.

What Broiler Studies Reveal About GPGR

Across controlled trials, broilers fed GPGR show improvements in body weight gain, feed conversion, and total-tract nutrient retention. These gains appear consistently, not only in high-energy diets but also in formulations where energy has been reduced. Young broilers exhibit the strongest responses due to their natural limitations in bile and enzyme secretion. GPGR supplements this gap by stabilizing emulsification and micellar transport during the developmental stages when birds struggle most with fat digestion.

A study was conducted (Belgium, 2021) with 1,080 male Ross 308 broilers fed one of four diets for 35 days: a

Control diet, GPGR-A (350 ppm Excential Energy Plus, Orffa Additives BV), a lysophospholipids-based emulsifier (500 ppm), and GPGR-B (500 ppm) (Figure 4). All tested emulsifiers were added on top of nutritionally challenged control diet with added rye and rapeseed meal, an increased crude protein level, without non-starch polysaccharides(NSP) enzyme. Excential Energy Plus consistently showed a numerically and significantly better final body weight, FCR, and European Production Efficiency Factor (EPEF), as compared to Control and other emulsifier groups. This study also highlighted that not all GPGR-based emulsifiers are the same and have the same benefits on performance. Therefore, it is advisable for nutritionists to make well-informed choices when selecting the most suitable and effective emulsifier.

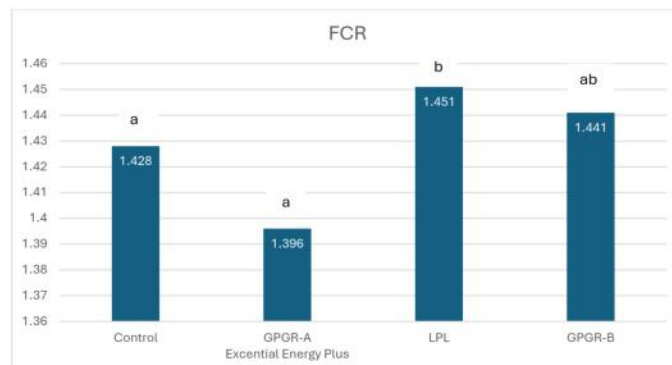


Figure 4: Effect of the different emulsifiers supplementation on FCR of broilers GPGR-A (Excential Energy Plus) and GPGR-B have different molecular configurations, resulting in different HLB values.

What Layer Studies Reveal – Different Physiology, Same Advantage

Layers face a completely different physiological challenge, but the advantage remains. Instead of rapid growth, they require steady nutrient delivery to support ongoing egg formation over an extended cycle. Fat digestion influences egg mass, yolk quality, persistency of lay, and metabolic resilience. These effects become especially noticeable when diets contain more saturated fats or when energy density fluctuates. GPGR's independence from bile allows hens to maintain efficient fat utilization even when their endogenous systems weaken. This results in smoother transitions through peak lay and fewer dips associated with fat quality or digestive stress.

In a study (Brazil, 2024) of Bovans White laying hens fed an energy-reduced diet (-70 kcal/kg feed), several emulsifiers with different active ingredients and HLB values were evaluated. Emulsifiers overall helped boost production efficiency and egg quality. Among them, Excential Energy Plus, which contains GPGR, showed superior results in egg production percentage, egg weight, and feed conversion ratio per kilogram of egg (Figure 5) compared to other emulsifiers. Additionally, the yolk color and uniformity of yolk pigmentation improved significantly, compared to other treatments, suggesting increased pigment absorption and better fat emulsification and digestion in layer fed Excential Energy Plus.

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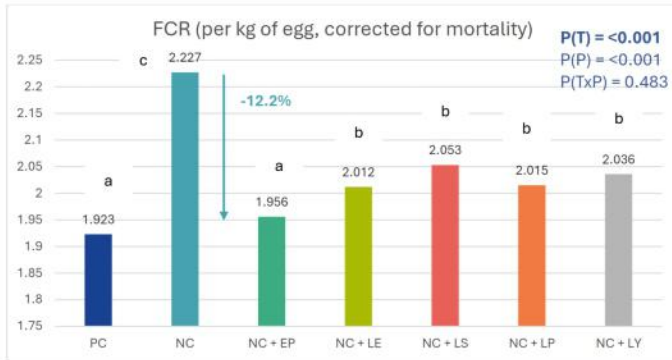


Figure 5: Effect of energy levels and emulsifiers on FCR (per kg of egg, mortality corrected) PC: Positive Control
NC: Negative Control

EP: Excellent Energy Plus 350 ppm LE: GPGR-based, low HLB, 500 ppm LS: Lecithin + GPGR 250 ppm

LP: Lysolecithins 500 ppm

LY: Lysolecithin + Monoglycerides + GPGR 500 ppm.

How GPGR Differs From Traditional Emulsifiers

- Lecithin remains useful for feed and feed mill processing benefits but performs inconsistently inside the gut due to its low HLB.
- Lysolecithin offers stronger intestinal performance but is more sensitive to bile variability and stress conditions.

- Bile acids can help with saturated fats but are dose-dependent and highly vulnerable to microbial deconjugation.

- GPGR stands out for its stable gut performance, high hydrophilicity, independence from bile, working reliably across different ages, dietary oil/fat source and quality, and production systems.

Right Emulsifier, Right HLB, Right Outcome

It is important to choose an emulsifier that matches the gut's aqueous environment. GPGR's high-HLB, non-ionic chemistry is built to create stable oil-in-water emulsions *in vivo*. Use it according to your objective—reformulate and reduce feed cost or apply on-top to increase performance when savings aren't the priority. The same mechanism—improved dispersion, lipase access, and micelle transport—underpins consistent results across diets and conditions.

Reference available upon request

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PVS Group Celebrates 33 Years of Leadership in Animal & Aqua Health



The PVS Group, India's largest manufacturer and exporter in the Animal and Aqua Health Care Industry, proudly celebrated its 33rd Anniversary on 7th and 8th January 2026, marking over three decades of excellence, innovation, trust, and global leadership.

PVS represents Poultry, Veterinary, and Shrimp (Aqua), reflecting the Group's integrated commitment to total animal and aquaculture health. The name also honors the vision of its founder, Dr. Pamulapati Venkata Sessaiah, whose foresight and dedication laid the foundation of this globally respected enterprise.

The 33rd Annual Meet was truly unique, designed to reflect learning, culture, unity, and values, much like a premier educational institution. Under the guidance of CMD Dr. PVS and Director Mr. Arun, the celebration became a vibrant platform of employee engagement, creativity, and pride. A special highlight was the cultural programs performed entirely by PVS employees, reinforcing that PVS is one family, not just an organization.



Adding global prestige, chief guests from Spain, Vietnam, Uganda, Nigeria, Syria, and Tanzania attended the event. They appreciated PVS's business transparency, consistent product quality, technical strength, and long-term partnership approach, while sharing a clear roadmap for future global collaborations.

The event also recognized excellence through awards for Best Employee, Legendary Employee, Best Contributor, and Outstanding Cultural Performers, reaffirming PVS's belief that employees are its greatest strength.

More than 650 PVS family members from manufacturing, R&D, offices, and sales & marketing—along with the Vietnam team—celebrated together as One Global PVS Family. Business Unit Heads finalized budgets and targets, committing to achieve ambitious goals for the coming year.

With evaluations spanning performance, culture, sports, yoga, wellness, and engagement, the celebration reflected PVS's people-centric culture. At its new corporate office, PVS continues to celebrate festivals and special days, fostering unity, inclusivity, and belonging.

As PVS Group completes 33 glorious years, it reaffirms its commitment to innovation, ethical global expansion, employee well-being, and transparent international partnerships—moving forward stronger, united, and ready to lead the global Animal & Aqua Health industry into the future.



The 33rd Annual Meet was truly unique, designed to reflect learning, culture, unity, and values, much like a premier educational institution. Under the guidance of CMD Dr. PVS and Director Mr. Arun, the celebration became a vibrant platform of employee engagement, creativity, and pride. A special highlight was the cultural programs performed entirely by PVS employees, reinforcing that PVS is one family, not just an organization.

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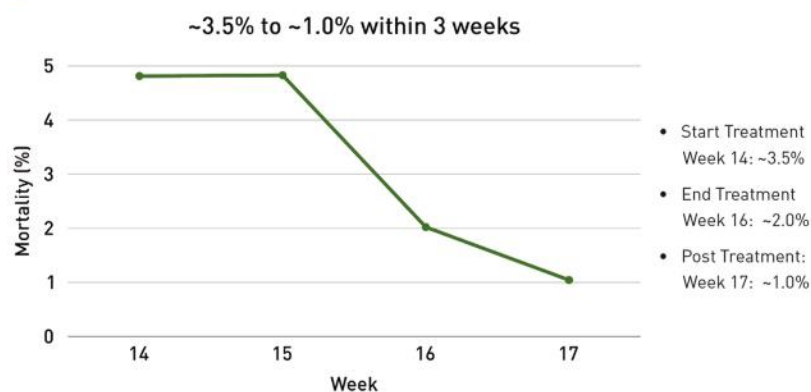
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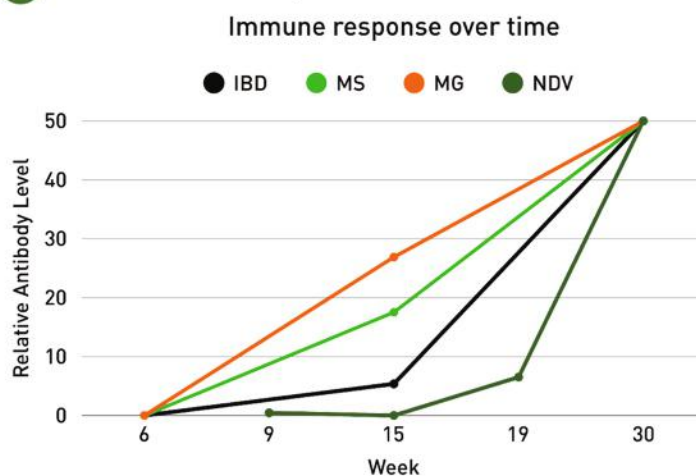


This reduction demonstrates rapid treatment response with sustained flock stability during a critical production phase.

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- ✓ **Performance advantage:** Better gut health and feed efficiency for sustainable production.

2 Enhanced Immunity Indicators:

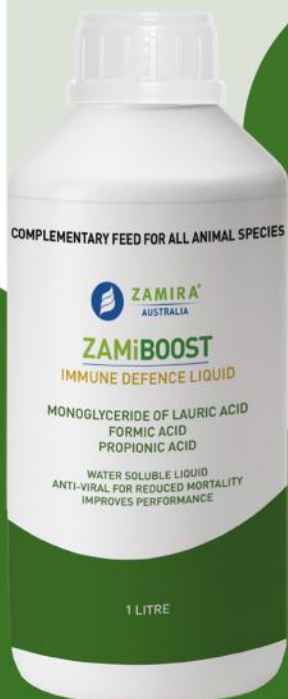


The trial data demonstrated clear improvements in immune response across all measured pathogens over time:

- **Newcastle Disease Virus (NDV):** Levels were low at 9 weeks, stayed modest through 19 weeks, then rose sharply by 30 weeks.
- **Mycoplasma Synoviae (MS):** Titres increased steadily from 6 to 15 weeks, with a strong lift at 30 weeks.
- **Mycoplasma Gallisepticum (MG):** Titres climbed consistently from 6 weeks, reaching a high peak at 30 weeks.
- **Infectious Bursal Disease (IBD):** Antibody levels rose slightly from 6 to 15 weeks, with a further marked increase by 30 weeks.

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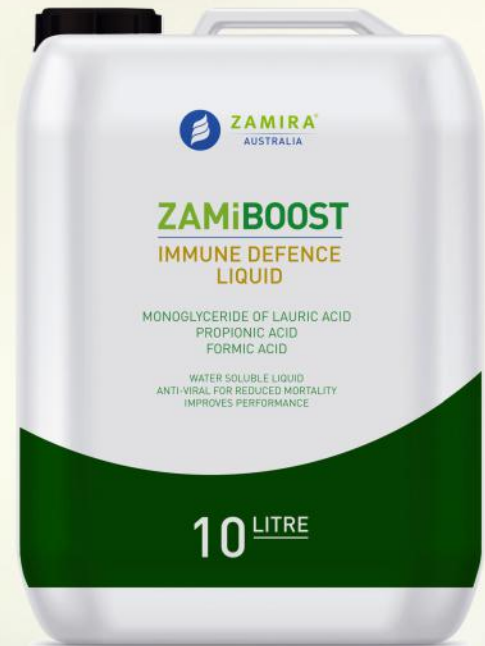


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Efficacy of PHYTOGIC on the performance of commercial broilers under field conditions

Dr. Amit Janbandhu & Dr. Sanjay Singhal

Abstract

The progressive ban on in-feed antibiotic growth promoters (AGPs) has accelerated the need for efficacious phytogetic alternatives capable of sustaining growth and intestinal health in modern broiler production. PHYTOGIC, a standardized phytogetic formulation derived from *Macleaya cordata* extract and enriched with benzyloisoquinoline alkaloids (primarily sanguinarine and chelerythrine), exhibits potent antimicrobial and anti-inflammatory activity, including suppression of the HMGB1-TLR4-NF- κ B axis. This field study investigated the effects of dietary PHYTOGIC on growth performance of commercial Vencobb 430 broilers raised on deep litter under high ambient temperature stress (42-45 °C). A total of 36,000 chicks were allocated to two treatments: a basal diet (T1) and the basal diet supplemented with PHYTOGIC at 150 g/ton (T2). Performance indicators, including body weight, feed intake (FI), feed conversion ratio (FCR), corrected FCR (CFCR), and mortality, were monitored over a 42-day production cycle. PHYTOGIC supplementation significantly improved final body weight (2291 g vs. 2110 g; +8.22%) and feed efficiency (FCR: 1.75 vs. 1.80; CFRCR: 1.67 vs. 1.77), accompanied by a moderate increase in FI (+5.50%). Mortality remained statistically comparable between groups, indicating no detrimental physiological effects. These results demonstrate that PHYTOGIC enhances nutrient utilization and growth performance under challenging production conditions, supporting its potential as a viable phytogetic replacement for AGPs in commercial broiler systems.

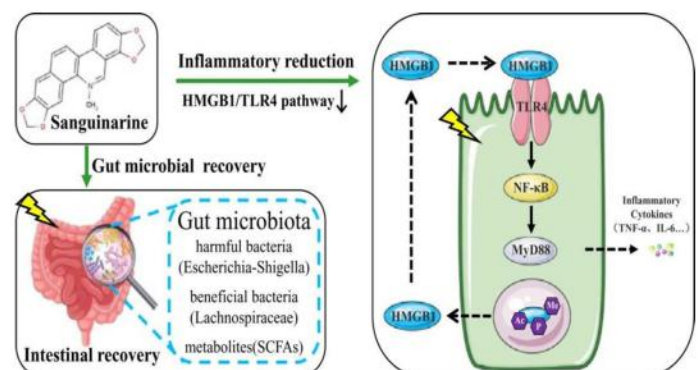
INTRODUCTION

The extensive use of antibiotic growth promoters (AGPs) in animal feed has contributed to antimicrobial resistance and ecological damage, posing risks to human health. As a result, plant-based alternatives have gained attention for their safety, efficacy, and availability (Songchang et al., 2021). Necrotic enteritis (NE), mainly caused by *Clostridium perfringens*, is a significant enteric disease in poultry. Restrictions on in-feed antibiotics in regions such as the European Union and China have led to increased NE incidence (Shojadoost et al., 2012), with mortality in young broilers reaching 50%. NE triggers elevated pro-inflammatory cytokines and chemokines (Lee et al., 2011). Immune activation increases resting metabolic rate by 8-27%, diverting energy from growth (Martin et al., 2003). Inflammation reduces feed intake, damages intestinal structure, impairs nutrient absorption, and causes economic losses (Klasing et al., 1987). NE also disrupts gut microbiota, reducing diversity and promoting pro-inflammatory bacteria (Satokari et al., 2015). Dysbiosis weakens immune regulation and enhances pathogen virulence (Baumler et al., 2016).

Macleaya cordata extract (MCE), containing sanguinarine and chelerythrine, was approved as a feed additive in the EU in 2004. Sanguinarine demonstrates antibacterial, anti-inflammatory, immunomodulatory, and antitumor properties (Fu et al., 2018; Kumar et al., 2014; Hamoud et al., 2014; Xue et al., 2017). MCE improves growth performance, gut health, and immunity (Khadem et al., 2014), inhibits NF- κ B activation (Niu et al., 2012), and is considered a promising AGP alternative (Kim et al., 2012). Safe doses up to 5 mg/kg body weight have been reported (Kosina et al., 2004).

Mechanism of action Macleaya Cordata Extract in poultry gut

Sanguinarine helps reduce inflammation by blocking key signals that trigger the body's inflammatory response. When cells are damaged, they release a protein called HMGB1, which acts as a danger signal and activates immune cells. Sanguinarine helps prevent the release of HMGB1 and reduces its ability to trigger inflammation. It also blocks a receptor called TLR4 on immune cells. Normally, TLR4 detects harmful signals like HMGB1 and activates further inflammatory pathways. By interfering with this receptor, sanguinarine stops the signal from spreading. In addition, sanguinarine inhibits NF- κ B, a major protein that turns on genes responsible for producing inflammatory chemicals. By preventing NF- κ B activation, sanguinarine reduces the production of pro-inflammatory cytokines such as TNF- α , IL-6, and IL-1 β . Sanguinarine exerts anti-inflammatory effects by targeting the HMGB1-TLR4-NF- κ B signaling axis at multiple levels. Overall, sanguinarine lowers inflammation, limits tissue damage, and helps protect organs, especially in inflammatory conditions of the gut and other tissues (Gu et al., 2022).





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Image.1. Anti-inflammatory mechanism of Sanguinarine showing reduction of gut lesion by interference of HMGB1(High Mobility Group Box 1)/ TLR4 (Toll-like receptor 4) pathway in inflammation site.

The aim of the study was to evaluate the effect of PHYTOGIC on the performance of commercial broilers reared on deep litter under field conditions.

Materials and Methods

Experimental Design and Management

The trial was conducted at Harsh Broiler House using Vencobb 430 straight run chicks (not sexed at hatchery) in three treatments of around 12000 birds in each treatment. A total of 36000 birds were considered for trial purpose. Feed Formulation used was same for all treatment groups except in T2 where PHYTOGIC was added at 150 gm per ton feed respectively in all stages. (Table 1.) In the study, the energy level was equivalent to the standard requirements of broilers recommended in the Vecobb 430. The trial was carried out over a period of 42 days. The birds were fed ad lib feed and water was available all the times. Care was taken to provide good conditions by adopting strict biosecurity measures. The housing and vaccination procedures were same in both groups.

Table 1. Composition of basal diet for broiler chicks in control group for 3 phases.

Broiler Feed Formulation (Control)			
Raw Materials	Prestarter	Starter	Finisher
Maize	625.15	652.75	686.65
HiPro Soya	335	300	260
Soya Crude Oil	6	14	23
Limestone Powder	8.5	8.5	8
Dicalcium Phosphate	10	10	8
L Lysine HCl	2.7	2.4	2.3
DL Methionine	3.3	3	2.7
L Threonine	1	1	1
Salt	2.5	2.5	2.5
Soda Bi Carb	1.5	1.5	1.5
Choline Chloride 60%	1	1	1
Organic TM	0.5	0.5	0.5
Broiler Vitamin Premix	0.5	0.5	0.5
Coccidiostat	0.5	0.5	0.5
AGP	0.05	0.05	0.05
NSP Enzyme	0.1	0.1	0.1
Phytase 5000	0.1	0.1	0.1
Feed Acidifier	1	1	1
Toxin Binder	0.6	0.6	0.6

*The figures are in Kilograms.

The premix provided the following per kilogram of the diet: vitamin A, 6000 IU; vitamin D3, 2500 IU; vitamin B1, 1.75 mg; vitamin B2, 5.5 mg; vitamin B6, 4 mg; vitamin B12, 0.18 mg; vitamin E, 25 mg; vitamin K3, 2.25 mg; Cu, 7.5 mg; Mn, 60 mg; Fe, 75 mg; Zn, 60 mg; Se, 0.15 mg; biotin, 0.14 mg; NaCl, 3.7 g; folic acid, 0.8 mg; pantothenic acid, 12 mg; phytase, 400 U; nicotinic acid, 34 mg; chloride, 350 mg. *Nutrient levels were all calculated values.

Treatment Details-

T1: Control group fed basal diet

T2: Control group fed basal diet + PHYTOGIC @150 g PMT

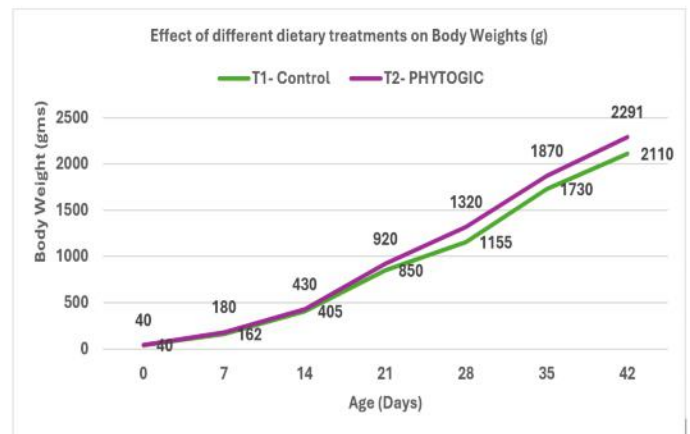
Parameters Studied-

1. Body Weight gain was recorded weekly
2. Feed Consumption recorded daily and leftover feed was adjusted in the other day quota to know actual intake.
3. Mortality was recorded daily
4. EEf calculated post harvesting of the flock
5. FCR was calculated every week and post harvesting of the flock.

Results:

Effect of Supplementation of Phytogic on body growth performance parameters like Body Weights, Feed Consumption, FCR and Average Daily gain of Control and Treatment Groups

Fig.1. Effect of different dietary treatments on Body Weights (g)



Conclusion: Broilers in the T2 - PHYTOGIC group fed at 150g/ton of feed achieved higher final body weights (2291 g) compared to the T1 - Control group (2110 g), showing an 8.22% improvement. This indicates that PHYTOGIC supplementation effectively enhances growth performance in broilers.

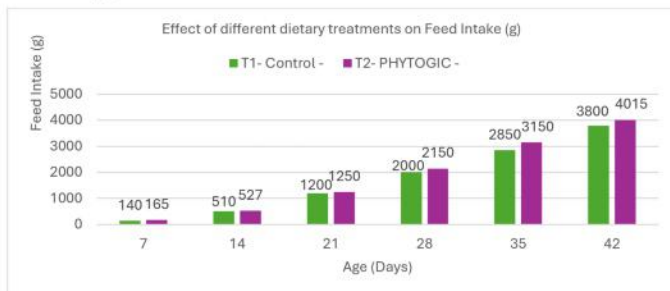
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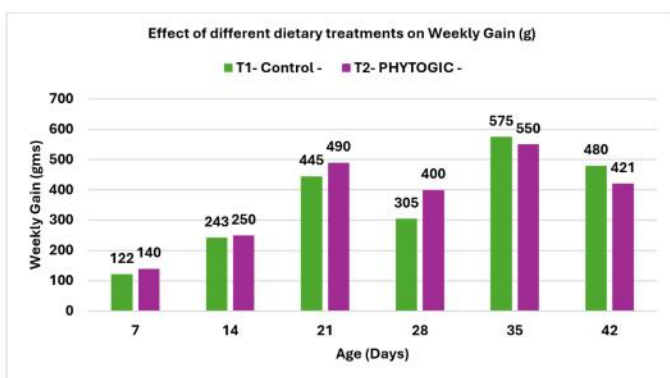
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Fig.2. Effect of different dietary treatments on Feed Intake (g)



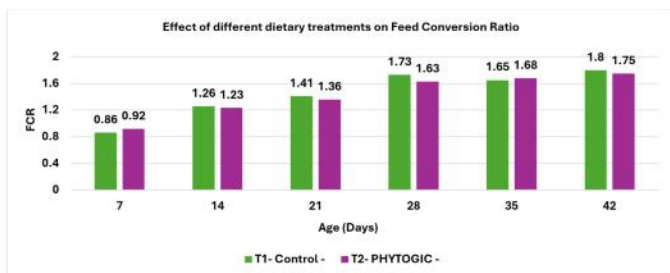
Conclusion: Broilers in the T2 - PHYTOGIC group fed at 150g/ton of feed consumed more feed (4015 g) compared to the T1 - Control group (3800 g), showing a 5.50% increase in feed intake. This suggests that PHYTOGIC supplementation may enhance feed consumption in broilers.

Fig.3. Effect of different dietary treatments on Weekly Gain (g)



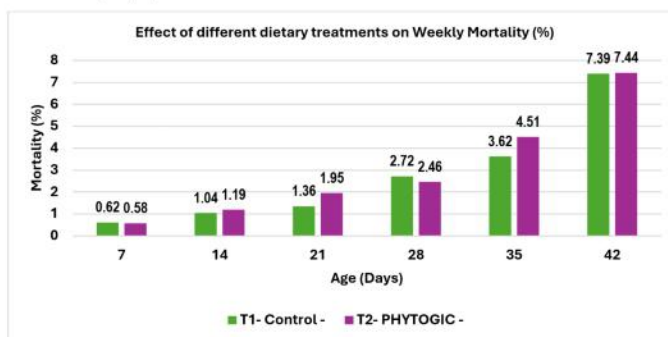
Conclusion: The average weekly percentage difference in weight gain between T2 - PHYTOGIC fed at 150g/ton of feed and T1 - Control was -3.84%, indicating that, overall, PHYTOGIC supplementation did not improve weekly weight gain in broilers and was slightly less effective than the control in this trial.

Fig.4. Effect of different dietary treatments on Feed Conversion Ratio



Conclusion: Broilers in the T2 - PHYTOGIC group fed at 150g/ton of feed showed an improved feed conversion ratio (1.75) compared to the T1 - Control group (1.80), with a 2.81% improvement. This suggests that PHYTOGIC supplementation enhances feed efficiency in broilers, allowing for better weight gain per unit of feed consumed.

Fig.5. Effect of different dietary treatments on Weekly Mortality (%)



Conclusion: The mortality rate in the T2 - PHYTOGIC group fed at 150g/ton of feed was (7.44%) slightly higher than the T1 - Control group (7.39%), with a 0.27% difference. This minimal variation indicates that PHYTOGIC supplementation had no significant effect on broiler mortality under the conditions of this study.

Table 2. Summary of the Report

Parameters	T1- Control	T2- PHYTOGIC	% Difference
Body Weight (g)	2110	2291	8.22
Feed Intake (g)	3800	4015	5.50
FCR	1.80	1.75	2.81
CFCR	1.77	1.67	5.81
Mortality (%)	7.39	7.44	0.27

Discussion

The findings of the present field study demonstrate that dietary supplementation with PHYTOGIC at 150 g/ton improved broiler growth performance under commercial deep-litter and heat-stress conditions. Broilers receiving PHYTOGIC exhibited an 8.22% increase in final body weight compared to the control group, indicating enhanced nutrient utilization and metabolic efficiency. This improvement is consistent with previous reports showing that *Macleaya cordata* extract and its major alkaloid, sanguinarine, can promote growth by reducing intestinal inflammation, stabilizing gut microbiota, and improving nutrient absorption. The observed increase in feed intake (5.50%) in the PHYTOGIC group suggests that phytogenic supplementation may have positively influenced appetite or gut comfort, allowing birds to maintain adequate consumption despite environmental temperature stress.

Feed efficiency was also improved, as evidenced by reductions in FCR (1.75 vs. 1.80) and CFCR (1.67 vs. 1.77). This aligns with earlier studies reporting that sanguinarine-containing extracts suppress inflammatory pathways such as the HMGB1-TLR4-NF-κB axis, thereby reducing metabolic energy waste associated with immune activation. By lowering the inflammatory burden, PHYTOGIC likely allowed more dietary energy to be directed toward growth rather than immune-related maintenance.



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Improvements in FCR also support the hypothesis that phytogetic compounds enhance gut function through modulation of intestinal morphology and beneficial microbiota populations, as reported in previous research.

Weekly weight gain patterns showed some variation, with PHYTOGIC not consistently outperforming the control in all weeks. This may be attributed to fluctuating heat stress levels and daily feed intake variations typical of field conditions. However, despite these short-term variations, the cumulative performance benefits remained substantial by the end of the production cycle.

Importantly, mortality rates were nearly identical between treatments (7.39% vs. 7.44%), indicating that PHYTOGIC supplementation did not impose any negative health effects and is safe for use under commercial conditions. The lack of impact on mortality also suggests that the performance improvements were not driven by survivability differences but by true enhancement of growth and feed efficiency.

Overall, the results support the potential of PHYTOGIC as an effective phytogetic alternative to antibiotic growth promoters. Its ability to improve growth performance and feed efficiency, even under extreme heat, aligns with its known anti-inflammatory, antimicrobial, and gut-modulating properties. The findings strengthen the evidence that phytogetic compounds derived from *Macleaya cordata* can contribute to sustainable poultry production by enhancing physiological resilience and intestinal health.

Conclusion

The trial was conducted in the extreme heat season where average temperature in the surrounding was around 42-45 degree Celsius. The T2 (PHYTOGIC) groups showed overall improved performance compared to the T1 (Control) group. Specifically, the body weight of T2 (PHYTOGIC) was 8.22% higher than T1 (Control), indicating better growth. Feed Conversion Ratio (FCR) and Corrected FCR (CFCR) were both lower in T2 (PHYTOGIC) by 2.81% and 5.81%, respectively, demonstrating more efficient feed utilization in the T2 (PHYTOGIC) group than T1 (Control). Mortality rates were nearly identical between the two groups, indicating that the supplement did not adversely affect survival. Overall, PHYTOGIC supplementation resulted in better growth performance and feed efficiency compared to the control with no significant impact on mortality.



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Comprehensive Biosecurity Strategies in Modern Poultry Hatcheries

A Technical Manual for Industry Success

Dr Abhijit Paul, Dr Rajeeb Kumar Roy

Abstract: Biosecurity in poultry hatcheries is not a single event but a continuous discipline. As the bridge between the breeder farm and the commercial broiler or layer facility, the hatchery represents a critical "bottleneck" where pathogens can either be eliminated or amplified. This article explores the multi-faceted layers of biosecurity, ranging from architectural design and chemical kinetics to the microscopic battle against biofilms.

I. Architectural Biosecurity: The Logic of Spatial Flow

The most effective biosecurity measures are those "built-in" to the facility. A hatchery's physical layout acts as the first line of defense against cross-contamination.

1. The One-Way Workflow (Linear Progression)

A high-biosecurity hatchery must operate on a **unidirectional flow** principle. This means that people, eggs, air, and equipment move in one direction—from "clean" areas to "dirty" areas—without ever retracing their steps.

- **Zone A (Cleanest):** Egg receiving and cool storage.
- **Zone B (Clean):** Setter rooms (incubation).
- **Zone C (Transition):** Transfer areas.
- **Zone D (Dirty):** Hatcher rooms and chick processing.
- **Zone E (High Risk):** Wash bays and waste disposal.

2. Ventilation and Pressure Gradients

Pathogens like *Aspergillus* (fungal spores) and viral particles are often airborne. To manage this, hatcheries utilize **differential air pressure**:

- **Setter Rooms:** Maintain high positive pressure to push air out, preventing contaminants from entering.
- **Hatcher Rooms:** Maintain negative pressure relative to the hallways. This ensures that the "fluff" (down) generated during hatching is sucked into the exhaust system rather than drifting into clean zones.

II. The Microbiology of Contamination

Understanding the enemy at a microscopic level is essential for selecting the correct hygiene protocols.

1. The Eggshell: A Biological Fortress

The avian eggshell is a semi-permeable membrane containing up to 17,000 microscopic pores. While the **cuticle** (the waxy outer layer) provides an initial barrier, it is easily damaged by improper washing or condensation ("sweating").

- **The Cooling Vacuum:** When an egg is laid (41°C) and enters a cooler environment (20°C), the internal contents contract. This creates a vacuum that can pull surface bacteria—such as *Salmonella*—directly through the pores and into the yolk sac, where they are protected from surface disinfectants.

2. Biofilms: The Invisible Shield

On hatchery equipment, bacteria do not usually live in isolation. They form **biofilms**—complex colonies encased in a protective "slime" of extracellular polymeric substances (EPS).

- **Why Cleaning Comes First:** Standard disinfectants cannot penetrate a mature biofilm. This is why **mechanical scrubbing** and the use of **alkaline detergents** are mandatory. The detergent breaks the surface tension and dissolves the EPS, exposing the bacteria to the subsequent disinfectant.

III. The Three Pillars of Sanitation: A Technical Breakdown

1. Cleaning (The 90% Rule)

Physical cleaning removes the organic load (blood, yolk, feathers) that would otherwise neutralize chemical agents.

- **Methodology:** Dry cleaning (vacuuming) should always precede wet cleaning to prevent the spread of dust. High-pressure washing (1,000 - 1,500 PSI) is effective but must be used carefully to avoid aerosolizing pathogens.

2. Disinfection (Chemical Selection)

Chemical Group	Mechanism of Action	Industry Application
Phenolics	Denaturation of proteins	Floor and footbaths; remains active in organic matter.
Quaternary Ammonium	Cell membrane disruption	General surface sanitizing; low toxicity.
Oxidizing Agents	Oxidation of cellular components	Effective against viruses/spores; high efficacy at low temps.

3. Fumigation: The Formaldehyde Debate

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IV. Integrated Pest Management (IPM)

Biological vectors can bypass even the most expensive disinfection protocols.

1. Rodent Control

Mice and rats are primary carriers of *Salmonella Enteritidis*.

- **Physical Barriers:** A 1-meter-wide perimeter of crushed stone or gravel around the building prevents rodents from burrowing near the walls.
- **Monitoring:** Use of tamper-resistant bait stations every 15-20 meters around the perimeter.

2. Insect Vectors: The Lesser Mealworm

The Lesser Mealworm (*Alphitobius diaperinus*) is notorious for living in the insulation of hatchery walls. They can carry *Campylobacter* and *Marek's Disease* virus.

- **Control:** Residual insecticide application during the annual "deep clean" when the hatchery is empty.

V. Audit and Validation: Proving It Works

Biosecurity is not a matter of faith; it is a matter of data.

- **Agar Contact Plates (RODAC):** Used to sample flat surfaces post-disinfection. A "Pass" is typically < 10 Colony Forming Units (CFU) per plate.
- **Hatchery Fluff Sampling:** Collecting the down from the hatcher. This is the ultimate "report card" for hatchery hygiene. If fluff contains high levels of *Enterobacteriaceae*, the upstream cleaning process has failed.

VI. Conclusion

A biosecurity program is only as strong as its weakest link. By combining strategic architectural design with a deep understanding of microbial biofilms and a rigorous chemical rotation, hatchery managers can ensure the production of robust, pathogen-free chicks. This not only protects the economic interests of the producer but also safeguards public health by ensuring a safe food supply.

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

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

Invest in Chicks, Reap the Rewards: Poultry Profit Blueprint

¹Dr.Sayed Mushtaque and ²Dr. Akash Wadal

Introduction

Day-old chick quality refers to the overall health and condition of newly hatched chicks and is a critical factor in poultry production. It encompasses multiple characteristics such as hatchability, chick physical condition, vitality, uniformity, and cleanliness, as well as the absence of deformities or infections. The quality of day-old chicks is influenced by a chain of sequential events starting from the egg laying by breeder flocks, egg collection and storage, incubation conditions, hatching, post-hatch chick handling (including vaccination and transport), to the farm reception environment. Each step can impact final chick quality through technical, hygienic, or management failures.

The importance of day-old chick quality in poultry production lies in its direct relationship to subsequent growth performance, survival rates, and overall profitability. Healthy, high-quality chicks are more likely to grow efficiently into strong broilers, layers, or breeders, meeting production goals. Conversely, poor chick quality leads to increased mortality, susceptibility to disease, and lower production yields. Therefore, evaluating and ensuring day-old chick quality helps optimize the entire production process, providing valuable information for improving hatchery and farm practices to produce uniform, vigorous chicks with good growth potential. This assessment includes key parameters such as chick vitality, navel condition, physical traits, and overall uniformity, typically done through practical sampling

in commercial hatcheries to maintain production standards and maximize economic outcomes.

Physical indicators are essential to assess day-old chick quality, reflecting their health status and potential for productive growth. Key physical indicators include:

Body Weight and Uniformity: Body weight is widely used for chick quality assessment. Uniformity in weight among chicks indicates consistent development and better flock performance. High uniformity (more than 90%) minimizes weak chicks, reducing mortality and ensuring synchronized growth. Lower weights or high variability could signify breeding or incubation problems.

Chick Length: Measuring chick length (from beak to tip of middle toe) provides information on embryonic development. Length is positively correlated with body weight and overall vitality. Typical chick length ranges vary by breeder age but shorter chicks often have poorer growth potential.

Feather Condition and Color: Good-quality chicks have fluffy, dry, and clean feathers free from yolk or meconium. Feather color uniformity indicates even yolk absorption; the color tone per se is less critical. Flat feathers (especially on head and neck) may indicate incubation temperature issues, potentially affecting chick vitality.

Vitality and Behavior Observations: Healthy chicks are lively, alert, and responsive. A simple vitality test involves placing a chick on its back and observing if it rights itself within 2-3 seconds. Bright, round eyes and active movements signal good quality, while lethargy, abnormal postures, or leg weaknesses indicate problems.

Physical and behavioral indicators and scoring systems such as the Tona and Pasgar scores:

Activity Levels and Alertness: High-quality chicks exhibit active movements, quick responsiveness, and

alertness. They respond promptly to stimuli, and do not show lethargy or slow reactions.

Posture and Responsiveness: Good chicks maintain proper posture, stand evenly, and can right themselves quickly when placed on their backs (usually within 2-3 seconds). Abnormal posture or inability to recover quickly indicates weakness or developmental issues.

Navel and Belly Examination:

Navel Closure and Cleanliness: The navel should be fully closed, dry, and free of infections, yolk residue, or dried membranes. Poor closure or contamination increases susceptibility to infections.

Belly Condition and Size: The belly should be firm but not overly distended. A thick or overly large belly may indicate yolk sac inflammation or infection, while a very small belly may reflect inadequate yolk absorption.

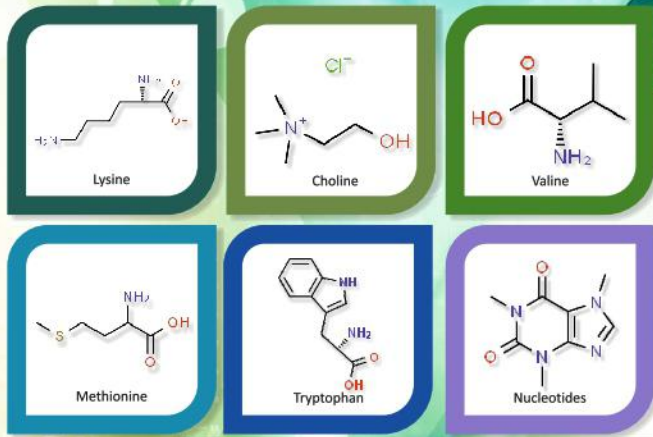
Limb and Beak Quality:

Leg Conformation and Strength: Legs should be straight, with good muscle tone, no deformities, redness, or swelling. Strong legs support normal mobility and overall chick robustness.

Beak Shape and Integrity: The beak should be well-formed, symmetrical, and free from deformities or damage, which are essential for feeding efficiency.

Scoring Systems for Chick Quality:

- **Tona Score:** This is a comprehensive scoring system that evaluates multiple chick quality parameters, including activity, navel condition, legs, beak, and belly, assigning scores often between 0-100. Higher scores indicate better chick quality, and the system can differentiate subtle gradations in chick condition for scientific and practical hatchery use.



To achieve high efficiency poultry farming, a finely balanced feed formula with high bioavailability of feed nutritional fractions especially of critical ingredients including limiting amino acids, trace minerals etc., are required. To attain this balance, supplementation becomes extremely crucial to attain maximum bird performance and productivity.

Supplementation of limiting amino-acids and other related nutritional ingredients including major and trace minerals can support in improving the bird performance by assisting in providing additional nutritional molecules, to make up for any deficiency of critical nutrients in feed and feed ingredients.

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- **Pasgar Score:** A simpler, easy-to-use method inspired by the human Apgar score. It consists of five key evaluation points—reflex (vitality), navel, legs, beak, and belly—scored either 0 or 1 depending on the presence or absence of defects. The perfect score is 10, indicating no defects, while lower scores indicate problems. The Pasgar score is quick to perform and practical for hatchery staff, providing a reliable snapshot of chick quality related to common incubation and handling issues

Pasgar and Cervantes Methods:

- The Pasgar score is a simple, practical, and quick chick quality assessment method based on five evaluation points: reflex (vitality), navel, legs, beak, and belly. Each parameter scores 0 (normal) or 1 (defective), with a perfect score of 10 indicating no defects. It is easy to teach and useful in hatcheries for monitoring incubation and handling quality.
- The Cervantes method is a semi-quantitative assessment similar to Pasgar but includes additional factors such as bacterial contamination evaluation. Both methods assess activity, posture, belly, navel, legs, beak, and eyes to reflect chick quality comprehensively. These methods have some subjectivity but provide practical, repeatable scores.

Yolk Sac and Residual Yolk Assessment:

- Residual yolk is the yolk sac that remains unabsorbed by the chick at hatch. Proper yolk absorption is essential as it provides nutrients and immunity.
- Yolk sac examination includes visual and weight assessments to detect infections, size, and absorption efficiency.
- Residual yolk weight (RS) is measured and used along with body weight (BW) to calculate Yolk Free Body Mass (YFBM): $YFBM = BW - RS$.
- Optimal YFBM should be over 90% with less than 10% residual yolk relative to body weight, indicating good yolk utilization and chick quality.

Temperature and Health Checks:

- Cloaca Temperature Measurement is done to assess chick health and thermal status soon after hatching.
- Normal cloaca temperature indicates proper thermoregulation; deviations might signal health or environmental stress.
- Crop Fill Score evaluates feeding status; well-fed chicks show a full crop, indicating they have started feeding properly post-hatch, which is critical for early growth and survival.

Microbiological Evaluation:

Microbiological evaluation is crucial for chick quality control as bacterial and fungal contamination can severely impact chick health and survival. Sampling involves collecting swabs from critical sites such as the navel, yolk sac, and chick fluff to culture for bacteria and

fungi. Common contaminants include coliforms and Salmonella species, which may indicate hatchery hygiene issues.

Sampling for Bacterial and Fungal Contamination:

Practical hatchery sampling typically selects representative batches, with 15-30 chicks per group. Swabs are taken aseptically from navels or yolk sacs and cultured on selective media to detect contaminants. This aids early correction of sanitation and incubation failures.

Hatch Window and Hatchability Impact on Quality: The hatch window—the time span during which chicks hatch—affects chick quality. Prolonged hatch windows mean some chicks remain in the incubator too long, facing dehydration or stress, reducing their vitality. Uniform, short hatch windows promote better quality and synchronization within flocks. Hatchability rates reflect overall incubation success, with poor hatchability often linked to lower chick quality.

Practical Sampling Techniques for Quality Control:

Hatcheries use practical sampling by selecting chicks from multiple baskets or trays throughout the facility, sampling for weight, navel condition, activity, and microbial contamination. This sampling balances scientific accuracy with operational feasibility.

Correlation of Chick Quality with Later Growth Performance:

High-quality day-old chicks generally show better growth rates, feed efficiency, and survival through the production cycle. Poor quality chicks often require more care, have higher mortality, and result in economic losses.

Conclusion: Best Practices for Ensuring High-Quality Chicks

- Maintain breeder flock health and nutrition to produce optimal eggs.
- Ensure clean, hygienic nest and egg handling practices.
- Optimize incubation conditions (temperature, humidity, CO₂, turning).
- Minimize hatch window durations and ensure rapid chick processing.
- Implement routine navel and microbiological monitoring.
- Use standardized scoring methods (Pasgar, Tona) for objective quality assessment.
- Ensure early feeding and environmental control on farms to support chick vitality.

¹Dr. Sayyed Mushtaque and ²Dr. Akash Wadal

¹General Manager-Breeder and Hatcheries

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Organizational Resilience and Supply Chain Agility through Transformational Leadership Mechanisms within the Indian Poultry Medicine Industry

Jyoti Prakash Mishra¹, Dr. Samata Jain²

Abstract:

The existing environment in the Indian poultry medicine industry can be described as a high-stakes situation, supported by the presence of a regular threat of biological risks and frequent supply-chain disruptions. The study focuses on the purpose of transformational leadership (TL) as a triggering factor to organizational resilience and supply-chain agility (SCA) in this area of expertise. By methodically examining interplay between leadership behaviors and systemic responsiveness, the research also outlines that the elements of TL, i.e. idealized influence and intellectual stimulation, play a significant role in the development of culture that allows a rapid adaptation. The empirical evidence means that TL is not just an internal performance enhancer, but is in fact the process of reconfiguring the supply-chain capabilities such that they can survive the bio containment shocks. The article contributes a new theoretical framework which connects behavioral constructs of leadership and operational agility and thus provides the agri-business stakeholders with a strategic guide to maintain the market stability amid volatility. In highlighting the poultry health-sector setting, the investigation underscores the fact that the concept of leadership forms the soft warehouse that supports the hard supply chain resilience.

1. Introduction

The Indian poultry medicine industry is a silent fortress of national food security but it is facing unprecedented volatility. Since the degree of global active pharmaceutical ingredient (API) flows and the sudden appearance of zoonotic pathogens, the survival of the sector depends on its ability to change a direction as soon as possible. The idea of the Organizational Resilience (i.e. the capacity to withstand shock and become more resilient) and the Supply Chain Agility (i.e. the speed at which a company reconfigures its logistics and distribution to adapt to market changes) lies at the core of such flexibility. The technological infrastructure is not something which can be done without but the human factor and

especially leadership is the main driver of such abilities. Transformational leadership, with its vision,

empathy, and intellectual stimulation (Bass and Riggio, 2006), seems to be the only style that can act as a guide through the uncertainties that plague the current agrifood environment. Leaders can develop a workforce that views crises as drivers of innovativeness instead of stability-threats by nurturing high levels of hope, efficacy, resilience, and optimism among their employees, which is known as Psychological Capital (PsyCap) (Luthans et al., 2007). This study challenges the specifics of how a transformational leadership mechanism contributes to Supply Chain Agility and resilience in the Indian context. The purpose of the study is to provide an empirical basis of applying behavioral science to agri-business strategy to make certain that the human bio-shield has the strength of the medicines it assists in their synthesis.

2. Literature Review

It is now clear that the intersection of leadership and operational agility has gained significant momentum in

modern management literature. It is mostly recognized that transformational leadership (TL) helps increase employee commitment during structural changes (Avolio and Yammarino, 2013). Inside the supply chain management, TL cultivates what researchers call relational capital, which is an important resource that supports the smooth flow of information that is necessary to ensure agility (Gligor et al., 2020).

In the particular case of bio- security in India, which is faced by the frequent outbreaks of H5N1, a sense of systemic friction prevails in that traditional models of transactional leadership is not well equipped to address (Rani and Gupta, 2021). Recent literature argues that supply chain agility (SCA) is not just a technological achievement, but a behavioural model that requires leaders to have the rhetorical and motivational capabilities to influence employees to move beyond established standard operating procedures (SOPs), especially during times of crisis (Christopher, 2016). Additionally, the psychological capital of employees (PsyCap) serves as a crucial mediator, converting leadership purpose into working stamina by mitigating anxiety and promoting pro-activity levels among both field staff and laboratory employees (Luthans and Youssef-Morgan, 2017).

However, there exists a strong lacuna: the majority of empirical studies are limited to the information technology or manufacturing industry. A definite lack of research has been revealed about how these leadership-agility-resilience mechanisms are manifested in the poultry medicine industry in India, where the product, animal health, and process, bio-security, are inseparably linked to the public safety. The current study attempts to fill this gap by critically analysing the particular leadership- agility-resilience triad in Indian agri-business, a move that will help refine the knowledge on the organizational dynamics in a key industry.



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3. Study Methodology

This research utilizes a mixed-methods approach to provide a holistic view of the industry.

- **Quantitative Phase:** A cross-sectional survey was conducted with 215 managers and supply chain professionals from 12 leading poultry medicine firms in India (hubs like Pune, Hyderabad, and Karnal). Validated scales like the MLQ-5X for leadership and the PsyCap Questionnaire (PCQ-24) were employed.
- **Qualitative Phase:** 10 in-depth interviews with CEOs and Operations Heads were conducted to capture "leadership in action" during the recent API supply disruptions.
- **Sampling:** Multi-stage cluster sampling was used to ensure regional diversity.
- **Analysis:** Quantitative data was analysed using Structural Equation Modelling (SEM) to test the mediation effect of agility on the leadership-resilience relationship. Qualitative data underwent thematic analysis.
- **Ethics:** The study adhered to the Declaration of Helsinki, ensuring informed consent and strict data confidentiality.

4. Findings

The findings reveal a significant positive relationship between Transformational Leadership (TL) and Supply Chain Agility (SCA) ($\beta = 0.58, p < 0.001$).

Key Insights:

1. **Intellectual Stimulation:** This TL dimension had the strongest impact on SCA, suggesting that when leaders encourage employees to "think outside the box" regarding logistics, the firm responds 30% faster to bio-security shocks.
2. **Agility as a Mediator:** SCA was found to partially mediate the relationship between TL and Organizational Resilience. Leadership alone builds the culture, but agility provides the mechanism through which that culture saves the organization.
3. **PsyCap Impact:** Higher levels of resilience and optimism in the workforce were correlated with 22% lower lead times during vaccine distribution crises.

Regional Nuances: Firms in Southern India showed higher agility scores, likely due to better-integrated cold-chain leadership compared to Northern clusters..

5. Results & Analysis

The research results support the claim that in the Indian poultry medicine industry, transformational leaders are systemic stabilizers. Unlike the traditional management, where the focus is the build-up of stocks and application

of buffers, strategic flexibility is what transformational leadership focuses on. Through the Psychological Capital development of the workforce, leaders guarantee that the psychological response to supply-chain disruptions is proactive rather than circumstantial.

Comparing it to the agility model proposed by Christopher (2016), our research adds a new layer of leadership that explains the existing difference in the agility demonstrated by some companies, despite their agility being almost equal in terms of technology capabilities. However unlike the dominant perception that bio-based security compliance is an activity that is only achieved when vigilance is upheld, our evidence indicates that compliance is at its peak when leaders utilize idealized influence in a way that fosters a partnership relationship with employees in the context of public health. This paradigm shift, a monitoring-centric to a mentoring-centric approach, is the keystone to resilience in the Indian milieu where informal supply-chain networks often work better than their formal counterparts during the complete lockdown or crisis.

6. Conclusion

This paper has shown that transformational leadership is not a luxury but a strategic necessity of the Indian poultry medicine industry. The ability to overcome bio-security volatility and supply-chain disruptions will be determined by the capacity of leaders to develop agility by empowering them psychologically.

Recommendations:

- **Leadership Development:** agribusiness companies should invest in the Soft Power training of the warehouse and logistics managers.
- **Agile mentality:** shift to a Just-in-case logistics paradigm, and use just-in-time mindset to justify with Just-in-Case mentality, style of leadership which values the importance of decentralized decision-making.
- **Policy Support:** government actors ought to recognize the human aspect in bio-security and establish that leadership training be a part of veterinary pharmaceutical grant programs.

Future Research: Empirical studies are required to test how Digital Leadership (e-leadership) affects the control of remote cold-chains in rural India.

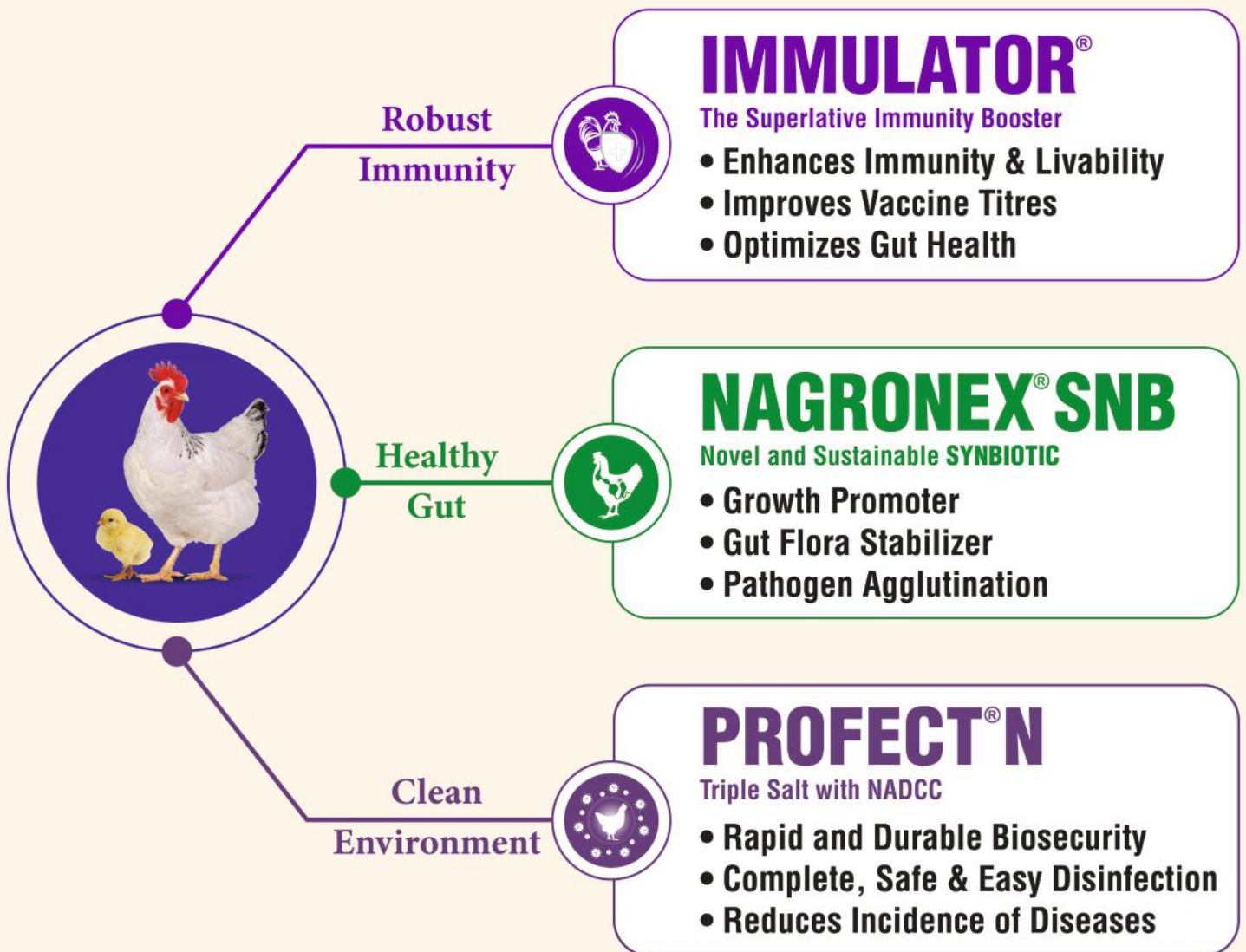
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Why microbial load and physical form matter in poultry

Dr. Alastair Thomas

Global Head of Poultry Nutrition and Health at Anitox

While modern feed formulation establishes nutrient specifications, true animal performance is driven by the composition and quality of the feed matrix delivered to the animal. While poultry diets are formulated to digestible amino acids, energy density, and mineral balance, birds ultimately consume a manufactured material whose microbial profile and physical structure are shaped by ingredient sourcing, milling, and distribution. Two practical dimensions—microbial load (including pathogen risk) and physical quality (pellet durability, particle size distribution, and fines)—can materially influence intestinal function, flock uniformity, and the efficiency of converting feed inputs into meat and eggs.

Feed is not just nutrition; it is also a microbial exposure route

Feed is distributed at scale and delivered routinely across integrated production systems, making it an efficient pathway for microorganisms to move downstream. A systematic review and meta-analysis estimated that approximately 9% of finished feed samples were *Salmonella*-positive across published studies, with detection also reported in raw ingredients and manufacturing environments (Parker et al., 2022). Importantly, contamination is not only an incoming ingredient issue; the mill environment can contribute through persistence and spread. In Great Britain, *Salmonella* was isolated from 20 of 22 commercial feed mills producing broiler rations using extensive dust and swab sampling (Davies & Wray, 2021).

From an animal perspective, elevated microbial pressure drives early microbiome evolution which is foundational to intestinal development and nutrient absorption. When microbial communities are unstable, the gut may shift toward a more defensive state, often with consequences for growth consistency and feed efficiency.

What processing does (and does not) solve

Thermal processing is helpful, but it does not guarantee sterility—particularly when recontamination occurs after heat treatment (e.g., during cooling, conveying, storage, or transport). Research has shown pelleting conditions can effectively reduce *Salmonella* levels in the feed, but incomplete lethality and post-process recontamination mean additional control measures are still required (Jones, 2011).

Where mills apply more intensive process interventions, reductions can improve. A feed manufacturing study using *Enterococcus faecium* as a *Salmonella* surrogate, determined standard pelleting achieved roughly a 3-log reduction in cells numbers, while more thermally aggressive pelleting with a Hygieniser system achieved

roughly a 4-log reduction (Boltz et al., 2019). The operational takeaway is that microbial management is best approached as a production program: upstream risk reduction, validated processing, and downstream control to limit recontamination.

Evidence that reducing feed-associated pressure can influence *Salmonella* outcomes in birds

Beyond the mill, the practical question is whether feed hygiene and microbial management translate into outcomes relevant to food safety and flock performance. Research has shown that that organic acids delivered in feed were associated with substantially reduced odds of *Salmonella*-positive crop samples in broilers relative to controls (Wang et al., 2025). Although organic acids represent only one intervention class, these findings reinforce a broader principle: what enters birds via feed can influence colonization dynamics in key gastrointestinal sites.

Microbial challenges that raise food safety risks can likewise contribute to increased weight variability and poorer digestibility, particularly during early life stages when the gut and immune system are still maturing. Feed sanitizers can provide an additional, scalable tool to reduce the microbial load delivered via feed. Applied to raw materials and/or finished feed, they are intended to lower overall microbial levels and help manage post-processing recontamination risk during storage, transport, and on-farm handling. In a recent broiler breeder study, reducing feed microbial load was associated with downstream hygiene benefits, including reduced eggshell surface microbial load and improved chick quality indicators, supporting the concept that feed microbial status can influence early-life exposure (Avila et al., 2023).

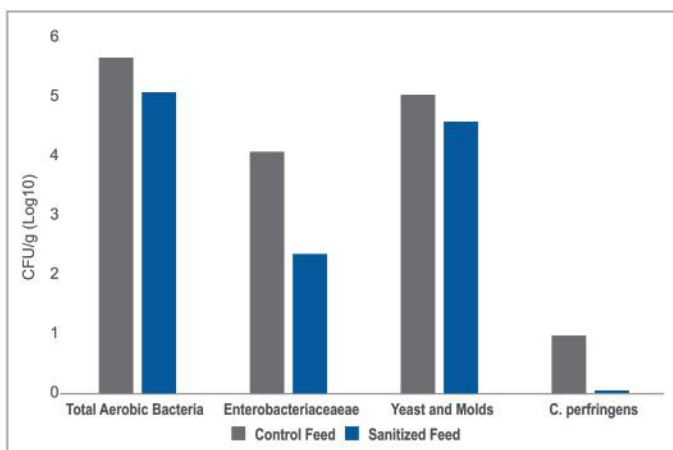


Figure 1. The impact of sanitization on the microbial load of mash broiler-breeder feed



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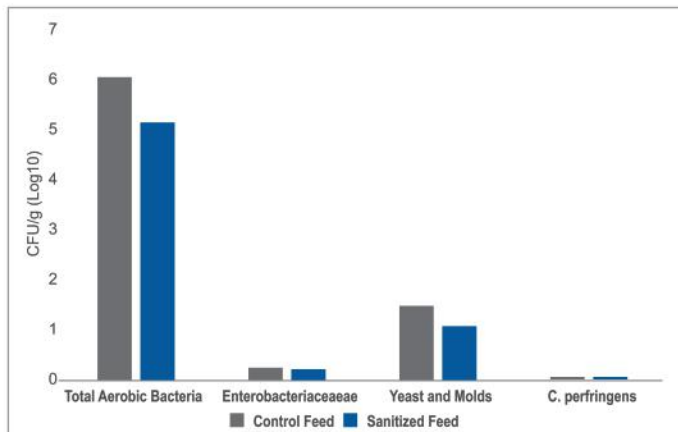


Figure 2. The impact mash feed sanitization on the microbial load of eggshell surfaces in broiler-breeder hens

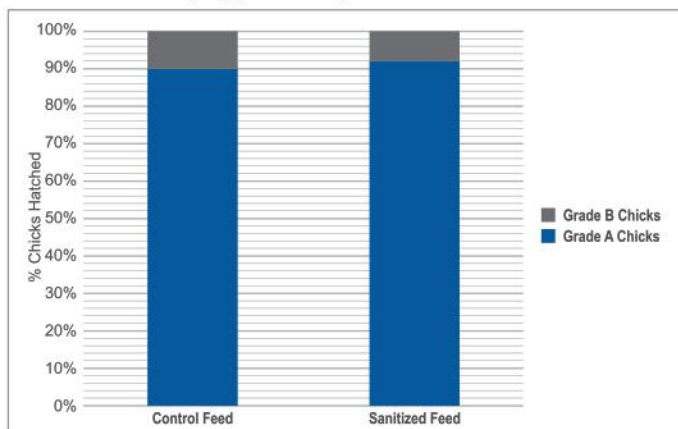


Figure 3. The impact of mash feed sanitization on chick quality of broiler breeder hens

Physical form is a performance variable, not a cosmetic preference

Feed quality also depends on physical characteristics established between formulation and consumption. Pellet durability, particle size distribution, and the proportion of fines can affect intake behavior, nutrient delivery consistency, and feed wastage. Excess fines can increase sorting, reduce uniformity of consumption, and compromise overall performance.

In a broiler study that varied pellet-to-fines proportions across a 63-day production period, higher fines inclusion was associated with poorer feed conversion and unfavorable carcass yield outcomes compared with pellet-containing treatments (McCafferty & Purswell, 2023). The economic implication is straightforward: if physical form increases intake inefficiency or non-uniform consumption, the value of an optimized formulation is diluted before it reaches the bird's metabolism.

Enteric disease pressure amplifies the value of consistent feed quality

Enteric challenges—whether from coccidial cycling, dysbiosis, or necrotic enteritis (NE)—create periods when birds are less tolerant of additional stressors. During these times, even modest increases in microbial load or inconsistencies in intake can magnify performance penalties.

Under NE challenge conditions, blended organic acid strategies have been reported to mitigate aspects of subclinical NE impact, including improvements in feed

efficiency measures relative to challenged controls (Kumar et al., 2021). Additional challenge work performed by Colorado Quality Research indicates that sanitized feed was associated with improved health-related outcomes under NE pressure, including reduced NE-related losses and improved survivability metrics versus controls (Figure 4). Practically, the value of microbial and physical consistency may be greatest during early life—when gut development is most sensitive—and during ration changes, when variability in intake and exposure can increase. These measures do not replace broader NE control programs; rather, they can reduce background feed-associated pressures that compound disease susceptibility.

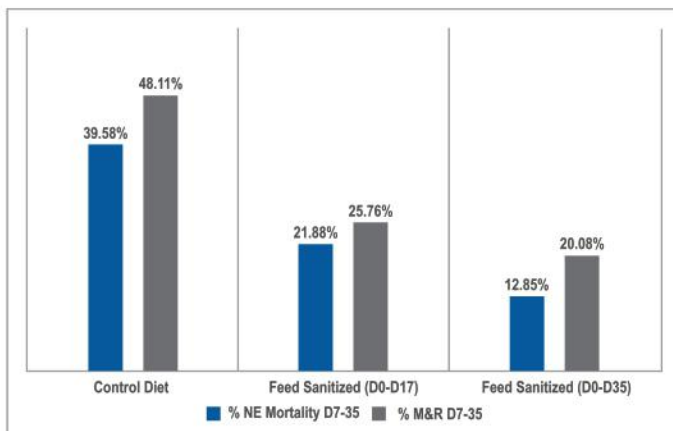


Figure 4. Birds fed sanitized feed demonstrated lower NE-related mortality and mortality and removal (M&R) in a NE challenge model compared to birds fed a control diet.

Practical strategy: manage microbial load and physical form as one program

For most operations, the actionable question is where to intervene in a way that is measurable, repeatable, and cost-effective.

1. **Treat feed hygiene as a core control point:** Because feed moves daily across production chains, it is a reliable touchpoint for consistent microbial risk reduction.
2. **Reduce microbial load and protect against recontamination:** Validate thermal processing, then implement sanitation and post-process controls to minimize reintroduction of contaminants.
3. **Optimize pellet quality as a biological KPI:** Monitor pellet durability and fines as outcomes tied to consumption efficiency, uniformity, and yield.
4. **Prioritize high-impact windows:** Early life, ration transitions, and predictable disease-pressure periods are times when microbial and physical consistency can deliver the greatest return.

Managing feed hygiene and physical form aligns food safety objectives with performance outcomes. By reducing avoidable microbial exposure and maintaining consistent intake, producers can support gut resilience and uniformity while improving the efficiency with which feed inputs are converted into meat and eggs.

To learn how managing feed microbial load and physical quality can support gut resilience, flock uniformity, and feed efficiency, Clean Feed Expert today.



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NOVUS Releases Global Soybean Data, Highlights Risk Hidden in Poultry and Swine Diets

Soybean meal is a mainstay of poultry and swine diets worldwide but variability in soybean quality creates hidden risks, both nutritionally for the animals and economically for producers.

A new white paper from NOVUS draws on more than a decade's worth of data to explain why trypsin inhibitor (TI) in soybean meal is a persistent and often underestimated challenge in modern feed formulation.

"Soybean meal is the greatest protein contributor in most diets, yet its nutritional value is often assumed rather than measured," says Rasha Qudsieh, NOVUS global enzymes and microbials senior manager. "Our data from more than 1,900 soybean meal samples globally shows that trypsin inhibitor levels are highly variable across regions, years, and processing methods, and even small increases in TI can negatively impact amino acid digestibility, feed efficiency, and animal performance."

Trypsin inhibitors are part of a plant's natural defenses that also interfere with protein digestion. While commonly associated with under-processed soy, NOVUS research found that TI can persist even in commercially processed soybean meal with measurable effects on gut health and growth in both poultry and swine.

"We've analyzed hundreds of soybean meal samples globally, creating an extensive database on trypsin inhibitors. We've also invested years developing practical methods to measure TI accurately," says Paula Fisher, NOVUS analytical services senior manager. "This paper

shares what we've learned and explains why routinely monitoring TI is becoming increasingly important for nutritionists who want consistency in animal performance and predictability in their financial returns."

The white paper called *Outsmarting Trypsin Inhibitors* includes information on

- Why there is no "safe" level of TI where animal feed is concerned
- How TI levels vary globally and across soybean products
- Why heat processing alone does not eliminate risk
- The documented impacts of TI on poultry and swine performance
- Practical strategies for measuring and managing TI-related risk

NOVUS plans to update the white paper annually to reflect new information collected in its Global Trypsin Inhibitor Database, providing the industry with an evolving view of soybean quality and TI trends.

The white paper is available for digital download at novusint.com/resources.

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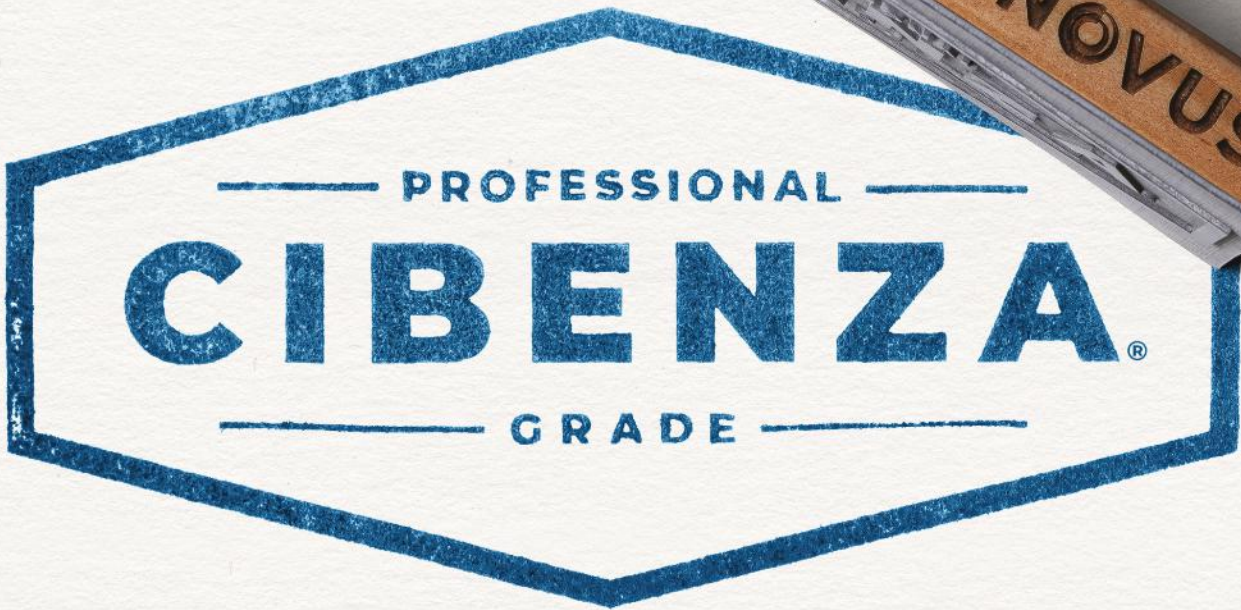
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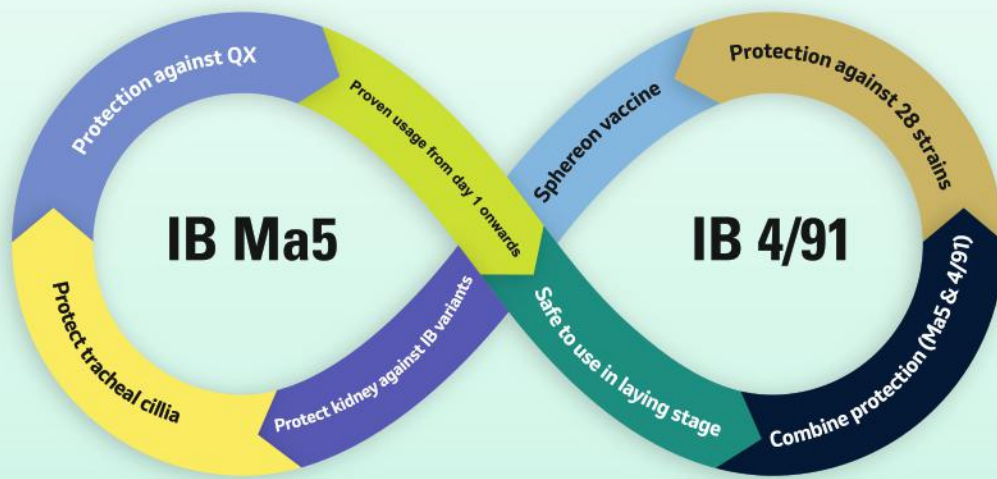
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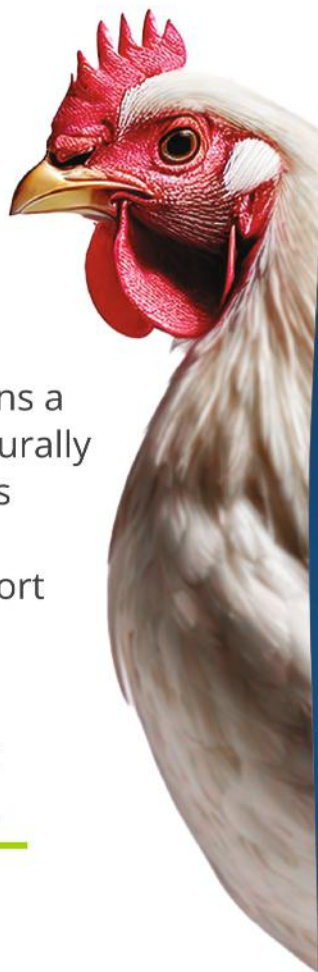
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